

# An empirical investigation of gist helpfulness in online reviews

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## Keywords

e-commerce; gist helpfulness; online review; online recommendations; purchase behaviors

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## Abstract

*The online-purchase trends suggest that consumers' online reviews have become very important for customers and the sellers in purchase decisions and product sales respectively. Although the significance of online reviews has been examined, there are research gaps in studies on how to make title of online reviews helpful. The paper explores the traits that influence the formation of title of online reviews.*

*The study proposes gist helpfulness for the title of online reviews adopting elements such as online recommendation, online reviewer, and online review timeline, online review indicator. Our analysis of data from survey of 528 customers shows that daily use of internet positively influences gist helpfulness. The analysis was conducted through binary logistic regression. It is found that review depth and online reading experience have significance over gist helpfulness. The approach in this study is empirical where it attempts to improvise selection of reading reviews based on titles. The scope of the study is as such that it can be adopted by online companies to upgrade the current online review system and enrich customer experience to maintain relationship with their users. Besides, this paper aims to develop a normative model considering important strategic issues to develop an insight related to consumer reviews.*

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## 1. Introduction

Online customer reviews have endeavored influence on customers' purchase decisions when shopping online and has given modern emphasis to the concept of word-of-mouth. Online reviews play significant role in making certain degree of construct, supported by the level of cognizance and technical orientation of the consumer in a given interactive digital environment. The enormous quantity, heterogeneity and receptiveness of online reviews have contributed to their appeal and growing popularity. Voluminous information is available regarding products reviews online and reading all the reviews is laborious and time consuming for customers. Thus, most customers choose to read reviews selectively. The online sellers invite users of their products to post personal product evaluations on the sellers' and it helps them correct their promotional strategy accordingly.

According to the theory of selective attention, people react to messages selectively because individual possess finite information processing capacity (Treisman, 1969). Similarly, people pay selective attention to online reviews. People look for instantaneous cues that enable them to decide whether to read a review or not. One such indicator is the title of online reviews. Titles of online reviews grab the attention of customers. Salehan and Kim (2016) found reviews receive more readerships with titles having higher levels of positive sentiment whereas length of the title is negatively related to the readership.

Each review has a title and body text. However, despite prior investigations related review body text in online reviews we find the title of online reviews component is mostly unexplored in this domain.

This study contributes to the existing body of knowledge in a peculiar way as it attempts to improvise the process for selection of reading reviews based on titles.

Gist helpfulness may be defined as important pieces of information about online reviews that makes it helpful instantaneously. The study proposes gist helpfulness for the title of online reviews adopting elements such as online recommendation, online reviewer, and online review timeline, online review indicator.

The paper proceeds as follows:

Developing the theoretical foundation for gist helpfulness.

Developing the research model and hypothesis.

Analyzing the research model using binary logistic regression as dependent variable gist helpfulness is dichotomous variable (Yes or No).

## 2. Related literature

With the rise of online reviews, many people believe that online reviews could be a good alternative for complete word of mouth (WOM) and could also influence consumers' decisions. Previous empirical findings support the idea. Godes and Mayzlin (2004) found positive association between eWOM and TV shows viewership. Liu (2006) studied movie reviews and found that online movie reviews propose important explanatory power for both cumulative and weekly box office revenues. This suggests that customers make offline purchase decisions established from online information and some forms of eWOM are proxies for overall WOM. Various studies attempted to determine the relation between online reviews and product sales, and they found mixed findings. Chevalier and Mayzlin (2006) found online consumer ratings greatly impact product sales in case of books. Zhang and Dellarocas (2006) obtained similar results in case of movie industry. In contrast, Chen et al. (2004) and Duan et al. (2008) found that online reviews do not impact sales but serve only as predictors.

