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# FAKE REVIEWS AND MANIPULATION: DO CUSTOMER REVIEWS MATTER?

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# **FAKE REVIEWS AND MANIPULATION: DO CUSTOMER REVIEWS MATTER?**

*Research paper*

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## **Abstract**

*With the prevalence of fake reviews across web and e-commerce platforms it has become difficult for the customers to make an informed purchase decision. Considering this we examine the influence of review manipulation on customer's purchase decision. A qualitative approach employing interviews with frequent online shoppers was employed to explore the phenomenon. The results of the study suggest that customers accord recommendations from their social network more weightage than the reviews available on an e-commerce platform. Further, we found that customers apply either or both interactive and extractive strategies to deal with review manipulation.*

*Keywords: information processing, review manipulation, fake reviews, grounded theory.*

## 1 Introduction

*Should I buy a Nikon D750? I got confused after reading Canon users' reviews*

*Do people get paid to give good reviews on Amazon, Flipkart, and other e-commerce sites?*

*What percentage of online consumer reviews are fake?*

- *Questions asked on Quora.com*

These are some of the questions asked on Quora. Quora is a popular question-answer website which allows people to collaborate and seek answers to the questions that affects them. With the prevalence of fake reviews across web and e-commerce platforms, these questions reflect the mind of today's consumers who are extremely concerned about the authenticity of product reviews hosted on various e-commerce sites. Various survey results further demonstrate customer's outlook towards online reviews. For instance, Smith and Anderson (2016) report that 67% of the weekly online American shoppers read online reviews before making a purchase. However, many of them have reservations about the authenticity of these reviews. Hence, approximately 55% of Americans also browse online product review videos. A recent survey by Economic Times (2017) highlight that people find significant variation between the online reviews and the final product received. Only about 56% of customers find reviews on e-commerce platforms as trustworthy. These results suggest that customers find reviews difficult to decode and not trustworthy, and thus have hard time making a purchase decision.

Literature on online reviews have always considered reviews to be helpful. Initially, literature on online reviews focussed on outcomes at two levels: market and individual. Studies (e.g. Chevalier and Mayzlin, 2006; Duan, Gu, and Whinston, 2008; Luca, 2016) related to market level analysis established the relationship between customer reviews and product sales. While studies (e.g. Erkan and Evans, 2016; Park, Lee, and Han, 2007) on individual level analysis established a positive influence of customer reviews on purchase intention, research at micro-level analyses suggest that, what, how, and which aspect of review makes them helpful. Hu, Bose, Koh and Liu (2012) found that deceptive sellers use both numerical ratings and review text to manipulate the online reviews present on the e-commerce platform. However, it is generally not known how customers actually sense the reviews to be. Moreover, little is known about the influence of fake reviews or review manipulation on customer's behaviour. Fake reviews are "deceptive reviews provided with an intention to mislead customers in their purchase decision making, often by reviewers with little or no actual experience with the products or services being reviewed. Fake reviews can be either unwarranted positive reviews aiming to promote a product or unjustified false negative comments on competing products in order to damage their reputation" (Zhang, Zhou, Kehoe and Kilic, 2016, pp.457 ).

With respect to this phenomenon, several studies in Information Systems (IS) have investigated the factors that influence customer's purchase decision. For instance, researchers have investigated the role of user perception towards the website (Pavlou, Liang and Xue, 2007; Wells, Valacich and Hess, 2011), role of trust in the e-commerce platform (Gefen, Karahanna and Straub, 2003b), information quality (Mowen, Park and Zablah, 2007; Park et al., 2007; Cenfetelli and Schwarz, 2011), online customer reviews (Park et al., 2007; Zhang, Zhao, and Gupta, 2018), perceived deceptiveness of website (Mavlanova, Benbunan-Fich, and Lang, 2016; Zhang et al., 2018), and website amateurism (Mavlanova et al., 2016). Two recent studies in IS – Mavlanova et al. (2016) and Zhang et al. (2018) – have incorporated the construct of perceived deceptiveness in their study. Mavlanova et al. (2016) included perceived deceptiveness of a website which included the overall perception of website and tested its effect on perceived seller and product quality. On the other hand, Zhang et al. (2018) measured deceptiveness through misleading and distorted information in product recommendations and found a negative influence on decision-making quality. While the studies (e.g. Cao, Duan, and Gan, 2011; Mudambi and Schuff, 2010) dealing with online reviews have specifically focussed on helpfulness of the reviews and have not considered phenomenon of manipulation. It should be noted that most of the studies dealing with review manipulation have not considered previous knowledge of the respondents about review manipulation (Jin Ma and Lee, 2014). We therefore argue that customers with such knowledge may

respond to online reviews differently from those without knowledge. Thus, the objective of the study is to systematically understand the influence of review manipulation on customer's purchase decision. More specifically,

*RQ1: How do customers process online information before making a purchase decision?*

*RQ2: Does review manipulation influence customer's outlook towards online review systems and e-commerce platforms?*

*RQ3: Does knowledge of review manipulation influence customer's purchase? If so, what mechanism customers follow so as to not fall into the trap of manipulation?*

Existing quantitative research has not explained the information processing mechanism and how people deal with malpractices prevailing in the online environment. To provide new insights, we conducted an exploratory study by interviewing frequent online shoppers. Based on the exploratory study, we developed a theoretical model that helps us understand (a) the process flow of purchase decision-making, and (b) various factors that influence customers outlook towards online review system and e-commerce platform. We further classify the observed strategies based on Ramirez , Walther, Burgoon, and Sunnafrank (2002) information seeking strategies into extractive and interactive.

