Consumer's Reliance on Word of Mouse: Influence on Consumer's Decision in an Online Information Asymmetry Context

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Abstract

Intangibility of products in online environment results in higher information asymmetry. To overcome this asymmetric information issue, consumers may rely upon online reviews, i.e. word of mouse as a signal of quality. Two models were chosen to measure the impact of word of mouse characteristics on consumer's decision for this study. An objective data (proxy measures) as well as subjective data (questionnaire measures) was collected for the reviews available at Epinions.com. Results revealed that reviewer's reputation, expertise and message comprehensiveness are the most influential characteristics of word of mouse information. Identity disclosure, message timeliness and message accuracy were not significant predictors of information usefulness.

Key Words: Word of mouse, electronic word of mouth, information usefulness, information asymmetry, online reviews, consumer decisions.

1. Introduction

Perils of information asymmetry are vastly prevalent in market interactions these days. One economic agent holds more information about the products/services being offered in contrast to the other economic agent (Akerlof, 1970). Presence of information asymmetry can lead to numerous

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problems. Spence (1973) demonstrated how signalling can help market agents to overcome the problems caused by information asymmetry.

Online commerce has some advantages over traditional commerce, yet some problems are vested into it. For instance, there exist more information asymmetry in online setting because buyers cannot find out the sellers identity and assess the product before a purchase (Smith, 2004). Consumers have to rely on various online signals to cope with such problems. Online reviews, a form of word of mouse (electronic word of mouth) are one such kind of signaling technique that consumers rely upon to overcome the asymmetric information in an online context.

Word of Mouse communication facilitates consumers not only to gather relevant information from the people they already know but also the people who are unknown and geographically dispersed all over the world. Word of mouse communication has more impact on the consumer's trust and behaviour on the internet. In a traditional environment, consumers have the facility to examine the products visually and tangibly while in the online environment they only have visual facility. As a result they face higher uncertainty and word of mouse helps to attain higher levels of market transparency (Bickart and Schindler, 2001).Thus consumers' reliance on word of mouse becomes useful.

Word of mouse communication exists in various forms such as emails, instant messaging, social networks, online blogs, and online review sites. It has become very common for the consumers to refer to online reviews in order to gather information before a purchase. As a result consumers are more informed these days and their behaviour shows that this state of being up to date is important (Clemons and Gao, 2008).

Word of mouse has been studied by the researchers in three ways. Cheung, Lee, and Rabjohn (2008); Jalilvand and Samiei (2012); Wu and Wang (2011) used questionnaires to study word of mouse. Other researchers such as Smith, Menon, and Sivakumar (2005); Lim and Chung (2011)

performed experiments in their studies. Yet other researchers went for proxy measures to collect the objective data directly from the websites. For example, Chevalier and Mayzlin (2006); Mudambi and Schuff (2010); Rachelra and Friske (2012); Yang and Mai (2010).

In this study data was collected using the questionnaire as well as proxy measures. Two conceptual models were used to measure the influence of word of mouse on consumer decisions in the context of online information asymmetry. For model of review usefulness, proxy data was collected from Epnions.com. For model of review adoption, data was collected using questionnaires.

The purpose of this study is to determine how consumers refer to online sources of information particularly word of mouse websites when confronted with information asymmetry problems. Furthermore we will also look at the various characteristics of word of mouse and the impact of each characteristic on consumer decisions. Results of the study and commonalties found in the two models are discussed.

2. Literature Review

2.1 Information asymmetry

Information asymmetry occurs when seller of a good knows more about the quality of the product that is being sold as compared to the buyer of the product. Milgrom and Roberts (1987) argued that information asymmetry involves each player having secret information regarding their strategies. A job applicant knows more about his abilities as compared to the potential employer and the buyer of an insurance policy has more information about his/her individual risk than an insurance company does. Customers cannot pursue the information about quality prior to purchase and the true quality is divulged only after the purchase.

Prevalence of information asymmetry results in two types of information problems. One is adverse selection or hidden information, and the other

problem is moral hazard or hidden action (Akerlof, 1970). Adverse selection occurs when one party involved in a transaction is not confident that the claims made by other party are true (Mavlanova, Benbunan-Fich, and Koufaris, 2012).Moral hazard occurs when sellers do not stand by their claims or perform actions that benefit them at the expense of buyers (Pavlou, Liang, and Xue, 2007).

Online commerce has many features that are superior to the traditional environment, yet compared to traditional brick and mortar environment, there exists more information asymmetry in online setting because buyers cannot find out the sellers identity and assess the product before a purchase (Smith, 2004). To overcome the problems caused by asymmetric information, Akerlof (1970) suggest that various signals such as brand names, warranties and good reputation will lead to increased buyers' trust.

Sometimes in an online environment, feedback score serves as a way of expressing credibility of the seller in the absence of face to face interaction and anonymity of the seller (Ba and Pavlou, 2002). Past studies also showed that feedback score impacts significantly on the outcome of auctions (McDonald and Slawson, 2002). When confronted with high transaction risk, a reliable signal could overcome asymmetric information problem by depicting the quality of seller and ultimately leads into higher sales (Erdem and Swait, 1998).

Hence literature provides enough evidence that asymmetric information is one of the core problems in the market interactions. The problem is even more prevalent in the online setting. Thus the reliance of consumers on various signals to overcome asymmetry becomes useful.

2.2 Word of mouth and word of mouse

Word of mouth (WOM) is the form of advertising that involves informal communication among people related to a store, products or services and the experiences related to them (Dichter, 1966; Gupta and Harris, 2010). When

this word of mouth information gets online, we call it electronic word of mouth (EWOM) or word of mouse.