A customer is always in search of quality information in online environment. The quality of online reviews has a positive impact on consumers' purchasing plan and purchasing intention increases with an increment in the number of reviews (Park et al., 2007). Lee et al. (2011) results show that greater perceived credibility of online consumer reviews among potential consumers leads to higher purchase intention. Consumer presume online reviews to be more credible when the review contains detailed information in case of search product whereas for experience product consumer determines the credibility of review by judging the level of reviewer agreement with a review (Jimenez and Mendoza, 2013). Xia and Bechwati (2008) study suggest that the differential effect of online reviews is slightly due to readers' (information seekers) cognitive personalization. When information seekers sense rapport with the reviewer, they perceive the review more trustworthy and useful and give more influence over their purchase intentions. In online word of mouth, reviews help notify future consumer and reduce doubt surrounding the shopping experience (Dellarocas, 2003). However, there are large numbers of reviews available to read. Consumers often require only a limited set of helpful reviews, and many online vendors enforce mechanisms to identify reviews that customers observe as most helpful (Cao et al., 2011; Mudambi and Schuff, 2010). A better understanding of perceived review helpfulness offers definite perks to online retailers and review providers (Chen et al., 2008).

Several studies have been done on helpfulness of review (see Table1), Schindler and Bickart (2012) found the length of a consumer review to be positively linked to its perceived value to other consumers, but only to a point. Combination of reviewer and review features are significantly associated with the observed usefulness of reviews (Racherla and Friske, 2012). Huang et al. (2013) suggests consumers perceive product reviews written by customers more helpful than written by experts.

Table1. Prior Studies on the Helpfulness of Online Review

Authors	Data	Sample size(N)	Method	Findings
Forman et al. (2008)	Amazon (book)	786	Econometrics	Sharing of geographical location of reviewer has positive effect on product sales
Mudambi & Schuff (2010)	Amazon (search and experience goods)	1587 (reviews)	Econometrics	Effect of review extremity on helpfulness of reviews is controlled by the product type

Zhang et al. (2010)	Survey (software program)	150	SEM	Potential customers are more responsive to reviews that are perceived more helpful
Ghose & Ipeiroitis (2011)	Amazon (electronic goods)	411	Econometrics	Simple review will be more helpful than a more complicated one
Schlosser (2011)	(movie, book)	201	Experiment	One sided argument is perceived more helpful than two sided arguments
Korfiatis et al. (2012)	Amazon (book)	37,221 (reviews)	Econometrics	Review readability has more effect on helpfulness ratio of review than the length of review
Cheung et al. (2012)	Survey (not specified)	99	SEM	Customers rely on source credibility, review consistency, and review sidedness while evaluating online consumer reviews
Baek et al. (2013)	Amazon (search and experience goods)	75,226 (reviews)	Econometrics	Review rating, reviewer's credibility, and content of reviews influence the helpfulness of reviews
Yin, D., Bond, S., & Zhang, H. (2014)	Online stores	78	Experiment	Anxious reviews considered to be more helpful than angry reviews
Zhu, L., Yin, G., & He, W. (2014)	Yelp(hotel)	16,265(reviews)	Econometrics	Review written by an opinion leader (high expertise and more online friends) does not correspond to reception of helpfulness votes

Source: Author

### 3. Theoretical foundation for the model

The paper forms a framework of *gist helpfulness* for the title of reviews and provides formulation of analysis and synthesis of the literature using comprehensive scope from journals of various disciplines; articles published online and research reports. The concepts are evolved iteratively based on the reviewed content. The researchers come with proposed *gist helpfulness* adopting elements online reviewer, online recommendation, Online Review Indicator and online review timeline (see Figure 1).

#### a. Online reviewer

The element 'Online reviewer' referred to as the name of the reviewer or reviewer identity. Forman et al. (2008) concludes that the combination of reviewers' identity with relevant information shapes the online community member's judgment about products and reviews. Xie et al. (2011) study indicates that the presence of personal identifying information positively affects the observed credibility of online reviews. Kusumasondjaja et al. (2012) suggests positive online reviews leads to higher initial trust than negative reviews when the identity of the reviewer is disclosed. Racherla and Friske (2012) demonstrated the significance of identity disclosure in online interaction enhances the ability of customers' information procurement. Liu and Park (2015) study reveals that reviewers' identity disclosure has a significant impact on review usefulness.

### b. Online recommendation

The element 'Like' referred as online recommendation made by the customer. Chen et al. (2004) results indicated that more recommendations are positively associated with sales at Amazon.com. Senecal and Nantel (2004) found that participants selected products twice when exposed to product recommendations as often as those who were not exposed to recommendations. Fagerstrom and Ghinea (2011) study suggests that other online customer recommendations have more impact on novice online shoppers than who shop more frequently.