The findings of this study contribute to both theory and practice. Theoretically, it contributes to the IS literature on e-commerce in three ways: first, the theoretical model developed from the study contributes to the theory by highlighting how customers process information available in an online environment before making a purchase decision. Second, this study contributes by providing insight into the influence of online environment on consumer's attitude towards reviews, platform, and their purchase decision. Third, by understanding the consumer's response when aware of the company's involvement in unethical practices. Practically, our insights inform the platforms to indulge in practices which can help them attract customer.

## 2 Theoretical Background

With almost thousands of reviews present for a product on e-commerce platforms, a customer faces information overload in processing the online reviews posted by the fellow consumers. Online reviews on e-commerce platform are source of information for the purchasers. Previous, studies on online reviews have shown that reviews influence customer's decision in terms of which product to buy (Iyengar, Van den Bulte and Valente, 2011), which restaurant to dine (Godes and Mayzlin, 2009) , what to read (Chevalier and Mayzlin, 2006), which movie to watch (Gaikar, Marakarkandy and Dasgupta, 2015). However, with the review manipulation prevalent, research has also examined the characteristics of fake reviews. For instance, Ong, Mannino and Gregg (2014) explored linguistic characteristics of fake reviews by comparing shill reviews with genuine reviews. On comparison, both the reviews differed in terms of varied parameters such as informativeness, product usage experience, and readability. Although, a number of studies have examined the characteristics of fake (see Jindal and Liu, 2008; Mukherjee, Liu and Glance, 2012; Kumar, Venugopal, Qiu and Kumar, 2018). However, none of the studies have assessed the impact of online reviews and their manipulation on customer's purchase behaviour. Table 1 presents the review of literature in brief, which highlights the lacuna in the literature related to the influence of fake reviews or strategic manipulation in the consumer's decision making. Even the literature related to customers' purchase behaviour in IS (see Gefen, Karahanna and Straub, 2003a; Gefen et al., 2003b; Cenfetelli and Schwarz, 2011; Zhang et al., 2018; Polites, Karahanna and Seligman, 2018) have limited their examination to the factors either or both at individual and system level. Moreover, we argue that in order to examine customer's decision process mechanism holistically, environmental factors (such as offline and online environment) should also be examined.

Study	Objective	Platform Used
Hu et al. (2012)	Detection of manipulation from textual content and rating, impact of manipulation on product sales	Amazon.com

Jindal and Liu (2008)	Classification of reviews into three types: untruthful opinions, reviews on brands only, non-reviews	Amazon.com
Mukherjee, Venkataraman, Liu, and Glance (2013)	Comparison of reviews created by Amazon Mechanical Trunk and reviews (both filtered and unfiltered) present on Yelp	Yelp and Amazon Mechanical Trunk reviews
Mukherjee, Liu and Glance (2012)	Identification of fake reviewer groups	Amazon.com
Jindal, Liu and Lim (2010)	Identifying unusual review patterns	Amazon.com
Luca and Zervas (2016)	To examine the economic incentives to commit a review manipulation on a platform	Yelp.com
Lappas, Sabnis, and Valkanas (2016)	To examine how vulnerable an independent business is to fraud review attack	TripAdvisor
Lee, Qiu, and Whinston (2014)	To examine the impact of fake reviews on consumer welfare and effect of competition on firm's decision to manipulate	Simulated in Twitter-like environment
Mayzlin et al. (2014)	Examines the difference in the reviews distribution by comparing website which allows anyone to post reviews v/s website which allows only customers to post reviews	Expedia.com, TripAdvisor.com, Orbitz.com (for robustness check)
Mayzlin (2006)	To derive conditions under which online reviews are persuasive in equilibrium, i.e. online word of mouth influences consumer choice	Promotional chat
Dellarocas (2006)	To examine the impact of strategic manipulation on firm's performance and consumer welfare	Internet forums

Table 1. Literature Review of Online Fake Review Detection and Review Manipulation

Before setting the theoretical background for the study, it is important to understand the information processing behaviour of the customers. Since our objective is to understand the mechanism of customer's information processing in an online e-commerce environment, which contains both manipulated (fake) as well as non-manipulated (genuine) reviews. Dual-process theory as a theoretical lens help us assess the flow of information processing. However, to understand whether information has made an impact on consumer's mind, we use impression formation theory. As per dual-process theories, while processing information, individuals assess the information before forming decision (Zhang et al., 2014). Individuals can choose either of the mechanism to process the information (a) by putting effort in building beliefs and decisions or, (b) by using heuristics and applying cognitive effort in assessing the information and forming decision. As per Brunswik (1956) lens model, behaviour and artifacts produced by an individual reflect their personality. To make an inference observer need environmental cues to assess the personality (Utz, 2010). Drawing parallel with the e-commerce environment, for a customer to assess the authenticity of a product, they need to look at artifacts (such as product description, reviews etc.) provided by the sellers. Although, Brunswik (1956) model specifies the need for environmental cues, it is silent on how individuals combine these cues to form an impression. Sellers and e-commerce platforms self-present product information online through product description. Prior research (Luca and Zervas, 2016) highlights the prevalence of fake reviews by sellers so as to increase product's visibility and sales. This leads customer looks for cues to assess the quality and form an impression about the product. Hence, we borrow theoretical lens of elaboration-likelihood model (ELM) – a dual-process theory and warranting theory – an impression formation theory, to examine our research questions.

