Research for the Relationship Between the Motivation of Word-of-Mouth and the Effect of Advertising on the Web

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ABSTRACT

This paper aims at studying the relationship between motivation of word of mouth and advertising's effect on the web (research materials: 300 pieces of scanner advertisements on the web). After factor analysis, nine factors are abstracted: emotion share, rewards, personal entertainment, community development, service improvement, community power, information rewards, punish/support businessman, self-image improvement. After regression analysis, model is established as follows: Y = 0.224 emotion share + 0.250 community development + 0.117 service improvement + 0.222 information rewards + 0.165 punish/support businessman.

KEYWORDS

Advertising Effects, Motivation, Web, Word-of-Mouth

INTRODUCTION

Word of mouth refers to the praise of the masses; it generally refers to the comments of the masses; the oral legend of the masses is equivalent to an event or organization often mentioned by the public. In other words, word-of-mouth is what a person or enterprise is in the eyes of the public. Word of mouth can be said to be the precipitation of a series of information. With the development of the Internet, the wide application of search engines and the popularization of mobile Internet, users will definitely choose the word-of-mouth that will definitely refer to the precipitation of Internet damaging enterprise information to make decisions.

The Internet provides convenience and unlimited time and space for brand owners to spread word-of-mouth. If the target consumers are interested in a certain product, they will search the Internet for all kinds of information about the product. After eliminating the false and retaining the true, comparative analysis, they will enter the purchase decision-making and product experience

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sharing process. In this process, high credibility brand word-of-mouth will play a key role in consumer purchase decision-making, which to a certain extent makes up for the shortcomings of traditional marketing communication mode in promoting consumers to form purchase decision-making. Thus, the current marketing mode of word of mouth + community is realized, which is more suitable for the growth of brands.

Scholars have proved that consumers tend to make use of word-of-mouth to make decisions (Scott D Johnson et al. 1997). With development of internet, word-of-mouth plays more important role in marketing. Many companies seek motivation of word-of-mouth while advertisers focus on relationship between motivation of word-of-mouth and advertising effect (Auschaitrakul et al. 2017). On the basis of Yan Jun, Jiang Yinbo and Chang Yaping's (2011) "Research on the motivation of internet word-of-mouth and its relationship with word-of-mouth behavior", with the help of its research framework, this paper aims to explore the relationship between internet word-of-mouth communication motivation and online advertising effect (Baretto. 2014, Yan et al. 2011, Yap et al. 2011).

The proposed methodology intended to find the effectiveness of motivation of word-of-mouth and advertising effect with the use of regression analysis method. The contribution of the article is as follows thus, session 2 represents the Theoretical framework, Session 3 represents Research hypotheses, Session 4 represents Factor analysis and regression analysis and Session 5 represents the Result and discussion part of the research.

THEORETICAL FRAMEWORK

Motivation of Word-of-mouth

To some extent, motivation decides people's action. Dichter (1966) summarized four kinds of motivation as follows: tension release, emotional release, information sharing and interest (Dichter et al. 1966). Engel (1993) added one kind of motivation, namely dissonance reduction Engel et al. (1993) Sundaram (1998) induced four kinds of motivation for both positive and negative ones respectively (Sundaram et al. 1998). In order to obtain dimensions of motivation of word-of-mouth in China, we processed deep interview for 86 students and formed 46 items about motivation of word-of-mouth on the web. All these items are designed as Likert scale.

Figure 1. Structure of Motivation of Word-of-mouth and Effect of Advertising with analysis methods
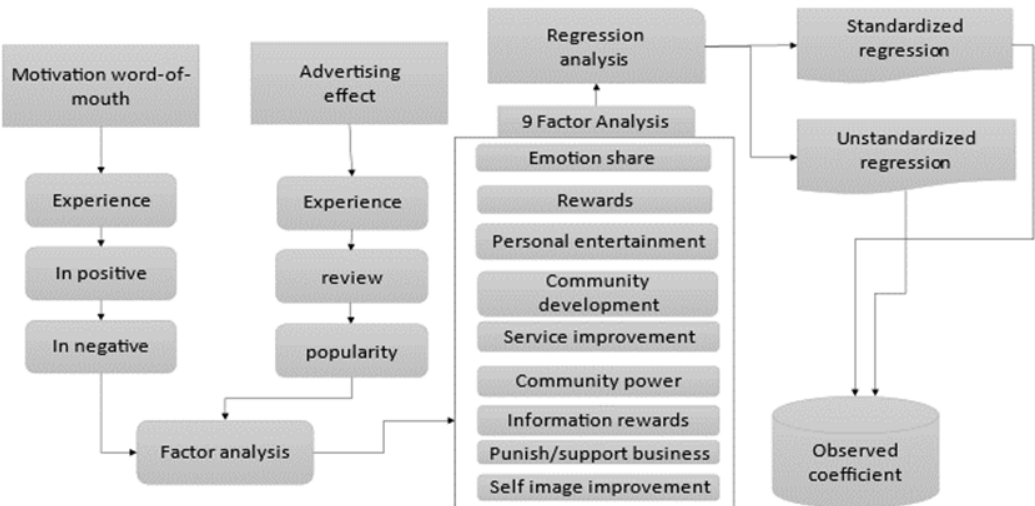
Advertising Effect