### c. Online Review Indicator

The element Online Review Indicator are the cues that consumer can select why he recommends a product. The cues are assigned with respective symbols. The consumer can select the type of cue according to the best fit to their review description. The symbols will be represented in the title of reviews. Evaluation pricing of the product (£). It is the evaluation of consumer of value of the product with respect to price. Does the price tag justify the value of the product to the consumer? Do the benefits from the product during the life time usage of product outweigh the price paying for the product by the consumer? Evaluation execution of the product (P). It is the evaluation of consumer how reliable and efficient is the product. The consumer who has inconvenience in tweaking and modifying to get peak performance out the product will not prefer this cue.

Evaluation feature of the product (Q)

It is evaluation of consumer the quality of material used in making the product. The aesthetics features of the product that defines the consumer in social environment.

Evaluation maintenance provided by the company of the product (§)

It is the evaluation of consumer of the overall experience in terms of service provided by the company of the product. The post purchase services provided by the company.

### d. Online Review Timeline

The element is 'online review timeline' of the review denotes the time frame of review in hours, days, months and year format. Cui et al. (2012) findings show that volume of reviews has significant effect on new product sales and it decreases with time. Similarly, Hu et al. (2008) demonstrates that impact of sales is a decreasing function of age of the product. Each review written by customer reveals additional information to a new customer. Thus, the cumulative effect of impact of reviews due to reviewer will be substantial when a product has fewer pre-existing reviews. Dellarocas (Dellarocas et al., 2007) showed that early volume of online reviews can be used as a proxy of early sales in case of movies. People talk more about movies immediately after watching them than as time goes by. Whereas, McAuley and Leskovec (2013) suggest that users' tastes and preferences change and evolve over time. As user consume additional products and gain experience, may influence change in his rating behavior.

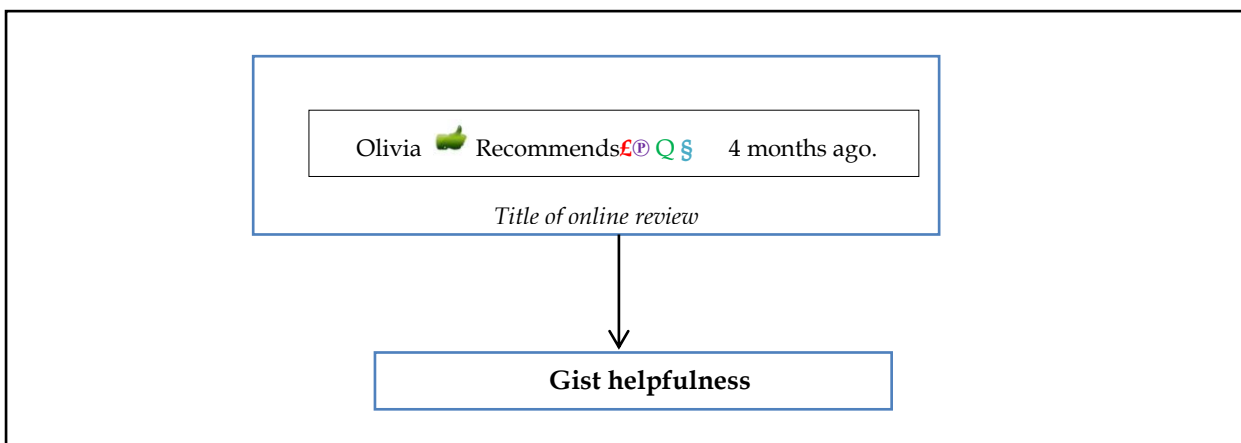


Figure 1: Theoretical foundation

Source: Author

## 4. Research model and Hypotheses

### 4.1. Internet Experience

The concept of Internet skills is one of various concepts that resulted from the rapid distribution of digital technologies into society. Internet skills can be considered a condition; for example, the skills to use cell phones or computers. An internet skill suggests indicating a set of basic skills in using Internet technology. How the consumers navigate and orient themselves in interactive digital environment. One internet skill is the approach adopted by consumer to fulfill his information needs and other is using internet as means for attaining specific goals. Consumers' ability to understand and adapt to a new feature online could be based on how much internet experience one has. We, therefore, propose the following set of hypotheses, where the first set refers to the internet experience that a consumer has. We propose with the daily use of internet consumers may adapt to gist helpfulness easily and may have positive effect on gist helpfulness. Access medium states the use of internet via different platforms i.e. PC, smartphone and tablet. As companies offer websites and App for same product services, usability, interface of new features designed could differ on different platforms i.e. on PC and smartphone. Access place refers to where the consumers most likely to use internet either for leisure or for work.