## 2.1 Elaboration-likelihood Model (ELM) – A Dual Process Theory

Developed by Petty and Cacioppo (1986), ELM is a dual-process theory that describes the change in attitude formation. This theory is apt for understanding why some informational content is more persuasive over other. The basis of the theory is elaboration, defined as the extent to which a person can think of an argument, that is, online reviews in our research context. Theory suggests two distinctive routes to persuasion namely: central and peripheral. Under central route, persuasion occurs when a person thoughtfully ponders over the merits of the information presented in support of advocacy. While under peripheral route, persuasion results from simple cues, primarily due to the familiarity or association with

them. Both of these routes are function of motivation and ability. If conditions motivate individual to highly engage with the information content, elaboration-likelihood is said to be high. In this scenario, an individual is likely to think hard, evaluate, and make association using his past experience to the information present in front, and consequently derive overall attitude towards the recommended information. However, theory suggests people do not always derive conclusions objectively but at times these elaborations are biased. This biasedness is mainly due to the presence of peripheral cues. Nevertheless, motivation and individual's ability to involve with the information decides if the argument processing is in a relatively objective or relatively biased manner.

ELM has been widely and extensively studied in the extant literature. Argument quality and peripheral cues are the core constructs defined by ELM model. Moreover, prior research has examined two major classes of persuasion determinants (a) message characteristics (such as argument quality, source credibility, and message length), and (b) recipient characteristics (such as prior knowledge, issue involvement, motivation, and past associations). In this study, we focus on message characteristics argument quality and peripheral cues in our conceptual model. Argument quality refers to "*the persuasive strength of the arguments embedded in an informational message*" while peripheral cues relate to "*meta-information about the message (e.g., message source) but not its embedded arguments*" (Bhattacharjee and Sanford, 2006).

ELM model is used in advertising literature (Petty, Cacioppo, and Schumann, 1983). It explains the mechanism through which advertisements persuade and changes behavioral intention. It was found that highly involved consumers have more positive attitudes, behavioral intentions and greater information search behaviour (Rollins and Bhutada, 2014). Taking this argument forward, we presume online reviews also as one form of advertisements hosted on an information system, that is, the e-commerce platform (Polites et al., 2018), which aims to give decision clarity to the customers. However, these online reviews are not always pure. Sellers often disguise themselves as customers and provide manipulated signals by leaving contaminated fake positive or fake negative reviews. Thus, this theory helps us explain the influence of online reviews (both fake and genuine) in shaping one's attitude and behavioral intention.

## 2.2 Warranting Theory – An Impression Formation Theory

Walther and Parks (2002) proposed warranting theory to theorize the phenomenon of impression management. Using the context of social networking sites (e.g. Facebook), they examined why experiences vary when people meet offline for the first time, after they have already met online. They suggested that this variation is a function of potential for anonymity which leads to the discrepancy in the outcome of experience. Researchers have applied warranting theory to understand how people assess an information and how does this assessment shape impressions in various context, such as social networking sites (Fox, Warber and Makstaller, 2013), online dating sites (Ellison, Heino and Gibbs, 2006) and online rating systems (Flanagin and Metzger, 2013). Most of these studies have found source of information to be an important predictor of information control.

The term warrant in the warranting theory refers "*to any cue that authenticates and legitimizes an online-presentation*" (DeAndrea, 2014, pp.187) and warranting refers to the process of validation. For e.g. Willemsen et al. (2012) claims that people labelled as experts are considered people with greater expertise over self-claimed experts in an online-community because, "...their status as experts is warranted by others" (p. 23). As per DeAndrea's (2014), warranting theory proposes a psychological construct that reflects "*perceptions about the extent to which information is immune to manipulation by the source it describes*" (pp.187). In other words, people attach credence to the information, if it is perceived to be unaltered by the target body to whom the information refers (DeAndrea, 2014). Warrants that are extremely difficult to manipulate by the user are considered high on warranting value, whereas those warrants that are easily manipulatable have a low warranting value. Warrants with low warranting value are considered questionable and perceived to be less authentic. Perceptions of the information controllability

and the way it influences the perception is the core tenet of warranting theory. In summary, the warranting principle theorizes that the lesser an information is perceived to be controllable by the person to whom it refers, the greater will be the weight it will carry in shaping impressions (DeAndrea, 2014, pp.188).