Traditional word of mouth communication corresponds to the interpersonal face-to-face conversation among consumers (Sen and Lerman, 2007); however, the emergence of internet has introduced online form of word of mouth (known as word of mouse).

Word of Mouse communication enables consumers to not only gather relevant information from the people they already know but also the people who are unknown and geographically dispersed all over the world (Lee, Cheung, Lim, and Sia, 2006). ACNielsen (2007) survey highlighted that consumers' opinions posted online are as much trustworthy as brand websites and more trustworthy than magazines, TV and radio. However in 2012 survey, online consumer opinions were trusted by 70 percent consumers making it the second most trustable form of advertising (ACNielsen, 2012).

Word of mouse communication comprise of different forms such as email, instant messaging, social networks, online blogs and online reviews to name a few. This study is focused on the online reviews and their impact on consumer decisions. For such a purpose following section includes literature review of the previous studies on the online reviews.

2.3 Online reviews

Online consumer review is a type of word of mouse that involves positive or negative statements given to the products by the consumers in online shopping malls. Product related reviews written by consumers in the online communities are one of the most important forms of word of mouse (Sen and Lerman, 2007). It has become very common for the consumers to refer to online reviews in order to gather information before a purchase which also forms purchase intentions among the consumers (Zhu and Zhang, 2010). Clemons, Gudong, and Lorin (2006) point towards huge progress in

the number, completeness, range and the overall availability of the online reviews that consumers are aware of. As a result consumers are more informed these days and their behaviour shows that this state of being up to date is important (Clemons and Gao, 2008).

Online reviews have been the centre of attention for the researchers such as (Chevalier and Mayzlin, 2006; Hennig-Thurau, Gwinner, Walsh, andGremler, 2004; Mudambi and Schuff, 2010; Racherla and Friske 2012) etc. Numerous models have been investigated on consumers' perception of online review usefulness. Two models are adopted from earlier studies in this research. Relevant literature about the variables used in the models is discussed in the following section.

2.4 Model of Review Usefulness

H1: Reviews with the reviewer's real photo are perceived to be more useful than reviews which lack such information.

When the messenger discloses his personal information such as geographical information or gender, the credibility of message is increased (Maddux and Rogers, 1980). In the online setting where there is lack of physical interaction the impact becomes more prevalent. The absence of social cues tends to increase reliance on these identity disclosure cues to reduce uncertainty (Tidwell and Walther, 2002). While studying reviews at Amazon.com, Forman, Ghose, and Goldfarb (2008) found that divulging the information like gender, age and geographic location of the reviewers has a positive impact on the sales.

H2: The reviews provided by reviewers with high expertise are perceived more useful than reviews written by reviewers with low expertise.

The perception of the receiver that message source is capable of providing correct information is referred to as expertise (Bristor, 1990). Consumers deploy various techniques to assess the expertise of message

source. Consumers often look at the past reviews written by the reviewer, the number of reviews written and the review's content to judge the reviewer's expertise (Weiss, Lurie, and MacInnis, 2008).

H3. *The reviews provided by reviewers with high reputation are perceived more useful than reviews written by reviewers with low reputation.*

Reputation of message source is especially important in online setting as it leads to the development of trust among the message receivers and higher reputation helps the reviewer to stand out from the others. Gruen, Osmonbekov, and Czaplewski (2006) argued that a person with better reputation has more influence on the other members in a community. Reputation is one of the key influential factors that lead to persuasion (Bator and Cialdini, 2001). So when a message is from high status member people are willing to comply with the message.

H4: *Reviews with greater amount of information (word-count) are perceived more useful than reviews that contain lesser amount of information.*

When people read the comments written by their peers, the amount of information provided matters a great deal (Mudambi and Schuff, 2010). The amount of information provided in a review not only helps people build trust in the reviewer but also help people to assess the product quality (Gupta and Harris, 2010). A positive influence on customer purchase intentions and online store revisits is developed when enough information is provided.

H5: Moderate reviews (with 3-ratings) are perceived to be more useful than extreme reviews (1- and 5-ratings).

Valence refers to the star rating (1-5 scale) given by the reviewer. With the presence of information asymmetry in the online setting the impact of word of mouse becomes more significant. In such a scenario people try to assess whether the information about the product is accurate (Buda, 2003). Presence of incorrect information may prompt consumers to associate

reporting bias towards the source. As extreme ratings such as 1 star or the 5 star ratings may seem as biased one by consumers, 3 star ratings are considered to be more useful (Mudambi and Schuff, 2010; Schlosser, 2005). Past research showed that two-sided arguments are more useful and diagnostic in nature as compared to the extreme (either positive or negative) arguments (Eisend, 2007). This indicates that moderate reviews are powerful as compared to extreme reviews.

2.5 Three Types of Products

Petty and Cacioppo's (1986) elaboration of likelihood model suggest that various factors impact the attitude of message recipients. These factors include expertise of the source, message comprehensiveness, mood of the recipient and some contextual variables. In the context of online reviews, the type of product being purchased serves as an important contextual variable. We adopt Girard and Dion's (2010) product categorization of search, experience and credence-based products.

- Search products are those products whose attribute information can be obtained prior to purchase or use.
- Experience products are those whose attribute information can only be obtained after purchase or consumption.
- Credence products are those products which are dominated by attributes that cannot be evaluated even after the consumption.

H6: For search-based products, message factors (review extensiveness and valence) will have a greater effect on perceived usefulness than messenger factors.