H1a: Consumers daily use of internet has positive effect on gist helpfulness.

H1b: Consumers access medium of internet moderates the effect on gist helpfulness.

H1c: Consumers access place of internet moderates the effect on gist helpfulness.

### 4.2. Online review preference

All styles of online reviews are available for a product. Consumers are likely to get attracted to reviews which are lengthy in nature. Detailed reviews written by former users contain information and may cover deep analysis of the product, thus consumers are fascinated by longer reviews. We propose consumers who prefer to read detailed, in depth reviews to be positively related to gist helpfulness. Many reviews have started adding on of attaching photos of bought product to the review. Users uploaded photos acts as visual cues for consumers and provides information that cannot be described. Thus, we propose consumers who prefer photos in reviews to be positively related to gist helpfulness. Consumers gain information and doubt in their minds reduces as they gain knowledge of a product. Consumers read selected reviews as the number of reviews available for a product may have over thousand reviews. Although many review websites provide features such as most helpful, most liked, most recent and most read reviews, the choice of reading number of reviews remains with the consumer. Some consumers may only rely on product ratings to gain information of product and avoid reading reviews. Some consumers may gain information about the product reading a few reviews and some more than ten reviews. Consumer read number of reviews until they are satisfied about the information that they expect to gain from reviews and make a decision. This may also depend on the approach of finding reviews and selective nature of consumer. This may vary as consumer gains experience of reading reviews. Thus, we propose consumers with higher online review reading experience to be positively related to gist helpfulness. We, therefore, propose the second set of hypotheses, where the set refers to the online review preference that a consumer has.

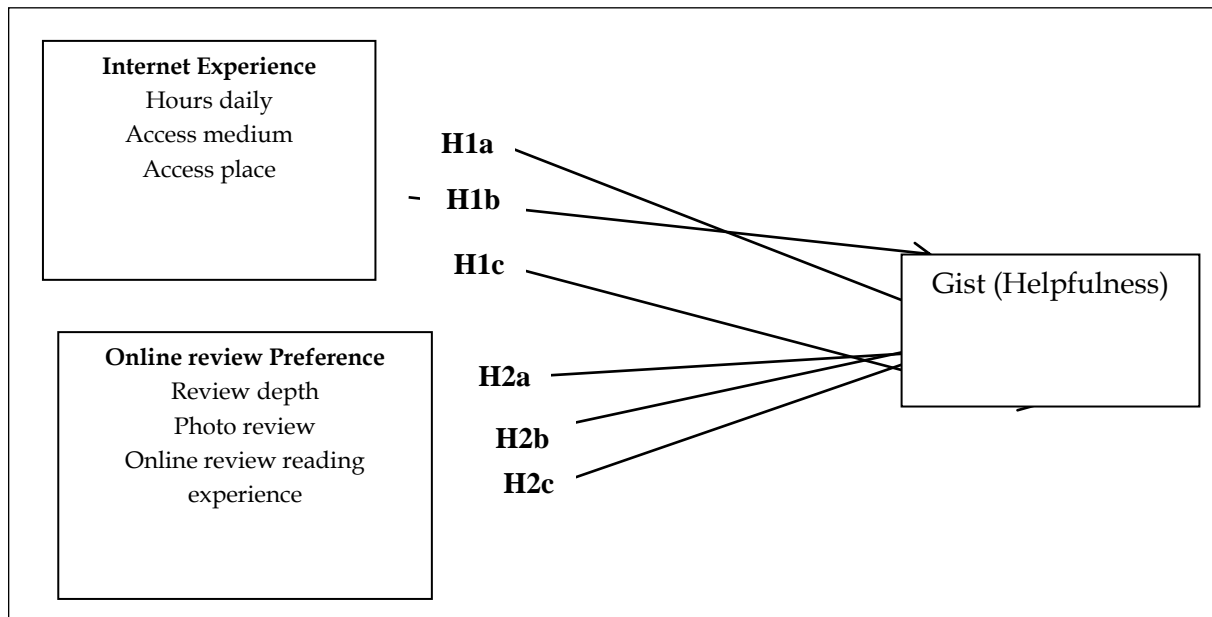
H2a: Consumers prefer to read detailed reviews have positive effect on gist helpfulness.