### 3 Research Approach

We adopted a qualitative research approach to understand customers' information processing mechanism and strategies adopted to deal with review manipulation. Data for the study was gathered by interviewing frequent online shoppers. The sample constitute 70% of the students and 30% professionals. Initially, we started with the students of the premier management institute of Central India. Reason for selecting most of the students as sample is because students represent the online shopper's population in India aptly. Average age of a student's in our population is around 25 years, which is same as that of online shopper's in India (Quartz, 2016). For the selection of student respondents, we relied on the hostel management of the institute, since they maintain a log of the students who make an online purchase. All the popular e-commerce platform functioning in India deliver their products to the institute. As the delivery personnel delivers the product, an entry is manually made in the register with following details: delivery date, name of the student, e-commerce platform ordered from, delivery service name. Students acknowledge the receipt of their parcel against their entry in the register. We selected students who have been shopping online at least one product every month for past one year. In order to bring heterogeneity in our sample, we also survey professionals who often shop most of the products online because of their hectic office-hours and often deal with products involving higher investment (such as television, washing machine, and furniture) and complex decision-making process. Since these professionals are aware of various malpractices used by the corporates, we included them in the sample to examine if their decision making is different from others.

While interviewing the respondents we did not focus on a single website so as to capture decision-making process as a whole. Respondents were asked (in no specific order) about the product category they often shop for, their frequency of shopping online, their average duration in making a final purchase, anecdotes on their latest purchase, role of review in their latest purchase, any anecdote of receiving faulty product and the reason behind the same, experience of shopping for the products they were totally unaware about, experience of being duped by sellers by themselves or anyone in their closed social network. We approached 22 respondents for the interview, of which 20 agreed, making a response rate of 90%. We plan to extend the study further by collecting more interviews. Table 2 presents the profile details of the respondents. Average duration of the interviews are 10-15 minutes. Transcription of the interview results in average of 2000 words interview. We concluded our recordings for both the categories of the respondents (students and professionals) after we achieved the stage of the theoretical saturation (Matavire and Brown, 2013).

Respondent Id	Profile	Respondent Id	Profile
#1	25 yr. / Male / a student from the post-graduate program	#11	23 yr. / Male/ a student from the post-graduate program
#2	23 yr. / Male / a student from the post-graduate program	#12	27 yr. / Male / a student from the post-graduate program
#3	29 yr. / Male / IT Professional	#13	25 yr./ Male / Marketing Professional
#4	28 yr. / Male / IT Professional	#14	23 yr./ Female/ a student from the post-graduate program
#5	29 yr. / Male/ IT Professional	#15	25 yr. / Female / a student from the post-graduate program
#6	26 yr. / Male / a student from the post-graduate program	#16	25 yr. / Female / a student from the post-graduate program
#7	20 yr. / Female/ a student from the post-graduate program	#17	27 yr. / Female / a student from the post-graduate program

#8	25 yr. / Male / a student from the post-graduate program	#18	26 yr./ Male / a student from the post-graduate program
#9	23 yr. / Female / a student from the post-graduate program	#19	28 yr. / Male / IT Professional
#10	27 yr. / Female / a doctoral student	#20	30 yr./ Male / Marketing Professional

Table 2. Detailed Respondents Profile

### 3.1 Coding Method

Construct		Definition	Reference	Examples
<b>Pre-Purchase Signalling</b>	Prior Experience with platform and product	Degree of experience with online shopping from the website and for particular product	Pee, Jiang and Klein (2018)	"I always shop from Amazon..." (respondent #2) "Mostly I purchase groceries from this platform" (respondent #16)
	Platform Service Quality	Adequacy of after-sale service and support for order processing, payment, refunds	Pee et al., (2018)	"...great service." (respondent #2) "customer care always refunds the money if any damage happens" (respondent #11)
	Platform Functionality	Ability to finish complex tasks	Polites et al. (2018)	"has included a subscription option for groceries. Now I don't have to worry about refilling my groceries" (respondent #16)
<b>Behavioural Beliefs</b>	Perceived Usefulness	Degree to which a person believes that a particular system enhances the job convenience.	Davis (1989), Polites et al. (2018)	"...can easily add to the cart and can resume the shopping even next day and you don't loose on the product you liked earlier." (respondent #6)
	Trust	Beliefs about the platform	Gefen et al. (2003b), Polites et al. (2018)	"...always refunds the money if any damage happens." (respondent #6 and #16) "...secure payment and timely delivery" (respondent #15)
	Brand Loyalty	A favourable attitude towards the brand	NA	"I am a fan freak of One Plus brand whenever there is a release of new One Plus. I just go and buy." (respondent #1)
<b>Individual Attitude</b>	Change seeking	Attitude towards the product to seek a new one	N/A	"I refer to reviews whenever I want to look for new variant of the product I am using." (respondent #1)
<b>Review Assessment</b>	Review Assessment	To assess the quality of the product based on the reviews available on the e-commerce platform	Derived from Warranting theory	"I refer 2-3 reviews to assess about some parameters of the review." (respondent #4)

