



## Business Prospects

Chinese Creativity and Innovation Development Association (CCIDA)  
journal homepage: [www.ccidanpo.org](http://www.ccidanpo.org)

<https://doi.org/10.52288/bp.27089851.2021.12.01>

# The Impact of Relationship Quality on Electronic Word-of-mouth Referral Behavior in Big Data Era

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**Received:** 2021.08.05; **Accepted:** 2021.10.30; **Published:** 2021.12.01

**Abstract:** Consumer through their referral behavior could be an effective mechanism for marketers in promoting their products in today's big data era. In order to explore the ways that the electronic word-of-mouth referral (e-WOM) comprehensively and effectively influence on the film market in the current media ecological environment in China, this research selects Douban, an outstanding representative of China's online film evaluation platform as the research object and combines the related theories of relationship quality and e-WOM referral behavior to investigate the significant positive influence of the four dimensions of relationship quality (satisfaction, credibility, affection and commitment) on e-WOM referral behavior.

**Keywords:** Relationship Quality; E-WOM Referral Behavior; Douban Platform; Big Data Era

## 1. Introduction

With the rapid development of information technology and the Internet, electronic word of mouth (e-WOM) has an increasing impact on consumers' behavior. People can not only obtain commodity information and product usage experience more quickly and efficiently, but have opportunities to share advice and knowledge about specific goods or services with the world (Huang, 2016). At the same time, the integrated development of the media market also promotes the cross-platform communication of e-WOM. With the update and development of information technology, particularly the prosperity of mobile Internet and social media, the traditional way of information sharing for products and services in interpersonal communication has been increasingly replaced by the e-WOM (Chen *et al.*, 2021). It is worth mentioning that cultural products belong to the concept category of consumer goods, so e-WOM has a multi-level impact on experiential media products such as books and films.

Film, as an experiential media product, has both commonness and uniqueness with other cultural products (Huang, 2016). Similar to reading, the symbolic meaning of movies mainly depends on the audience's personal understanding ability. Just like TV, the communication space for audiences is fixed, and there is lack of an interaction between audiences and TV programs, which means that the spread of film WOM also has its particularity. When an audience leaves the closed cinema, it is only a new round begin of WOM. In addition to face-to-face communication, film WOM communication can only rely on other media channels. These WOM effects ultimately lead to the decision of those potential movie consumers to go to the cinema or not, and the results of these decisions are the basis for the next round of WOM, until a film fades from public view.

For several decades, WOM has expressed a simplistic conceptualization focusing especially on favorableness of communication (Chan and Ip, 2011). Another shortcoming of the WOM research during the first decades was that it focused more on the WOM receiver and less on the WOM sender (Liu *et al.*, 2017). Xu *et al.* (2019) argued that WOM has greatly influenced the choice of products and put less emphasis on the role of the sender of communication who plays a special role in promoting the organization, and there are few researches integrating relationship-quality factors into studies of e-WOM.

While under the influence of social media, a strong relationship has been established between customers and enterprises. In this situation, relationship quality becomes the core concept to measure the relationship

between consumers and enterprises. At present, academic researches on relationship quality and customer behavior mainly focus on the influence of customer behavior intention, citizenship behavior and WOM behavior. Firstly, from the perspective of customers, their satisfaction, credibility and commitment to the enterprise have an impact on their positive behavior intention (Zhang *et al.*, 2020); Secondly, from an enterprise perspective, a commitment to a customer or to a service organization affects specific aspects of customer citizenship behavior; Lastly, the object of the above researches is aimed at ordinary customers, and there is neither clear and effective segmentation dimension of relationship quality nor in-depth analysis of the impact of segmentation dimension on e-WOM referral. Therefore, this paper takes online film evaluation platform “Douban” as the research object and innovatively combines relationship quality from four dimensions of commitment, satisfaction, affection and credibility to further explore the influencing factors of relationship quality on e-WOM referral behavior of films in big data era.

## 2. Literature Reference and Research Hypothesis

### 2.1. Concepts and Dimensions of Relationship Quality

Initially, the concept of relationship quality is well defined in the field of marketing, which has been generally recognized as interactions between companies and clients (Crosby *et al.*, 1990). After the year 2000, an abundant quantity of relationship quality studies has sprung up, and research objects extended to enterprises and the rest of the pack (Holmlund, 2001). At present, many studies believe that relationship quality is the index of cognition and evaluation of intimacy, credibility and satisfaction between those two parties (Chung and Huang, 2021; Li *et al.*, 2019; Lu *et al.*, 2018), and it can reflect both parties in the relationship are confident that they can contact each other in the long run (Pang, 2021).