Different levels of risk are associated with each product category. Rule of thumb is that lesser the information, higher the uncertainty and risk. When confronted with high level of risk, consumer's reliance on word of mouse becomes pivotal (Murray, 1991).

Search products are standardized products whose attribute information can be obtained prior to purchase or use. Information regarding their attributes can be gathered objectively from online reviews. Due to the property of easy evaluation in search products, they pose lowest level of risk. People are more concerned about the subjective rather than objective claims about the products. In other words they show higher concern for information in experience products than the search products (Ford, Smith, and Swasy, 1990).

H7. The effect of messenger factors (identity disclosure, reputation and expertise) on perceived usefulness is greater for experience and credence products when compared to search products. This effect will be greater for credence than experiential products.

Experience and credence products are those whose attribute information cannot be accessed even after the consumption. However, for credence goods, consumers cannot assess the product even after its consumption. Experience and credence goods are non-standardized goods. Burnkrant and Cousineau (1975) suggest that when information about a distant object cannot be obtained directly, then people may rely on the information from other people about that distant product. Hence people are dependent upon the reviews written by other people and they have vicarious experience of the products (Thorbjornsen, Supphellen, Nysveen, & Egil, 2002).

H8. The effect of message factors (review extensiveness and valence) on perceived usefulness is greater for experiential products when compared to search and credence products.

Experience and credence products are non-standardized and greater uncertainty exist for these products requiring more social cues for the right decision. Credence products solely depend upon an individual's taste. Ghose and Ipeirotis (2007) found that reviews for experience products, such as movies are polarized and extremely positive ratings are most common. Experience products can only be evaluated after the purchase, thus the

amount of information provided is important. Chevalier and Mayzlin (2006) interpreted from their results that larger amount of information indicates higher satisfaction or dissatisfaction of reviewer with the product.

2.6 Model of review adoption

> **H1:** *There is a positive relationship between perceived information usefulness and information adoption.*

Information adoption is a process in which people are involved in using the available information (Cheung et al., 2008). One of the primary activities that people do in the online setting is the information adoption such as they scan the insights, experiences and comments written by other people prior to a purchase (Pitta and Fowler, 2005).When a need arises, these people also turn to the online communities for help by posting questions (Sussman and Siegal, 2003).

Information usefulness refers to the diagnostic ability of reviews or put simply it is the helpfulness of the reviews in consumer's decision making process (Mudambi and Schuff, 2010). Information usefulness is found to play an imperative role in consumer's decision making process. Hu, Zhang, and Pavlou (2009) argued that reviews that are rated useful have more influence on consumer purchase decisions than the reviews which are rated less helpful.

> **H2**: *There is a positive relationship between perceived relevance of the message and information usefulness.*

Relevance of online messages is imperative due to the time conscious nature of Internet users. When confronted with information need, internet users just scan through the webpages to search for the needed information rather than reading everything available in detail (Madu and Madu, 2002). Internet users want to get the right information quickly with little effort (Nah and Davis, 2002). Relevance of message plays an important part in consumer decision making (Dunk, 2004).

H3: There is a positive relationship between perceived timeliness of the message and information usefulness.

Timeliness of message is defined as whether the message is new, up-to-date and most recent (Wixom and Todd, 2005). Those websites whose messages are not updated consistently cannot deliver the expected levels of performance and ultimately no value addition for the internet users (Madu and Madu, 2002).

H4: There is a positive relationship between perceived accuracy of the message and information usefulness.

Message accuracy means that a message is reliable (Wixom and Todd, 2005). It is the perception of the user that the information provided is correct. Daft and Lengel (1986) while studying media richness theory argued that message quality, message accuracy and message reliability are worthy factors when information exchange takes place across a medium.

H5: There is a positive relationship between perceived comprehensiveness of the message and information usefulness.

A comprehensive message is one that is complete, covers all necessary information and has sufficient depth and breadth (Wixom and Todd, 2005). When information is available in greater details, there will be more user-orientation towards the website and higher chances of acquiring and retaining the users (Sullivan, 1999).

H6: There is a positive relationship between perceived expertise of the message source and information usefulness.

Source expertise means that the messenger is expert and knowledgeable (Wu and Shaffer, 1987). In other words, it is to the degree to which people reading the reviews believe that source has knowledge regarding the topic under discussion. People mostly look up to the expert sources of information

before making a purchase decision. They expect to get comparatively accurate information than the non-expert sources (Hovland, Janis, and Kelley, 1953).

H7: There is a positive relationship between perceived trustworthiness of the message source and information usefulness.

Source trustworthiness refers to the reliability of the message sender (Wu and Shaffer, 1987).Internet, however allows complete freedom to anyone to log on and publish any kind of information. It becomes very difficult for the reader to identify the trustworthiness of the message source due to anonymity. If the consumers perceive that message source is of high trustworthiness, then they are more willing to perceive the information as highly useful (Cheung et al., 2008).

3. Research Methodology

Data for this study was collected from Epinions.com, an online consumer reviews platform. Epinions.com was found in 1999 by the group of popular internet companies including Yahoo!, Netscape and Excite@Home. Website provides reviews written by the people who have either purchased/used the product or they have technical knowledge regarding the functionality of the product. Reviews about the vast categories of products such as computers, fertilizers, beauty products, music CDs, digital cameras, sports goods etc. are available on the website.

In this study two models were studied to find consumers' perception of usefulness of word of mouse information. So we will precede model wise.