Table 3. Details of the Constructs emerged after coding for repeat purchase

We use grounded theory coding techniques: open and axial coding, and constant comparison to analyse the interviews (Matavire and Brown, 2013). Data was constantly churned using back and forth analysis to generate as many emerging categories. Initially, the open coding began with the core constructs of ELM (Petty and Cacioppo 1986): message characteristics, website characteristics; and warranting theory (Walther and Parks 2002): warrants for assessing reviews. For instance, we use warranting theory to understand the warrants (or cues) used by customers to authenticate an online presentation (here, an online product review) and form an impression towards it. While coding the responses, we identified many cues (such as looking for a particular parameter, helpful count, star ratings, language flow of a review) from the respondent's interview. These sub-categories were then encapsulated to a final construct named **Review Assessment** mentioned in Table 3. The construct has 10 sub-codes emerged in the coding. Similar procedure was followed for the rest of the emerged categories as well. However, we did not restrict the categories to our theoretical lens. Instead we expanded the list of categories as they emerged while analysing the data. Both the authors coded the responses manually, both of them are well-versed in the theories essential to the study and empirical studies in e-commerce domain. Each of



the authors independently coded the responses and used to meet on regular basis to compare the codes, discuss, resolve disagreements, and finalize the final coding. The coding and emerged themes are presented in the Table 3. We adopted the methodology used by Polites et al.(2018) for marking the starting point of theme identification. We have separately analysed customer's behaviour for repeat and first-time purchase of the product. Table 3 and 4 depict the emerged categories for repeat purchase and first-time purchase respectively. Table 4 is presented in section 4.3.

## **4 Findings**

After the content analysis of the data, two categories of customers emerged (a) customers having prior knowledge of the product (b) customers purchasing having no prior knowledge of the product. In section 4.1 and 4.2 we discuss about the repurchase and purchase mechanism for repeat and first-time buyers respectively. A nomological network for both repurchases (Figure 1) and first-time purchase (Figure 2) is presented based on the themes that emerged after coding. The entire network can be explained by the ELM and warranting theory. Warranting theory assist customers in looking for warrants that would help in authenticating the online purchase and leads to impression formation towards a product (see Figure 1 and 2). Now, based on an individual's ability to elaborate and his/her motivation, he/she would either make initial purchase/ repurchase or refrain from making a purchase. The same is depicted in both Figure 1 and 2.

### **4.1 Repurchase Mechanism**

Customers mostly make repeat purchases of the grocery and cosmetic items. We observe that people prefer reading reviews of the repeat items in case they want to try a new variant. Moreover, the prior-experience with the product and service delivery matters a lot for customers. One of the respondents mentioned *"I'm happy that Amazon has included a subscription option for groceries. Now I don't have to worry about refilling my groceries. Amazon automatically offers the discounts and great service. And customer care always refunds the money if any damage happens"* (respondent #16). Another respondent uses BigBasket.com for buying veggies and groceries. Guaranteed one day delivery and fresh veggies made respondent to choose the website. Most of the repeat purchases are low involvement product and hence doesn't trigger people to check the reviews unless they are planning to try a new variant. People read only handful of reviews from the e-commerce platforms while changing the variant. One interesting insight emerged is that customers prefer websites or e-commerce platform that are meant for specific product. For instance, Bigbasket.com for groceries and vegetables, Nykaa for cosmetic products. The responses provided by the online shoppers during the interviews suggested complex relationships between the factors (refer Table 2) that emerged after comparative coding. Based on the mechanism suggested by the respondents and using ELM and warranting theory, we present the nomological network in Figure 1 that offers a comprehensive understanding of complex repeat purchase mechanism followed by the customers.

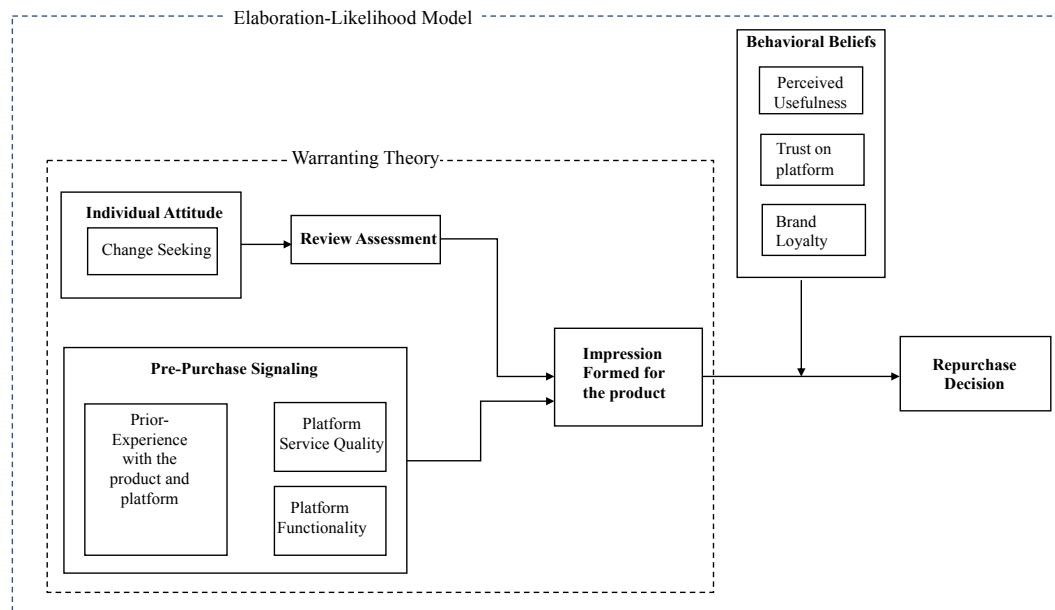


Figure 1. Theoretical Model of Information Processing for Repeat Purchase Mechanism.