H2b: Consumers prefer photos in reviews have positive effect on gist helpfulness.

H2c: Consumers with higher online review reading experience have positive effect on gist helpfulness

For our study we strive for to better comprehend how to extemporize helpfulness in online reviews. Our research model (Figure 2) illustrates two factors that are internet experience and online review preference considers determining gist helpfulness.

Figure 2: Research model



## 5. Methodology

### 5.1. Procedure

The unit of analysis in this study is the individual consumer who has experienced online reviews while purchasing products at online stores. Since the importance of this study is focused on investigating the relationship between gist helpfulness and online review preferences, internet experience is also among key factors in finding the adaptability and understanding a new online feature. As consumers' have attracted to online shopping on websites such as Amazon.com, the survey was not designed for specific target subjects. To collect the consumers' data, we built an online survey questionnaire. The form link was shared randomly to individuals and groups online via email, social websites such as facebook, WhatsApp. The survey period was from four to five weeks and the total number of participants was 528. Sample characteristics and Descriptive statistics of respondents profile shown in *Table no 2*. And *Table no 3*. Of 528 respondents, 41.7 percent were less than 21 years of age ( $n= 220$ ), 54.7 percent were 22-30 ( $n= 288$ ), 1.5 percent were 31-40 ( $n= 8$ ), 0.8 percent were 41-50 ( $n= 4$ ), 1.5 percent were 51 and above ( $n= 8$ ). About 83.3 percent use smartphone for internet access ( $n=440$ ). About 76.5 percent find online reviews helpful for search products while buying online ( $n=404$ ). About 59.1 percent of respondents didn't prefer to read lengthy online reviews for products ( $n=312$ ). About 64.4 percent find photos in a review helpful ( $n=340$ ).

Characteristic	Number of respondents (n=528)	Percentage
Sex		
Male	360	68.2
Female	168	31.8
Age		
Less than 21	220	41.7
22-30	288	54.5
31-40	8	1.5
41-50	4	.8
51 and above	8	1.5
Qualification		
Undergraduate	252	47.7
Graduate	132	25.0

Post graduate	144	27.3
Annual income		
3- 4 lakh	352	66.7
4-5 lakh	68	12.9
5 lakhs above	108	20.5
Internet access medium		
PC	80	15.2
Tablet	8	1.5
Smartphone	440	83.3
Access place		
At Home	456	86.4
At work	72	13.6
Hours daily		
Less than 1	24	4.5
1- 2 hours	156	29.5
3-4 hours	180	34.1
5-6 hours	64	12.1
More than 6 hours	104	19.7
Online review reading experience		
No reviews	28	5.3
1- 3 reviews	136	25.8
4-7 reviews	184	34.8
7-10 reviews	80	15.2
More than 10 reviews	100	18.9
Product type		
Search	404	76.5
Experience	124	23.5
Helpful vote		
Yes	240	45.5
No	288	54.5
Review in depth		
Yes	216	40.9
No	312	59.1
Photo in review		
Yes	340	64.4
No	188	35.6

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Gender	528	1	0	1	.32	.466	.217
Age	528	4	1	5	1.66	.695	.483
Qualification	528	2	1	3	1.80	.842	.710
income	528	2	1	3	1.54	.812	.659
Hours daily	528	4	1	5	3.13	1.171	1.372
Access place	528	1	0	1	.14	.343	.118
Access medium	528	2	1	3	2.68	.722	.521
online review reading	528	4	1	5	3.17	1.163	1.354
Product type	528	1	0	1	.23	.424	.180
Helpful vote	528	1	0	1	.55	.498	.248
review_indepth	528	1	0	1	.41	.492	.242
photos_inreview	528	1	0	1	.64	.479	.230
Valid N (listwise)	528						