3.1 Methodology for Model of Review Usefulness

Conceptual framework depicted in figure 1 is adopted from Racherla and Friske (2012).The predictors of review usefulness are messenger factors and message factors. The messenger factors comprise of identity disclosure,

expertise and reputation. The message factors comprise the review elaborateness and review valance.
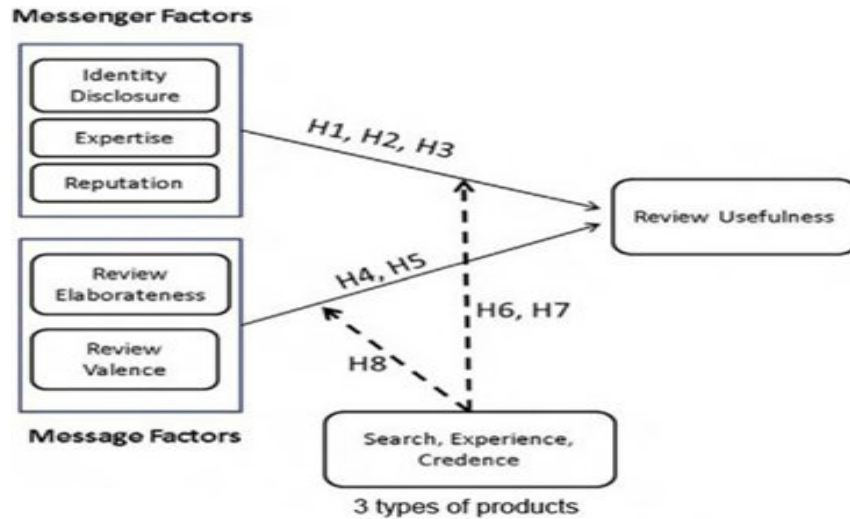

Fig. 1 Model of Review Usefulness
Source: Racherla & Friske (2012: p.551)

Past studies measuring the impact of word of mouse on consumer decisions have shown that the type of product plays a role. Different types of products may influence the relationship differently. As shown in the figure 1 that besides testing the relationship between the review characteristics, three types of product categories (search, experience and credence products) act as contextual variables.

Data was collected randomly by ensuring that reviews did not appear in a specific order like chronological, alphabetical or high rankings etc.

A total of six hundred reviews were collected from Epinions.com by using an objective data collection technique (proxy measures). Two hundred reviews were collected for each of the three SEC product categories (search, experience and credence). Furthermore, for the search product category music CD, printer cartridge and microwave reviews were collected. Reviews for perfume, digital camera and laptop were collected for experience product

category. And for credence product category, reviews from anti-wrinkle cream, shampoo and lawn fertilizer were collected.

Table 1
Operationalization of Variables

Variable	Information Collected from Site
Review Usefulness	Consumers when read online reviews, they are given opportunity to vote the review as useful. So the dependent variable is operationalized by the number of votes given by readers to the review.
Days Lapsed	Reviews are usually enlisted on websites in a chronological manner. Latest reviews appear first while oldest appear last. Consumers only pay attention to reviews available on first two pages. To control this factor, a variable is created as number of days lapsed.
Identity Disclosure	To register with Epinions.com, a reviewer has to provide some background information. It's up to reviewer to provide his/her real name and use real picture. Thus the availability of real photo was selected as a variable. 1 represented the presence of real photo while 0 represented no photo.
Reviewer Expertise	Epinions.com displays the history of all the reviews written by the reviewer. So the total number of reviews written by a reviewer till date is used to operationalize the variable reviewer expertise.
Reviewer Reputation	If a reader likes a review and trust the reviewer, then he/she can vote the reviewer as trusted. So the number of trust votes is proxy for reviewer reputation.
Review Extensiveness	It's the word count of a review.
Valence	Valence refers to the star rating (1–5 scale) given by the reviewer.

Furthermore, reviews from only first two pages were collected as people usually look at only first two pages of information available online.

Table 1 illustrates the way variables in the study are operationalized and measured using proxy technique. The operationalization of variables was adopted from the study of Racherla and Friske (2012). All of this information is available at Epinions.com.

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3.2 Methodology for Model of Review Adoption

The conceptual framework illustrated in figure 2 is adopted from Cheung et al. (2008). Two constructs predicting the information usefulness are
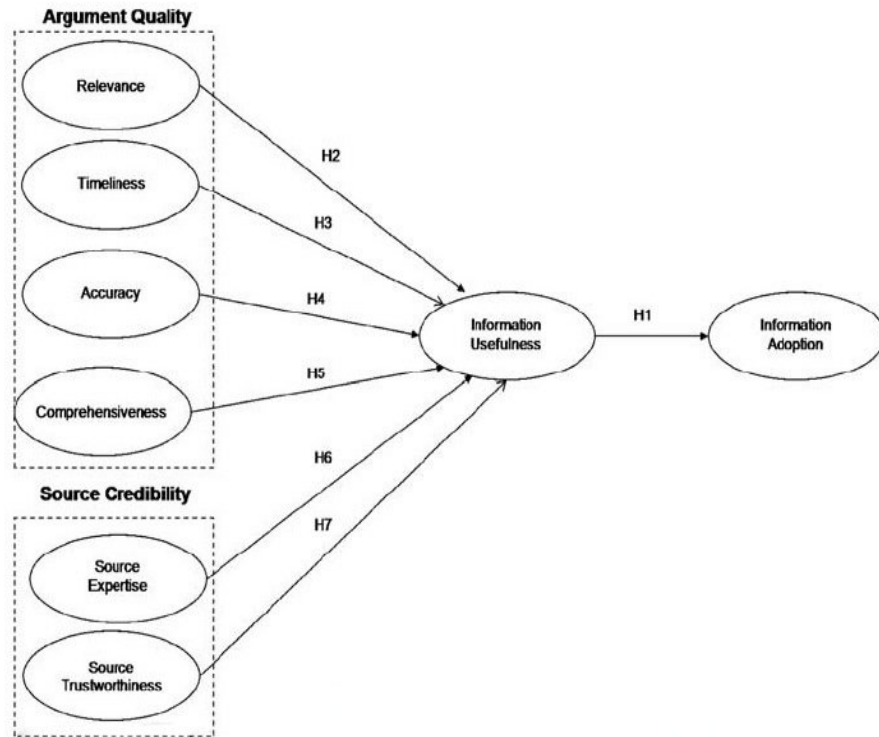