## 4.2 Purchase Mechanism

Two kind of customers may make a purchase: first those who are already familiar with the product either by reading or by its initial usage. Second are those who have no knowledge of the product. Former group of customers can assess the knowledge through a) prolonged exposure to the advertisements, b) peer group c) channel shows, and the latter group of customers gather information through online reviews before making their purchase decision. If not helpful, then they look for other sources such as Google search or reaching out to people with usage experience in their social network. Here, we are assuming that customer who visits site for seeking information are not going to make a purchase. From the interviews following factors emerged that influence customers purchase decision.

Let us understand the mechanism when a customer has no knowledge about the product.

*“Recently I bought an air conditioner from Amazon, this was my first purchase online of a product with high ticket size. I bought Whirlpool AC because this was the brand I trusted since childhood as my family used to trust the brand. I only checked online reviews to see after sales service details and installation details”* (respondent #13). This clearly showed that prior framing of the mind towards the brand facilitates the choice of the product. On asking the mechanism people followed for purchasing the decision. Another responded mentions *“I always have the product category clear in my mind. Then I look for choices available in the market either through advertisements or by consulting family and friends. Then I further do my research by checking online reviews of verified buyers. I look for how much ratings verified buyers have given the product. I decide based on that. I mostly prefer the product ratings. Specifically, I look for cons mentioned in the most recent reviews to see if they are not hurting the parameters that I am looking for in the product. I judge on the basis of the majority. If majority of the people are talking about the same cons, then obviously I don’t buy that product”* (respondent #3).

Another respondent reported that he looks for negative reviews on e-commerce platforms to check only about the delivery details of the product. He mentions *“I don’t trust the reviews which talks about the product. I check reviews to check the status of the delivery, whether the product is delivered on time or not”* (respondent #6). Most of the respondents mentioned that they check the product reviews especially electronic gadgets on YouTube or popular gadget reviewing sites which provide an option to compare their consideration set. However, for the products such as furniture and other consumer durables people

like to visit offline store to check the look and feel of the product and then order online because of the bank offers and discounts available on e-commerce platforms. Almost all the respondents are not resistant to shop online for unknown product because of easy and trustworthy return policy. And they trust their social network over the reviews available on the platform. Although it takes almost every individual at least 2-3 weeks to make a final purchase.

Now let's us examine those customers who are not familiar with the product. These customers have certain parameters that they are worried about and thus look for those keywords in the reviews. For instance, one of the respondents mention that *"in headphones I am mostly concerned about bass, hence I look for bass in the most recent reviews. If reviews say bad about bass I drop the product and look to other alternative product available"* (respondent #4).

In summary, the purchase mechanism for customers includes, (i) deciding upon the consideration set; (ii) evaluation of the alternatives, wherein the role of online reviews come into play. Some of the key insights that are generated from this study are that it is the customer's social circle and web search that help them form a purchase decision. Customers do not completely make purchase decision based on reviews. Reviews if matched with the product evaluation parameters reinforces their decision to purchase. However, large quantity of negative reviews pushes customer to drop the product.

#### **4.3 Review Manipulation and Customer's Outlook on E-commerce Platform and Review System**

While interviewing, we did not specifically ask questions on review manipulation or mentioned fake reviews. It was their answers which indirectly mentioned about fake reviews. From the interviews, we could interpret that most people are aware of presence of fake reviews on e-commerce platform and adopt various strategies to be safe from the trap. Most of the interviewees when asked about the ways they deal with information overload of the reviews on e-commerce sites responded that they are aware that fake reviews are prevalent on these sites. For instance, one of the interviewees say *"For electronic products I first prefer to do a thorough search even visit brick and mortar stores and check product reviews. Often, I visit critical reviews first so as to check where exactly the problem lies"* (respondent #8). Another mentions (respondent #6) his experience of buying Mi TV and explains that he visited the official site of Mi to know about the product, everything from what will come with the kit to the dimension of the box. He went through the reviews of the television on the official site of Mi as it is less susceptible to fraudulence by sellers. Another (respondent #10) one stated *"In case of apparels I can easily distinguish fake reviews. Most of the times reviews include alternate names to describe the cloth type mentioned in product information. After being deceived 2-3 times, I now pay enough attention to the review details especially the product details. I have also stopped purchasing products from the site with which I faced disappointment earlier."*

One of the respondents mentioned that the reviews on the e-commerce sites don't have much substance to access the quality of the product. He explains *"let's assume the product is phone. So, the people who understands the specs of the phone and how it works will rate is appropriately. So, if they are not rating it on those terms then they don't have enough product knowledge so either they blabber something about the phone or write one-word review. So, these platforms have reviews that talk mostly of service delivery such as the faulty product, late delivery. Nothing much is mentioned about the product and its features. Hence, it is easy for me to filter what all reviews are there"* (respondent #6).

Another respondent (respondent #7) reported the product mismatch between what she received and what was mentioned in the reviews. She reported that the mismatch happened for the phone she purchased. The camera quality was not good as mentioned in the reviews. She further added that since Amazon's return policy and refund is good, which is why she has trust on the platform, despite receiving the faulty product multiple times. However, when same happened to her on Snapdeal, she stopped purchasing from the platform because of the poor customer care service. One interesting points she mentioned is

that e-commerce sites specific to a particular product category have reviews that are good and trustworthy. For example, Nykaa – a cosmetic e-commerce platform – has around 40-50 meaningful reviews for a product.