## 5.2. Measures

The questionnaire was personalized for the dependent variable gist helpfulness. The dependent variable is dichotomous variable, the dependent variable gist helpfulness was coded as (Yes=1 and No =0). Respondents were asked to vote Yes or No for whether they found title of review helpful? The predicted event is that the respondent will vote for Yes (gist helpfulness). For independent variables review in depth, respondents were asked to vote Yes or No for whether they preferred to read lengthy online reviews before buying a product? Review in depth was coded as (Yes=1 and No =0). For photos in review respondents were asked to vote Yes or No for whether they preferred photos of bought product attached to the review? Photos in review was coded as (Yes=1 and No =0). For access place, respondents were asked to vote from where they access internet more from Home or Work. Access place was coded as (Home =0 and Work =1). For Hours daily, respondents were asked for how many hours do they use internet daily? The hour's daily variable is a categorical, with five levels. SPSS allows us to select as the reference group either the group with the lowest numeric code or that with the highest numeric code. We have selected the lowest (first) code, 'less than 1 hour'. SPSS shows us the coding of the  $k-1 = 4$  dummy variables that it has created in *Appendix A: Categorical Variables Coding*. Similarly, online review reading experience is a categorical variable, with five levels. We have selected the lowest (first) code, 'No reviews' as the reference group and 4 dummy variables were created for this variable. For access medium variable, 'PC' as the reference group and 2 dummy variables were created for this variable.

## 5.3. Data analysis and results

To analyze hypotheses H1a through H2c, we tested the following regression model:

$$\text{Log (gist helpfulness)} = \beta_0 + \beta_1 (\text{hours daily}) + \beta_2 (\text{access place}) + \beta_3 (\text{access medium}) + \beta_4 (\text{online reading experience}) + \beta_5 (\text{review in depth}) + \beta_6 (\text{photos in review}) + \varepsilon.$$

We check the VIF of independent variables in table no 4 the result of analysis shows that multicollinearity is not a concern in this study.

		Tolerance	VIF
1	review_indepth	.587	1.704
	photos_inreview	.609	1.642
	Hours daily	.936	1.069
	Access place	.807	1.239
	Access medium	.870	1.149
	online review reading	.961	1.041

a. Dependent Variable: gist helpfulness

Then we proceeded with the model analysis. Table no 5. Shows Omnibus Tests of Model Coefficient which gives the result of the Likelihood Ratio (LR) test which indicates whether the inclusion of this block of variables contributes significantly to model fit. A p-value (sig) of less than 0.05 for block means that the *block 1 model* is a significant improvement to the *block 0 model*. The addition of variables reviews in depth, photos in review, hours daily, access place, access medium and online reading experience to the model has reduced the -2-log likelihood by 128.320 on 13 degree of freedom.  $\chi^2 (13, N=528) = 128.320, p < 0.001$ .

		Chi-square	df	Sig.
Step 1	Step	128.320	13	.000
	Block	128.320	13	.000
	Model	128.320	13	.000

From table no 6 we can conclude that between 21% and 29.4 % of the variation in gist helpfulness can be explained by the model in *block 1*.



Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	572.302 <sup>a</sup>	.216	.294

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

From table no 7 Our *H-L statistic* has a significance of .262 which means that it is not statistically significant and therefore our model is quite a good fit. A goodness of fit of .262 indicating that binary logistic regression was a good choice for analysis of the proposed model. This desirable outcome of non-significance indicates that the model prediction does not significantly differ from the observed.