Fig. 2 Model of Review Adoption
Source: Cheung et al. (2008: p.233)

argument quality and source credibility. Argument quality is measured using four dimensions; relevance, timeliness, accuracy and comprehensiveness. Source expertise and source trustworthiness are the dimensions used in this study to measure the source credibility. This model depicts the impact of argument quality and source credibility on information usefulness which in turn impacts information adoption.

Overall, 100 university students were selected conveniently to participate

in the survey. Students were asked to assume that they are going to purchase a certain product. Then they were shown reviews collected from the Epnions.com. Once they read the reviews they were asked to fill the questionnaire.

A self-administered questionnaire was adopted from Cheung et al. (2008) study and modified to measure the model under investigation. Each variable

Table 2
Measures

Relevance	AQR1	The reviews in Epinions.com are relevant
	AQR2	The reviews in Epinions.com are appropriate
	AQR3	The reviews in Epinions.com are applicable
Timeliness	AQT1	The reviews in Epinions.com are current
	AQT2	The reviews in Epinions.com are timely
	AQT3	The reviews in Epinions.com are up-to-date
Accuracy	AQA1	The reviews in Epinions.com are accurate
	AQA2	The reviews in Epinions.com are correct
	AQA3	The reviews in Epinions.com are reliable
Comprehensiveness	AQC1	The reviews in Epinions.com sufficiently complete your needs
	AQC2	The reviews in Epinions.com include all necessary values
	AQC3	The reviews in Epinions.com cover your needs
	AQC4	The reviews in Epinions.com have sufficient breadth and depth
Source Credibility	SE1	People who wrote reviews in Epinions.com are knowledgeable in evaluating quality of products
	SE2	People who wrote reviews in Epinions.com are experts in evaluating quality of products
	ST3	People who wrote reviews in Epinions.com are trustworthy
	ST4	People who wrote reviews in Epinions.com are reliable
Information Usefulness	IU1	The reviews in Epinions.com are valuable
	IU2	The reviews in Epinions.com are informative
	IU3	The reviews in Epinions.com are helpful
Information Adoption	IA1	You closely followed the suggestions of the positive reviews and purchased the recommended products
	IA2	You agree with the opinion suggested in the reviews

was measured using multiple items shown in Table 2. A five point Lickert scale was used to measure the constructs with 1 representing strongly disagree and 5 representing strongly agree.

4. Results and Discussion

4.1 Model of Review Usefulness

Ordinary least squares regression was applied on the data to test the hypotheses. Data were non parametric for some variables, so were log transformed. Usefulness rating was transformed to lnUsefulness, reviewer expertise to lnExpertise, reviewer reputation to lnReputation, and review elaborateness to lnElaborateness. According to our hypothesis we expect a linear relationship between the dependent variable (usefulness rating) and all the independent variables except the review valance. From the H5 of Model of review usefulness; it is posited that moderate star ratings are more useful as compared to either strongly negative or strongly positive reviews. For this very hypothesis, a nonlinear relationship between review usefulness and

Table 3
Regression Analysis Output

	B	Std. Error	t	Sig.
(Constant)	.159	.192	.831	.407
Days Lapsed	3.258E-5	.000	3.579	.000
Photo	-.012	.032	-.370	.712
LnReputation	.291	.026	11.056	.000
LnExpertise	.097	.034	2.882	.004
Valance	.393	.087	4.516	.000
QTValance	-.050	.013	-3.844	.000
LnElaborateness	.402	.040	9.993	.000

	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.804	.646	.641	.22603

a. Dependent Variable: LnUsefulness

review valance is expected. To tackle with that matter a quadratic term of QTValance is introduced in the analysis. Table 3 summarizes the results of regression analysis.

A significant positive relationship was expected between real photo and review usefulness. However, the results showed that the relationship is not significant (b = -0.012). Rachelra and Friske (2012) also found that the reviewer's identity disclosure had no significant relationship with review usefulness. It is possible that the presence of a stronger social variable such as reviewer's reputation hinders the impact of identity disclosure on review usefulness.

As per our expectations H2 was significant. Reviewer's reputation (b = 0.291) was found to be positively related to information usefulness. Gruen et al. (2006) argued that a person with better reputation has more influence on the other members in a community. Rachelra and Friske (2012) also found the reviewer's reputation had significant relationship with review usefulness. Expertise also showed a significant relationship with information usefulness with the coefficient (b = .097).Consumers deploy various techniques to assess the expertise of message source. Consumers often look at the past reviews written by the reviewer, the number of reviews written and the review's content to judge the reviewer expertise (Weiss et al., 2008). People mostly look for the expert sources of information prior to making a purchase decision as they expect to get comparatively accurate information than the non-expert sources (Hovland et al., 1953).