Many models of advertising effect have been proposed before such as ELM Petty at al. (1983), SIR(Mei-ling (2003), AIDA Jie Zhao (2000), DAGMAR Colley (1961), LS (Lavidge&Steiner,1961) and so on (Lavidge et al. 1961). After former studies of advertising effect [18], Krugman and so on it is classified advertising effect into communication effect and sales effect (Barban et al. 1990, Shaouf et al. 2016). As far as online advertisements are concerned, this paper adopts Krugman's definition: cognitive level, affective level and conative level and designs nine items as Likert scale.

Research Hypotheses

This paper focuses on the independent variable of motivation of word-of-mouth on the web and the dependent variable of advertising effect. According to research goals, this paper proposes hypotheses as follows:

H: Different kinds of motivation of word-of-mouth on the web exert great influence on the advertising effect on the web.

RESEARCH DESIGN

Research Material

This paper selects 300 pieces of scanner advertisements on the home page of https://www.sohu.com/ for the past 5 years as research materials.

36 members of the online product discussion community were selected Auschaitrakal et al. (2017), and 50 ordinary consumers with internet word-of-mouth communication experience were randomly invited to conduct individual interviews with them for 20 to 40 minutes about the above-mentioned products from 300 pieces of scanner advertisements on the web https://www.sohu.com/ for the past 5 years. The number of times that the interviewees posted comments on products online in the past six months ranged from 1 to 50 times. In the process of the interview, first explain to them what is word-of-mouth communication on the Internet, and then let them talk about the reasons for their online word-of-mouth communication. Finally, they coded, merged and eliminated, and got 46 items.

The 46 items were submitted to five professors of sociology, psychology and management. They were asked to select the appropriate items and give reasons. The results showed that 16 items were deleted or merged. The reasons included: the frequency of occurrence was too low (less than 10 times), not a common phenomenon, and the problem was too abstract. Finally, 30 items were obtained. The items were in the form of Likert scale. 1 means "totally disagree", 5 means "totally agree".

Research Methods

A questionnaire or written survey is a simple and productive tool to aid us in obtaining constructive feedback from both existing and potential respondents. We choose 810 subjects who come from Xiamen city and Guangzhou city (see Table 1 for specific statements) when we projected questionnaire investigation in both two places about 300 pieces of scanner advertisements on the web. Before that, test-retest of the questionnaire are processed that items of correlation coefficient below 0.60 and factor loading below 0.50 are deleted.

Factor analysis will be used in the following studies to extract dimensions of motivation of word-of-mouth on the web. After that, regression analysis will be applied to differentiate relationship between motivation of word-of-mouth and advertising effect on the web.

The above figure 2 represents the process of the proposed system for the motivation of word the use of social media and the effectiveness of social media for providing motivation mouth-of-word. Then, below table 1 states the efficiency of the information provided.

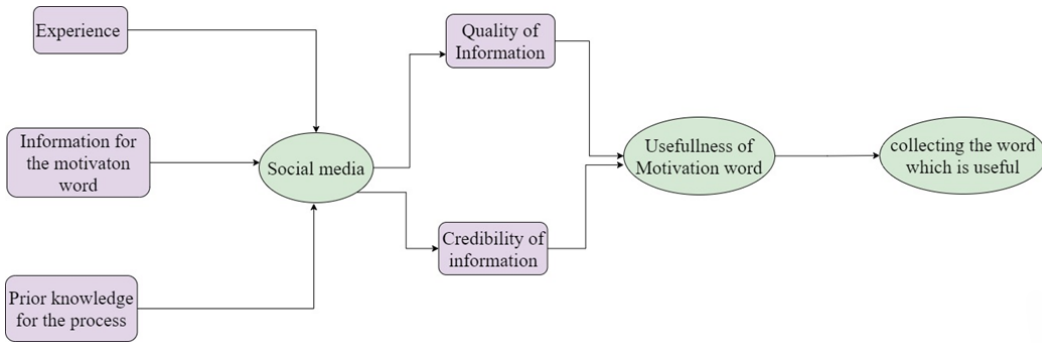**Figure 2. Structure of Motivation of mouth with social media**