In summary, it can be inferred that customers understand review manipulation and adopt various strategies to deal with it. Customers are bearing with the mismatch in the product and review manipulation as long as they are getting good offers and hassle-free service delivery. Interviews clearly indicate that customers prefer to do their own research from offline and triangulate the same with few recent online reviews. Moreover, they prefer to look at blogs, and vlogs for the reviews. In case of a product category that is not much blogged (such as a mattress), they prefer to go through online reviews. However, they always consider going to their friends and family first for the advice.

Based on the findings in section 4.2 and 4.3 we developed a theoretical model as presented in Figure 2. Table 4 depicts the constructs emerged after coding the interviews pertaining to the first-time purchase mechanism and review manipulation.

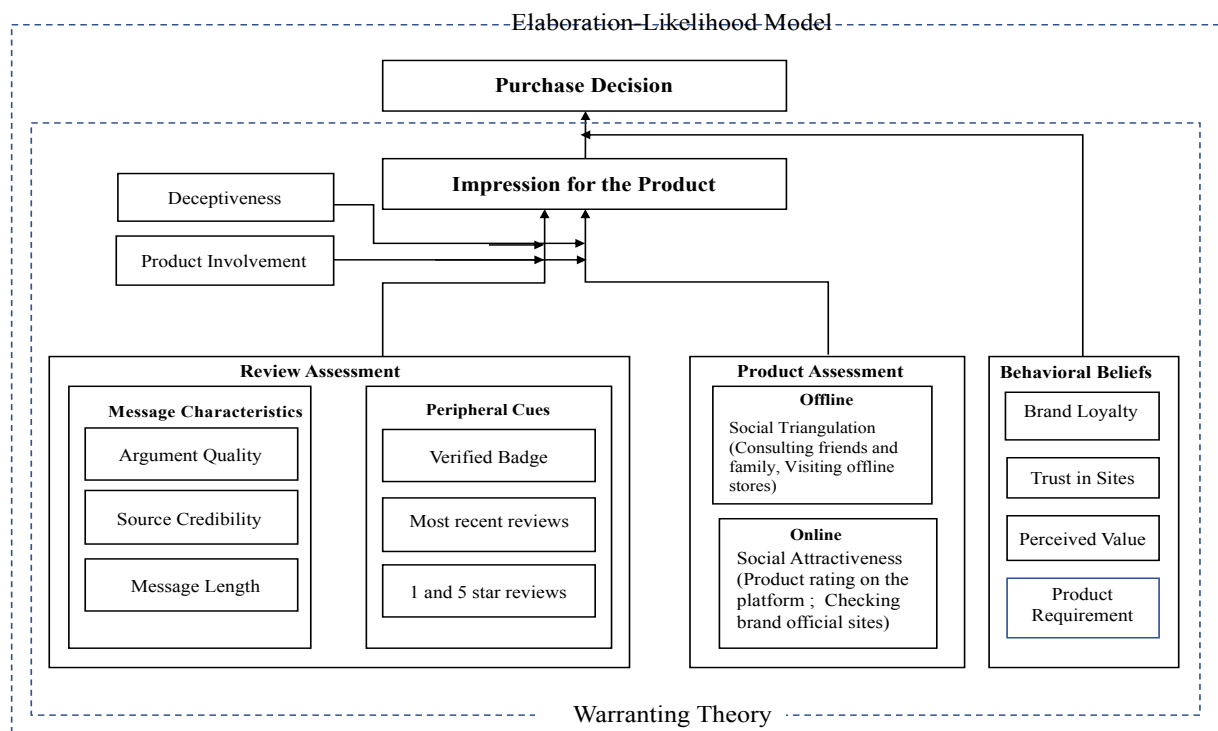


Figure 2. Theoretical Model of Information Processing for First-Time Purchase Mechanism

Construct		Definition	Reference	Examples
Message Characteristics	Argument Quality	Argument quality refers to the persuasive strength of arguments embedded in an informational message	Cheung and Thadani (2012) ; Zhang et al., (2014)	"...I look for quality of reviews and not 1 or 2-word reviews." (respondent #18)
	Source Credibility	Extent to which an information source is perceived to be believable, competent, and trustworthy by receivers	Cheung and Thadani (2012)	"...don't believe in five star reviews on platform when I am aware of the specifications" (respondent #1)