Reviews elaborateness (word count) had a positive impact on information usefulness (b=0.402). When information is available in greater details, there will be more user-orientation towards the website and higher chances of acquiring and retaining the users (Sullivan, 1999). Gupta and Harris (2010); Mudambi and Schuff (2010) suggest when people read the comments written by their peers, the amount of information provided matters a great deal.

Reviews valance (1-5 star ratings) also showed significant relationship with information usefulness. Extant research also shows that moderate reviews are more useful. As expected, the linear term is positive (b = 0.393) and the quadratic term is negative (b = -0.050). This reflects an inverted U shaped relationship between valence and perceived usefulness. In their quest of finding the usefulness of online reviews Mudambi and Schuff (2010) argued that moderately rated reviews are more useful than either positive or negative reviews.

4.1.1   *Regression Across Three Product Categories*

A regression analysis was carried out for each of the product category to find out the differences in impact made by each word of mouse characteristic across each type of product. Table 4 summarizes the results across different product categories.

Results of H6 were significant. For search based products, review characteristics (review extensiveness and review valance) have greater impact than reviewer characteristics.Search Products are standardized products whose attribute information can be obtained prior to purchase. Information regarding their attributes can be gathered objectively from online reviews. Thus informational attributes of the reviews are more important in search products (Cheema and Paptla, 2010; Jain and Posavac, 2001).

H7 and H8 showed mixed support. In H7, reviewer's reputation is expected to have greater impact on experience and credence goods in comparison to the search goods. The results were consistent with our expectations. Rachelra and Friske (2012) also found that reviewer's reputation has more influence for experience and credence products as compared to search products. We also expected the impact to be higher in credence than experience goods but did not find it so.

It is expected that impact of review valance and word count will be

Table 5
Regression Analysis for Individual Products

	Search Products				Experience Products				Credence Products			
	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.	B	Std. Error	t	Sig.
(Constant)	-1.622	1.745	-.929	.355	.277	.344	.805	.423	-.297	.290	-1.024	.308
Days Lapsed	5.887 E-5	.000	3.289	.001	-3.983 E-5	.000	-1.789	.077	5.422 E-5	.000	4.403	.000
Photo	.080	.064	1.250	.215	.044	.067	.661	.510	-.029	.040	-.728	.468
LnExpertise	0.147	0.066	1.706	0.024	0.067	0.064	2.303	0.04	0.113	0.045	1.485	0.041
LnReputation	.223	.053	4.234	.000	.298	.055	5.451	.000	.296	.033	8.876	.000
LnElaborateness	.300	.052	5.734	.000	.487	.088	5.512	.000	.475	.083	5.694	.000
Valance	.377	.125	3.018	.003	.205	.312	.658	.512	.222	.144	1.539	.125
QTValance	-.047	.020	-2.392	.018	-.018	.039	-.468	.640	-.027	.021	-1.318	.189
	R	R^2	Adjusted R^2	Std. Error	R	R^2	Adjusted R^2	Std. Error	R	R^2	Adjusted R^2	Std. Error
	.824	.678	.650	.20454	.812	.659	.632	.22534	.854	.730	.717	.19455

a. The bold values indicate statistically significant results.
b. Dependent variable is LnUsefulness.

higher in experience goods than search and credence goods. Review valence showed a significant relationship with perceived usefulness in search products but non-significant in experiential products and credence products. It may be so because search products can be assessed prior to purchase, and online reviews do provide objective information to assess products. Cheema and Paptla (2010); Jain and Posavac (2001) also argued that informational attributes are more important in search products as compared to social attributes. Extant research suggests that experience and credence products are subjective in nature that cannot be observed directly (Burnkrant and Cousineau, 1975). Hence only search products showed significance in this case. Word count shows a strong positive relation with perceived usefulness across all product categories with the most impact seen in experience products. Mudambi and Schuff (2010); Sullivan (1999) had similar findings.

4.2 Model of Review Adoption

For data analysis, AMOS, a structural equations modelling program is used to test the model. The goodness of fit indexes for data collected for hypothetically branded product reviews and real brand reviews is presented in Table 5. The observed values as well as the acceptable ranges are shown in the table. The results show that overall model has a good fit of the data.

Table 7
Goodness of Fit Indexes

	Acceptable Values	Observed Values for Hypothetical Brand Reviews	Observed Values for Real Brand Reviews
GFI	>0.90	0.913	0.939
NFI	>0.90	0.927	0.909
CFI	>0.90	0.974	0.933
RMR	<0.50	0.49	0.48
RMSEA	< 0.08	0.06	0.038

For the case of data collected when hypothetically branded reviews were shown to the respondents, the estimates are presented in Table 6 and the coefficients that indicate the direct influence of independent variables on dependent variables are shown in Figure 3. Out of seven paths in the

proposed model, five were found to be statistically significant.