Step	Chi-square	df	Sig.
1	10.050	8	.262

From table no 8 Contingency Table for Hosmer and Lemeshow Test. The difference between the expected and observed in the column (gist helpfulness=Yes) is less suggests the more predictive capacity of the model.

		gist helpfulness = No		gist helpfulness = Yes		Total
		Observed	Expected	Observed	Expected	
Step 1	1	46	43.708	8	10.292	54
	2	38	37.334	20	20.666	58
	3	28	27.307	24	24.693	52
	4	24	24.624	30	29.376	54
	5	20	20.103	32	31.897	52
	6	10	16.424	42	35.576	52
	7	16	12.293	36	39.707	52
	8	8	7.743	42	42.257	50
	9	2	5.358	46	42.642	48
	10	8	5.107	48	50.893	56

From table no 9 Classification Table In this study, 82.9% say *Yes* and 56.0% for *No* for dependent variable i.e. gist helpfulness. Overall 72.7% say that they found the model helpful. This is a considerable improvement on the 62.1% classification with the constant model *Block 0*, so we know that the model with predictors is a significantly better model. The predictive capacity of the model has increased by 10.6% to 72.7%.

Observed		Predicted		Percentage Correct
		gist helpfulness		
		No	Yes	
Step 1	gist helpfulness	No	88	56.0
		Yes	272	82.9
Overall Percentage				72.7

The cut value is .500  
Block 0: Beginning Block: Step 0 overall percentage is 62.1.

	B	S.E.	Wald Chi-square	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup> Hours daily			17.439	4	.002			

Hours daily (1)	.432	.527	.672	1	.412	1.541	.548	4.329
Hours daily (2)	.936	.515	3.308	1	.069	2.549	.930	6.989
Hours daily (3)	.871	.590	2.182	1	.140	2.390	.752	7.595
Hours daily (4)	-.213	.541	.155	1	.694	.808	.280	2.333
Access place (1)	.612	.339	3.255	1	.071	1.844	.949	3.585
Access medium			.269	2	.874			
Access medium (1)	.402	1.103	.133	1	.715	1.495	.172	12.992
Access medium (2)	.135	.309	.192	1	.661	1.145	.625	2.098
Online review reading			34.132	4	.000			
Online review reading (1)	2.674	.634	17.778	1	.000	14.492	4.182	50.222
Online review reading (2)	3.335	.623	28.622	1	.000	28.077	8.275	95.270
Online review reading (3)	2.845	.647	19.360	1	.000	17.209	4.845	61.124
Online review reading (4)	3.343	.645	26.870	1	.000	28.306	7.997	100.193
review_indepth (1)	2.011	.294	46.762	1	.000	7.474	4.199	13.302
photos_inreview (1)	-.860	.270	10.126	1	.001	.423	.249	.719
Constant	-3.286	.800	16.869	1	.000	.037		

a. Variable(s) entered on step 1: Hours daily, Access place, Access medium, online review reading, review\_indepth, photos\_inreview.

Table no 10 shows the results of the research model analysis. The proposed relationship between hours daily and gist helpfulness was significant (Wald  $\chi^2=17.439$ ,  $p < 0.001$ ), thus supporting H1a. The relationship between Access place and gist helpfulness was not significant (Wald  $\chi^2=3.255$ ,  $p = .412$ ). Therefore, we don't find support for H1c. The relationship between Access medium and gist helpfulness was not significant (Wald  $\chi^2=.269$ ,  $p = .874$ ). Thus, H1b is not supported. The proposed relationship between online review reading experience and gist helpfulness was significant (Wald  $\chi^2=34.132$ ,  $p < 0.001$ ), thus supporting H2c. The relationship between review in depth and gist helpfulness was significant (Wald  $\chi^2=46.762$ ,  $p < 0.001$ ), thus supporting H2a. The relationship between photos in review and gist helpfulness was significant (Wald  $\chi^2=10.126$ ,  $p < 0.001$ ) but the coefficient was negative ( $b = -.860$ ), thus H2b is not supported. Table no 11 summarizes the hypothesis testing.

Hypothesis	Hypothesized relationship	Results
H1a	hours daily → gist helpfulness	supported
H1b	access medium → gist helpfulness	not supported
H1c	access place → gist helpfulness	not supported
H2a	review in depth → gist helpfulness	supported
H2b	photos in review → gist helpfulness	not supported
H2c	online review reading experience → gist helpfulness	supported

Table no 12. Classification Plot



## 7. Managerial Implications

The study attempts to eliminate the sentiments created by user generated title of reviews i.e. positive, negative, mixed sentiments. The study moves in the direction of making titles more rational and not emotion-based titles. This study also contributes to the form of knowledge by studying readership and helpfulness of online reviews. The study provides improvement and help consumers for selection for reading reviews and ignoring other reviews based on the title of reviews. The titles may be classified into four dimensions represented by symbols with the help of online review indicator (*execution, price, maintenance, and feature*). Thus, person recommending a product; the title of review has four dimensions. One can select all dimensions or any of the four.