<b>Peripheral Cues</b>	Verified Badge Most recent reviews 1 and 5-star reviews	Any cue that authenticates and legitimizes an online-presentation	Petty and Cacioppo (1986)	"...apply most recent filter." "...look for verified purchase" (respondent #16)
<b>Product Assessment</b>	Offline Online	To assess the quality of the product using	N/A	"...visited the Mi official site." (respondent #6) "...checked the authenticity of the product by visiting the brick- and -mortar store" (respondent #6)
	Deceptiveness	Degree to which reviews present on the platform are perceive deception	Zhang et al. (2018)	"....we are aware of the fake reviews and hence I prefer reading blogs." (respondent #19)
	Product Involvement	Degree of involving with the product to assess its quality	N/A	"...do thorough search before making a purchase" (respondent #3)
<b>Behavioural Beliefs</b>	Perceived Value	Degree to which a person believes that a particular system enhances the job convenience.	Davis (1989), Polites et al. (2018)	"...purchased the Mi Tv from its official site as it was delivering in my home remote location and was offering me great price as compared to Flipkart" (respondent #6)
	Trust	Beliefs about the platform	Gefen et al. (2003b), Polites et al. (2018)	"...always refunds the money if any damage happens." (respondent #6 and #16) "...secure payment and timely delivery" (respondent #15)
	Brand Loyalty	A favourable attitude towards the brand	N/A	"I am a fan freak of One Plus brand whenever there is a release of new One Plus. I just go and buy." (respondent #1)
	Product Requirement	Specifications that customers consider important for making a purchase	Polites et al. (2018)	"...if my parameters don't get good reviews than I drop the idea of purchase." (respondent #20)

Table 4. Details of the Constructs emerged after the coding for first-time purchase

#### 4.4 Strategies Adopted by Customers to Deal Review Manipulation

Based on the analysis of the interviews we identified various strategies that customers apply to deal with review manipulation. Some of these strategies are presented in section 4.3. In this we classify the aforementioned strategies into two categories. The classification taxonomy has been borrowed from Ramirez et al. (2002) who classified information seeking strategies in the computer-mediated communication. We are not adopting the definition of the strategies provided by Ramirez et al., (2002). Instead we are utilizing name convention proposed by them. Strategies are as follows:

- Extractive strategy: In case of e-commerce, extractive strategy would involve customers extracting the information from the google search, blogs, and brand's official sites.
- Interactive strategy: This involve customers acquiring information by interacting with their peer group and friends. Further, visitation to the brick and mortar store.

## 5 Discussion

ELM argue that human beings, depending on their motivation and ability, processes the information either using message quality or peripheral cues. Warranting theory on the other hand suggests that human beings look for warrants or cues to authenticate an online presentation.

The findings of this study suggest that, customers in order to make purchase decision look for the information both online and offline. Depending on the motivation level, customer's involvement (refer Figure 2) with the product varies and makes them take the decision based on either assessing reviews or peripheral cues (Figure 2). ELM explains the path they choose. Product assessment cues can come either from online or offline or both. Some example of cues that emerged during the interviews are overall product rating, keywords searching in the reviews, connecting with friends, watching product review videos. These cues give direct benefit to the customers in forming the impression of the product as explained by warranting theory. However, findings suggest the cues given by customer's social group have greater influence in impression formation than the cues present in the e-commerce environment. Impression formed by the cues is further influenced by customer's beliefs (trust, perceived value, product requirement etc.) and customer's understanding of the environment (knowledge of deception). The overall impression formed then influences the final purchase decision. The discussion is based on the findings obtained from the purchase mechanism. However, this discussion is applicable to the repurchase mechanism (Figure 1), but in this case pre-purchase signalling nullifies the influence of customer's knowledge of deception.

## **6 Implications for Theory and Practice**

This study has implications for both theory and practice. Theoretically, we first contribute by developing a theoretical model for both purchase and repurchase behaviour. The model presents the factors that help us understand the information processing mechanism in the environment of review manipulation. Next, we contribute to the IS literature of e-commerce by understanding the attitude of customers towards review manipulation. We propose that review manipulation should moderate the relationship between review assessment and purchase decision, and between product assessment and review manipulation. Third, we contribute by presenting two strategies adopted by the customers to deal with review manipulation, a malpractice prevailed in e-commerce environment. Practically, the study informs e-commerce players to concentrate on their customer service so as to retain and engage more customers. Indulging in review manipulation have a lethal consequence for the platform which might cost them loss of customers as well as decreased trust. We further inform that reviews on the platforms are no good but harm and hence need more attention. More focussed reviews on product's specification will enhance the quality of the portal.

## **7 Conclusion, Limitations, and Future Research**

The objective of the study was to systematically understand the influence of fake reviews on customer's purchase decision. To date, existing studies in IS have not studied the review manipulation from the customer's perspective. We in this study bridge this gap by enhancing the understanding on the factors that influence purchase decision in contaminated online environment. Using qualitative methodology, we examine the customer's outlook towards e-commerce platform and review system in the presence of review manipulation. The results of the study suggest that customers trust their core family members and friends for making a purchase decision. This finding is consistent with that in the extant literature (Ma, Krishnan and Montgomery, 2014). Further, we find customers do not trust reviews hosted on e-commerce sites as they find it to be written by one of them who has no expertise with the product. Hence, reviews if matched with the requirements reinforces customer's purchase decision. The results of our study should be seen in the light of its limitations. The study relies mostly on student sample for generalization of the findings, though extending the study to the professionals might give more generalized insights. The findings of this study might not be generalizable to different geographies because of differences in cultures. Hence, the results need to be interpreted within boundaries of this research. Purchase decision is directly dependent on the time demanded by a product for making a purchase decision. Thus, future research can extend this study by examining the role of product involvement on customer's purchase decision. Future studies can examine customer's outlook towards other malpractices prevailing in the e-commerce environment, such as seller opportunism.

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