Table 8
Maximum Likelihood Estimates for Model of Review Adoption

Hypothesis	IDV	DV	Hypothetical Brand Reviews			Real Brand Reviews		
			Estimate	SE	p-value	Estimate	SE	p-value
H1	IU	IA	.705	.171	***	.803	.178	***
H2	AQR	IU	.629	.080	***	.598	.085	***
H3	AQT	IU	.062	.038	.104	.023	.039	.544
H4	AQA	IU	.036	.038	.339	.147	.069	.033
H5	AQC	IU	.89	.052	***	.181	.051	***
H6	SE	IU	.273	.083	***	.171	.040	***
H7	ST	IU	.391	.053	***	.361	.053	***

These paths show that the impact of information usefulness (IU) is significant on information adoption (IA). Furthermore, argument quality relevance (AQR), argument quality comprehensiveness (AQC), source expertise (SE) and source trustworthiness (ST) are also found to be the significant predictors of information usefulness.
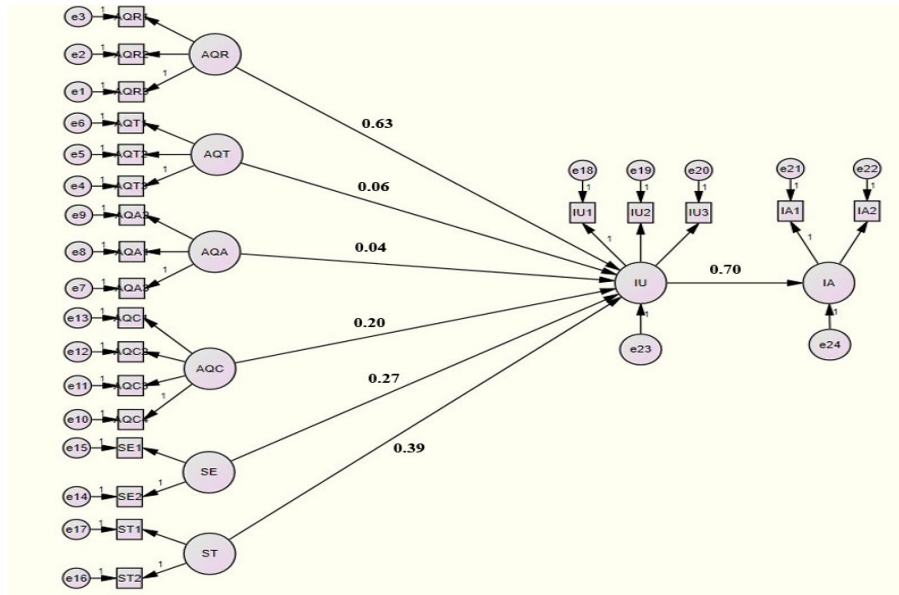

Fig. 3 AMOS Output for Hypothetically Branded Product Reviews

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For the case of data collected when real brand product reviews were shown to the respondents, the estimates are presented in Table 8 and the coefficients that indicate the direct influence of independent variables on dependent variable are shown in Figure 4. Out of seven paths in the proposed model, six were found to be statistically significant. These paths show that the impact of information usefulness (IU) is significant on information adoption (IA). Furthermore, argument quality relevance (AQR), argument quality comprehensiveness (AQC), source expertise (SE) and source trustworthiness (ST) are found to be the significant predictors of information usefulness.

However, when compared to the results of hypothetically branded product reviews, it was found that argument quality accuracy (AQA) was a significant predictor (p<0.05) of information usefulness.
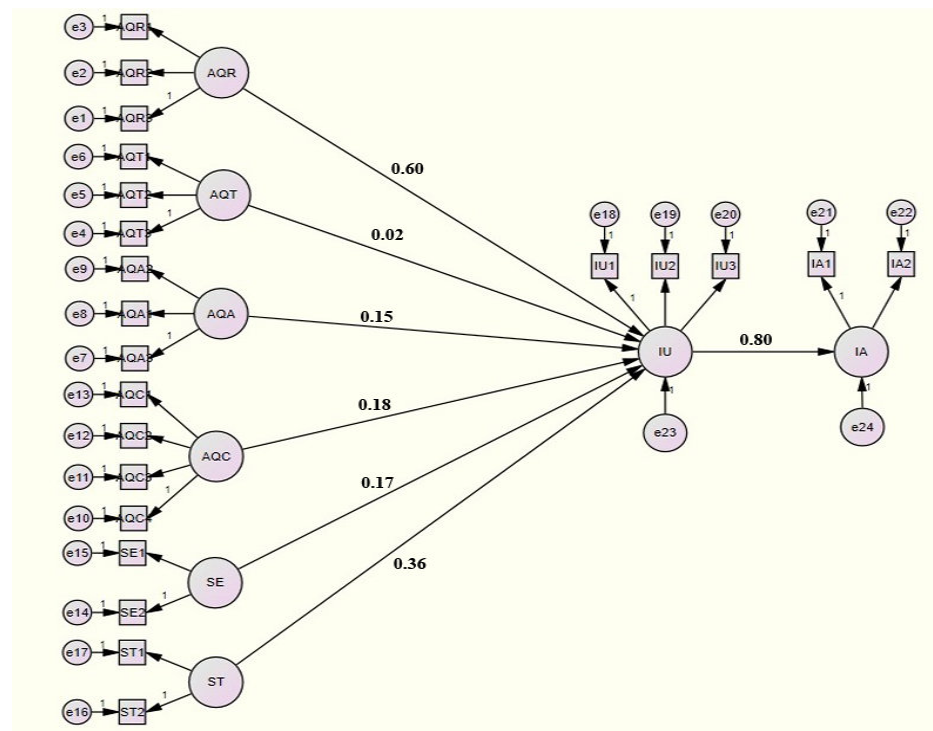

Fig. 9 AMOS output for known product brand reviews

4.2.1   Discussion for Model of Review Adoption

An experimental study was designed to analyse the model under research. To control the impact of brand names on a consumer's decision, data was collected with and without real brand names. It was expected that real brand names may moderate the relationship between review characteristics and consumer decisions. We also expected that presence of popular brand name will lead consumers to higher purchase decisions thus higher impact of reviews.