A person who is keen to buy a smartphone online may be sure of quality of the smartphone i.e. Aluminum case, 9H hardness glass for screen but not so sure about performance. The person may inherit selective approach of reading reviews that recommend the smartphone based on performance. A person who wants to buy electric shaver may select the approach of reading reviews that has recommended electric shaver based on service provided by the company. The person may have doubt if the blades or motor of the shaver wears out within warranty period does the company provide replacement or not. Thus, the study adds in direction of making online reviews more targeted to interested audience in specific contexts (*execution, price, maintenance, and feature*) of a product rather than audience. The study of gist helpfulness provides vital information in the titles of review such as name of the user, recommendation, longevity of the review. The name reveals the identity of the user and indirectly shows that the purchase is a verified purchase or a certified buyer. It adds to the credibility of title of review. The word recommendation in the title puts forward that the product has approval from the users, as being suitable for a particular purpose or a role. The study ventures to integrate sense of giving "*personal recommendation*" through titles of reviews from one person to another in online ecosystem. The "*days*" element in online reviews is often overlooked or is undervalued. Today we live in "*Update Era*" for example new editions of books are released in addition to studies with respect to the current scenario the age of social media, software's are updated timely such as "Windows 10 Creators Update version 1703", and video games are patched after releases such as "The Witcher 3 update 1.31". The released product today may not be assumed as the final product like it used to be in good old-fashioned days. Nowadays the products are tweaked accordingly based on experience of consumers and so as the reviews and ratings for the product changes with time accordingly. The "*days*" element in title of reviews suggests a cue what is the current status of the product on this day whether you should go for it or not.

## 8. Limitations and Future research

This study suffers from several limitations. Although this study has been conducted at the individual level of analysis the actual purchase behavior may vary. Thus, the sample may not be representative of the general population of online shoppers. The analytical results exhibited here thus may have limited generalizability. Second, our conclusion does not focus on product types in this study i.e. search and experience. Future research can use a sample focusing on specific product types such as books; electronic products and test and compare the results between categories for the research model. Third, our model does not include review extremity; we cannot explain the effect of review extremity on actual purchase behavior with our model. Moambe and Schiff (2010) have suggested that product type mediates the effect of review extremity on the helpfulness of the review. Future research could empirically examine the effect review extremity on our model. Finally, since the sample was collected in India, generalizability to other countries might be limited due to cultural differences in purchase behaviors.

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#### 9. Appendix A: Categorical Variables Coding

		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
Hours daily	Less than 1 hour ( <i>Reference group</i> )	24	.000	.000	.000	.000
Hours daily (1)	1-2 hours	156	1.000	.000	.000	.000
Hours daily (2)	3-4 hours	180	.000	1.000	.000	.000
Hours daily (3)	5-6 hours	64	.000	.000	1.000	.000
Hours daily (4)	more than 6 hours	104	.000	.000	.000	1.000
online review reading	No reviews ( <i>Reference group</i> )	28	.000	.000	.000	.000
online review reading (1)	1- 3 reviews	136	1.000	.000	.000	.000
online review reading (2)	4-7 reviews	184	.000	1.000	.000	.000
online review reading (3)	7-10 reviews	80	.000	.000	1.000	.000
online review reading (4)	more than 10 reviews	100	.000	.000	.000	1.000
Access medium	PC ( <i>Reference group</i> )	80	.000	.000		
Access medium (1)	Tablet	8	1.000	.000		
Access medium (2)	Smartphone	440	.000	1.000		
review_indepth	No ( <i>Reference group</i> )	312	.000			
review_indepth (1)	Yes	216	1.000			
Access place	At home ( <i>Reference group</i> )	456	.000			
Access place (1)	At work	72	1.000			
photos_inreview	No ( <i>Reference group</i> )	188	.000			
photos_inreview (1)	Yes	340	1.000			