Table 1. Statistical Table of Effective Sample Information

index	item	Number of people	Proportion of sample(%)	index	item	Number of people	Proportion of sample(%)
gender	male	420	51.8	education	Below senior high school (technical secondary school)	20	2.5
	female	390	48.2		Senior high school (technical secondary school)	24	3.0
					junior college	142	17.5
					undergraduate	362	44.7
					Bachelor degree or above	262	32.3
age	Below 18	44	5.5	income	Below 1000	324	40.0
	18-25	270	33.3		1001-2000	256	31.6
	26-30	304	37.5		2001-3000	104	12.8
	31-40	110	13.6		3001-4000	80	9.9
	over 40	82	10.1		over 4000	46	5.7

FACTOR ANALYSIS AND REGRESSION ANALYSIS

Factor Analysis

Factor analysis is a way to gather data in many variables into a very few variables that will be converted into a few variables. This analysis method is also called dimension reduction. Thus, the dimensions can be reduced into one or more super variables. The factor analysis is used to reduce a large number of variables into fewer factors that are most associated with the requirement. It extracts the common factor from all factors. We test data to see whether it is proper for factor analysis. Spss 16.0 is used here to process it as KMO value is 0.772 and significance of Bartlett's Test of Sphericity is 0.001. The Cronbach α coefficients of 9 factors ranged from 0.758 to 0.943, and the Cronbach α coefficient of the whole scale was 0.812, which exceeded the acceptable level of 0.70. Here, the KMO test is to assess the rightness of using factor analysis on the data set and Bartlett's Test of Sphericity is using the null hypothesis that the variable in the correlation matrix is uncorrelated. And also, the Cronbach α coefficients are a measurement of inner consistency, that is, how intimately associated with 9 factors. It is considered as a measure of reliability. The correlation coefficient of each item in

the corresponding dimension exceeded the minimum standard of 0.50, indicating that the scale has good internal consistency reliability. The table 2 below determines the factor analysis for motivation word-of-mouth and effect on advertising effect on the web. The below table 2 states the Factor analysis for motivation word-of-mouth and effect on advertising effect on web.

The above Figure 3 is the graphical representation of the motivation of word of mouth and advertising effect on web with factor analysis method.

This paper selects nine factors that satisfy the standards of Joseph et al. (1998) to be further denominated (Joseph et al. 1998). Methods of principal components and varimax are used here and results are shown in Table 2.

Emotion share refers to the motivation of consumers to share consumption experience and experience with other consumers through internet word-of-mouth communication. In the process of word-of-mouth communication, consumers often use positive word-of-mouth to alleviate the pleasure, excitement and satisfaction brought by using or owning products, and vent their anger, anxiety and depression caused by unpleasant consumption experience through negative word-of-mouth communication.

Table 2. Factor analysis for motivation word-of-mouth and effect on advertising effect on web

Factor analysis for Motivational word-of-Mouth	Factor analysis for Advertising effect on web
88.53	81.5
87.4	79.2
85.77	78.42
84.45	75.25
83.72	72.63
82.42	70.57
80.61	68.61
78.74	65.79
75.72	64.86
72.4	63.2
65.84	61.3

Figure 3. The Factor analysis method for motivation of Word-of-mouth
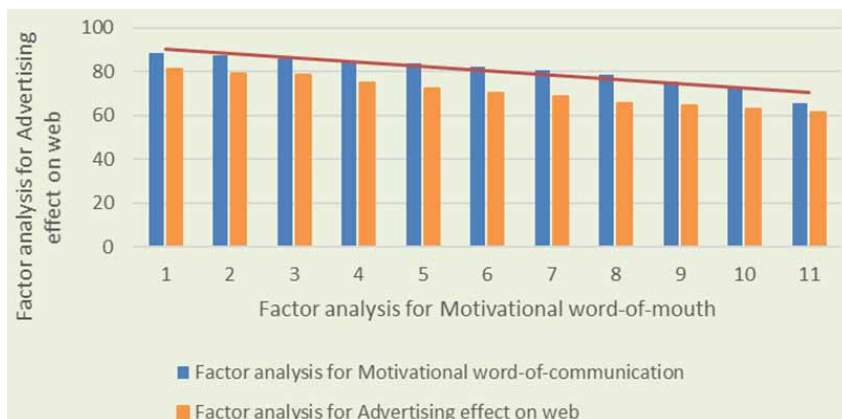
Rewards refers to the motivation of consumers to obtain tangible or intangible rewards from community platforms through online word-of-mouth communication. Consumers who post comments on products in the community or forum can get the rewards given by the community platform, including material rewards and spiritual rewards, such as gifts, discount coupons and promotion of member level. The reward of online community platform is an important reason for people to carry out online word-of-mouth communication.