As far as the relationship between information usefulness and information adoption is concerned, it should be noted that although *t*-values are significant for both the hypothetical brand reviews and real brand reviews (p<0.001) their weights are different. Hypothetically branded product reviews have comparatively lower weight (0.705) to the real brand product reviews (0.803). The results are in line with our expectations as the brand name played its part in making people more prone towards a purchase decision (Aaker and Keller, 1990).

Overall the results were significant for both hypothetical and real brand reviews except for the relationship between argument quality accuracy (AQA) and argument quality timeliness (AQT) with information usefulness (IU).

Among the dimensions of argument quality, relevance and comprehensiveness showed significant positive relationship. Literature also shows that relevance of information is important among internet users (Madu and Madu, 2002). Sullivan (1999) stress that greater amount of information (comprehensiveness) is imperative among consumers for purchase decision making.

Among the antecedents of information usefulness, timeliness did not show significant impact on information usefulness (for hypothetical as well as real brand reviews). Cheung et al. (2008) also found that timeliness was not significant with information usefulness. It may be due to the fact that

Epinions.com is around for more than a decade. It was observed that many of the reviews available on the Epinions.com are very old and still available. Reviews about products like music CDs, shampoos and fertilizers are not as time sensitive as other technology oriented products in the online setting. Reviews which are old may have even helped validate the growing popularity of these products. Under such circumstances, reviews about products which are not that time sensitive will not show significant impact on information usefulness and ultimately information adoption. However, timeliness will show greater impact in case of products which are prone to expiry or quick depletion.

Similarly, accuracy of the reviews at Epinions.com did not show significant impact on information usefulness in the case of hypothetical brand reviews. While searching online for a specific product, people do have at least some background knowledge about that product. When they look at the reviews, they check if part of the review conveys some information that they already knew. It the information is in line with their prior knowledge, they would deem the review to be accurate. In case of hypothetical brand names, respondents were unaware of those brands and they did not have any prior knowledge about those brands. It became difficult for them to evaluate the accuracy of information. For example, in the context of Epinions.com, if there was a review about a music CD they had never listened to before; it would be very difficult for them to judge whether any or all of the information in review is accurate. Therefore accuracy of reviews did not show any significant influence on information usefulness in the case of hypothetical brand reviews. In other cases, where people can judge the accuracy of information from other sources or they have prior brand knowledge, information accuracy becomes important. We found exactly the same when data was collected for real brand reviews. Significance of results confirmed that when people have some background knowledge about the product, they can confirm the accuracy of information. And accuracy of information will then show an impact on the perception that information is useful.

Source expertise also showed positive impact on information usefulness

in this study. Weiss et al.(2008) also suggest that source expertise is important in consumer's decision making. Source trustworthiness, the dimension of source credibility also had significant positive impact on information usefulness in line with the results of (Gruen et al., 2006) i.e. higher reputation means more influence on other members of a particular community.

4.3 Model Comparison

The models adopted for this study were taken from the works of two different authors. However both the models had some commonalities among them. First of all, both the models were based actually on the information adoption model of Sussman and Siegal (2003). They presented that argument quality and source credibility leads to information usefulness and ultimately information adoption. Based on that work, a model of review adoption also used the terms of argument quality and source credibility to represent word of mouse characteristics. The model of review usefulness used terminologies of message factors (corresponding to argument quality in the model of review adoption) and messenger factors (corresponding to source credibility in the model of review adoption).

Among the dimensions of argument quality, comprehensiveness in the model of review adoption is exactly the same variable termed as review elaborateness in the model of review usefulness. Similarly, source expertise and source trustworthiness in the model of review adoption correspond to reviewer expertise and reviewer reputation in the model of review usefulness respectively.

5. Limitations

Research in social sciences always has some limitation. So is the case with this study.

First, the study collected data only from one online reviews platform

Epinions.com. This is only one type of online review platform. Results may vary across different word of mouse platforms. So generalizability is limited. Second, the experiment was conducted by collecting data from university students. However, students generally represent a group with similar demographics. Professionals, teachers and women may have different perception of word of mouse influence.

Third, experiment was conducted to control the impact of brand name only. However, there may have been other important predictors such as prior internet knowledge and prior experience with online reviews.

6. Future Research

Based on the issues pointed out in the study, future recommendations are generated.

First, commonalties found in this study could be used to develop a better, more influential model to test the impact of word of mouse on information usefulness and ultimately consumer's decision.

Second, this is the first study to see consumers' reliance on word of mouse from the objective as well as subjective data. Replication of this study with larger sample sizes, different respondent groups and at different word of mouse platform will help the validation of the findings and future research avenues.

Third, beyond the predictors of information usefulness tested in the study, other predictors such as internet usage, personality type and product involvement should be tested for their influence on consumer perceptions and decisions.

7. Research Implications

From the findings of the study we have derived some recommendations

for the managers and practitioners.

Reviewer's reputation (source trustworthiness), reviewer's expertise (source expertise), and review elaborateness (comprehensiveness) are the most important dimensions of word of mouse and they lead to information usefulness and information adoption. Hence online sellers should encourage reviewers to write more reviews which are complete and reliable. This can be achieved by allowing them some rewards such as rankings, trust votes or friendship possibilities.

Given the ability to evaluate the search products prior to purchase, companies offering search based products should focus more on the review characteristics than the reviewer characteristics. However, results across experience and credence based products showed that reviewer reputation and review elaborateness are vital dimensions of word of mouse.

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