Personal entertainments refer to the motivation of consumers to spread word-of-mouth on the Internet in order to obtain entertainment experience, such as relieving boredom and relaxing mood. Word of mouth is also an important personal entertainment for consumers.

Community development refers to the motivation of consumers to support the development of online community platform through internet word-of-mouth. Online word-of-mouth communication is an important manifestation of consumers' participation in virtual community, and the active participation and support of members is an important prerequisite for the sustainable development of community platform. Therefore, supporting the development of community platform is also an important motivation for consumers to carry out online word-of-mouth communication.

Service improvement refers to the motivation that consumers want to exert pressure on businesses through internet word-of-mouth to promote businesses to improve their products or services. Consumers' online word-of-mouth communication can help businesses understand consumers' needs and opinions in time, and exert pressure on businesses with the help of network communication, so as to urge businesses to improve services and improve product or service quality.

Community power refers to the motivation that consumers want the community platform as a third party to provide convenience and positive support for the solution of consumer problems. Consumer reviews in community platforms are part of the Internet and are managed by the community platform managers as a third party. Different from traditional word-of-mouth (WOM), one of the most important motivations for consumers to spread word-of-mouth online is that consumers expect community platform managers to communicate with businesses on behalf of consumers' interests and help consumers solve problems.

Information rewards refers to the motivation of consumers to obtain information through internet word-of-mouth and realize knowledge sharing between the two sides. It includes two meanings: one is to obtain information, that is, consumers hope to obtain information or suggestions of relevant products and services through internet word-of-mouth; the other is to provide information to the community and members, and hope to establish reciprocal relationship to realize knowledge sharing.

Punish/support businessman refers to the motivation of consumers to support the company's success or retaliate against the company through internet word-of-mouth communication. Consumers often use positive word-of-mouth communication to help companies achieve success or support the development of companies, while negative word-of-mouth communication is used to retaliate against companies that bring about unpleasant consumption experience.

Self-image improvement refers to the motivation that consumers want to gain other people's attention, improve their professional image in this field and win others' praise or recognition through internet word-of-mouth communication. Whether online or offline, improving their image in front of others is an important motivation for consumers to spread word-of-mouth. The table 3 is the representation of Factor analysis with nine factors of emotion.

REGRESSION ANALYSIS

The regression analysis is used to determine the trends of data. It is the method that uses observation of data records and to quantify the relationship between the targeted variable that is the records in the file and it is also referred to as the dependent variable. The following procedure is processing linear regression to explore concrete weights of every factor's influence on advertising effectiveness. Independent variables include nine factors as follows (Table 3): emotion share, rewards, personal

Table 3. Factor Analysis with nine factors of emotion

Factors	items	loading	cumulative	α
1.emotion share	express emotion in consumption	.762	10.871	0.822
	share consumption experience with others	.760		
	delight to share of consumption experience with others	.734		
	inform others of real situation of products	.696		
	inform others of unhappy consumption experience of mine	.642		
	delight to see happy consumption experience with others	.682		
2. Rewards	hope to be taken as good posts by community platform	.781	9.418	0.902
	hope to improve membership level in virtual community	.867		
	hope to gain integrals and discount coupons from community platform	.888		
3.personal entertainments	kill time	.911	8.337	0.869
	kill the boring	.912		
	entertain or relax	.727		
4.community development	support development of community platform	.916	7.645	0.943
	hope community platform develops better	.604		
	hope suggestions for community platform	.877		
5. service improvement	products and services will be improved after comments	.808	7.255	0.771
	promoting businessmen to improve products and services after comments	.806		
	more powerful of multiple persons than one person	.743		
6.community power	fight for benefits of consumers from community platform	.782	7.254	0.758
	stand for benefits of consumers	.749		
	better know of consumers' opinions from community platform	.669		
7.information rewards	hope to provide valuable information for community and other members	.811	7.132	0.766
	hope to obtain information to resolve problems	.740		
	hope to communicate information and experience with other consumers	.748		
8.punish/ support businessman	satisfy/unsatisfied with businessmen in order to support/punish them	.831	6.844	0.719
	support/punish businessmen of good reputation/bad reputation	.814		
	businessmen satisfy/impair my benefits and so am I	.622		
9.self-image improvement	hope to cause for concern of other consumers	.807	6.101	0.712
	Improve my professional image in this kind of products after comments about products in community	.652		
	hope to be recognized by other consumers about my comments	.583		
Total consistency of the questionnaire: α=0.812; cumulative rate of interpretation:70.857%				

entertainments, community development, service improvement, community power, information rewards, punish/support businessman, self-image improvement. The dependent variable is the advertising effect on the web (Siemens Scanner Advertisement on the Web). The linear regression formula as the equation of a line is as follows,

$$y = am + b \qquad (1)$$

Where m- is slope and b- is the y intercepted j value is the input value

$$y\hat{} = u_1 m_1 + \ldots + u_n + m_n + b = \left(\sum_{j=1}^{n} u_j m\right) + b + u_n m_n \tag{2}$$

Thus, the linear combination of weight of feature and n is the number of features

$$\hat{y} = u_1 m_1 + \ldots + u_n + m_n = \left(\sum_{j=1}^{n} u_j m\right) + b + u_0 m_0$$

M=0 and n=1

$$u_1 m_1 + \ldots + u_n + m_n = \left(\sum_{j=1}^{n} u_j m\right) + b + u_0 m_0 = \sum_{j=0}^{n} u_j m_j \tag{3}$$

y-is intercepted b, is retuned m_0

$$y^T . y - 2 . ^{(u^T . m^T . u) + (u^T . m^T . u^T . m . u)} \tag{4}$$

By the use of Residual sum of squares (RSS) in linear regression method.

The below table 4 states the Regression analysis, with 9 factors of emotions as follows,

Standardized Regression Coefficient is showed by Figure 1. Regression model on relationship between motivation of word-of-mouth and advertising effect on the web is established as follows:

Y=0.224 **emotion share** + 0.250**community development** + 0.117**service improvement** + 0.222 **information rewards** + 0.165**punish/support businessman**

RESULTS AND DISCUSSION

Test of Hypotheses

Then we test hypotheses at last on the basis of data analysis. Table 5 shows detailed results.

Table 4. Regression Analysis with nine factors of emotion

independent variable	unstandardized regression coefficient		standardized regression coefficient	T	Sig.
	B	Std. Error	Beta		
(Constant)	.005	.063		.096	.948
emotion share	.211	.055	.324	4.340	.001
rewards	.088	.054	.089	1.918	.059
Personal entertainments	-.056	.059	-.066	-1.182	.244
Community development	.233	.051	.240	4.771	.000
Service improvement	.121	.050	.121	2.241	.023
Community power	.003	.051	.005	.033	.988
Information rewards	.254	.058	.422	4.262	.002
punish/ support businessman	.177	.049	.176	3.166	.002
self-image improvement	.088	.050	.091	1.721	.086
R=0.511, R²=0.234, Durbin-w=1.911, VFI value:1, F<0.05					

Table 5. Test of Hypotheses

Hypotheses	Results
	Siemen's scanner
H1: Emotion share of motivation of word-of-mouth exerts great influence on advertising effect on the web.	acceptance
H2: Rewards of motivation of word-of-mouth exerts great influence on advertising effect on the web.	refusal
H3: Personal entertainments of motivation of word-of-mouth exerts great influence on advertising effect on the web.	refusal
H4: Community development of motivation of word-of-mouth exerts great influence on advertising effect on the web.	acceptance
H5: Service improvement of motivation of word-of-mouth exerts great influence on advertising effect on the web.	acceptance
H6: Community power of motivation of word-of-mouth exerts great influence on advertising effect on the web.	refusal
H7: Information rewards of motivation of word-of-mouth exerts great influence on advertising effect on the web.	acceptance
H8: Punish/support businessman of motivation of word-of-mouth exerts great influence on advertising effect on the web.	acceptance
H9: Self-image improvement of motivation of word-of-mouth exerts great influence on advertising effect on the web.	refusal

CONCLUSION AND DISCUSSION

Our findings add to some important managerial implications.

First, this paper provides reasonable procedures to test advertising effect on the web in the dimension of motivation of word-of-mouth. Secondly, this paper tells us what kind of motivation of word-of-mouth is effective for specific advertisements on the web which is beneficial for enterprises to know their advertising targets were scrutinized by the factor analysis, nine factors are abstracted, emotion share, rewards, personal entertainment, community development, service improvement, community power, information rewards, punishment/support businessman, self-image improvement. And regression analysis, the standardized coefficient of model is established as follows: $Y = 0.224$emotion share $+ 0.250$community development $+ 0.117$service improvement $+ 0.222$ information rewards $+ 0.165$punish/support businessman. Finally, enterprises could know what kinds of strategies should be adopted to influence audiences with those kinds of motivation of word-of-mouth who are affected by the specific advertisement on the web.

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