For several years, relationship quality has been treated as an indicator system which depend on various numbers of variables (Crosby *et al.*, 1990; Pang, 2021), and most of the studies mainly focused on evaluating credit levels in social networks, which includes three dimensions of credibility, satisfaction and commitment (Ding and Wei, 2020; Birce, 2020; Ke *et al.*, 2019). More recently, studies of social relationship on the networking sides shift the measurement emphasis away from rational motivation into emotional motivation (Zhao and Zhang, 2020; Wu, 2020), and develop the GRX relational scale of affection and credibility (Yen *et al.*, 2017). Based on a comprehensive review of classical and recent studies on relationship quality, this article selects 23 most representative literatures to analyze the dimensions of relationship quality.

**Table 1.** Dimension of relationship quality.

	Author	Year	Dimension			
			Satisfaction	Credibility	Commitment	Affection
Classic References	Crosby <i>et al.</i>	1990	◆	◆		
	Holmlund	2001	◆		◆	
	Homburg <i>et al.</i>	2014		◆		◆
	Hsu & Lin	2016	◆	◆		
	Yen <i>et al.</i>	2017	◆	◆		◆
	Zhang & Hartley	2018	◆	◆		◆
	Lu <i>et al.</i>	2018	◆		◆	◆
	Li <i>et al.</i>	2019	◆	◆		
	Pai <i>et al.</i>	2019	◆	◆		
	Ke <i>et al.</i>	2019	◆	◆	◆	
	Zhang <i>et al.</i>	2020	◆	◆	◆	◆
	Ding & Wei	2020	◆	◆	◆	
	Birce	2020	◆	◆		◆
	Zhao & Zhang	2020	◆			◆
	Wu	2020	◆	◆		◆
	Chung & Huang	2021	◆	◆		
	Pang	2021	◆	◆	◆	
	Chen <i>et al.</i>	2021	◆	◆	◆	

## 2.2. E-WOM Referral and Relationship Quality

Philip Kotler has defined e-WOM behavior in the 21st century as a non-commercial communication behavior, in terms of product, brand, or organization. Traditionally, word-of-mouth (WOM) has been conceptualized as dynamic and on-going information transmitted via person-to-person direct interaction regarding the ownership, impressions, or recommendations of specified products, services, and sellers (Chan and Ip, 2011; Liu *et al.*, 2017; Xu *et al.*, 2019). With the arrival of the Internet age, clients were able to spread and receive information related to products on the Internet, which led to the birth of e-WOM referral acts (Pang, 2021). The concept e-WOM includes any dynamic and on-going evaluations made by those potential, real or previous consumers about products or sellers (Ding and Wei, 2020), which are available to amounts of individuals and organizations through the Internet.

Essentially, relationship quality is a kind of relationship interaction, which is the expression of direct perception as an exchange of relationships (You *et al.*, 2021). Furthermore, exchange behavior is actually a kind of interactive act, in other words, exchange occurs in most interactions, and interaction is always based on the disclosure of information, and e-WOM is not only a relationship exchange but an interaction behavior which takes information as carrier. In the following article, the association between relationship quality and e-WOM will be discussed in detail in the big data era.

Haxhialushi and Panajoti (2018) demonstrated that other sources of information in the web have lesser credibility and empathy for clients than e-WOM, while e-WOM actually has a strong impact on customer behavior and attitude. Pai *et al.* (2019) have studied on the e-WOM referral behavior and verified that customers' credibility has a positive impact on their willingness to submit positive ratings and generate e-WOM; Lu *et al.* (2018) argued that companies' commitment affects e-WOM referral acts and helps generate positive WOM engagement. Similarity, satisfaction was also clearly identified as a determinant clients' e-WOM communication (Chen *et al.*, 2021; Hsu and Lin, 2016). A lot of researches show that individuals with a high level of affective satisfaction would exert great influence on e-WOM acts. Zhang and Hartley (2018) revealed that affection has a positive effect on business relationships, while this human sympathy would cause greater satisfaction. Thus, this article speculate that Credibility, Commitment, Satisfaction and Affection may have a positively impact on e-WOM referral behaviors.

This research takes Douban (evaluation and rating behavior of film) as an example to explore how the relationship quality motivates consumers to articulate themselves on the Internet from Chinese perspective. In addition, this research defines the previous three dimensions of relationship quality (satisfaction, credibility, commitment) as the functional dimensions, and regarded 'affection' as the affective dimensions, and then take these referred factors as the independent variable, while e-WOM as the dependent variable.

Given the above-mentioned findings, this research has formulated the hypotheses concerning the relationship between relationship quality and e-WOM as follows:

- H1: Satisfaction is positively related to film e-WOM referral behavior
- H2: Credibility is positively related to film e-WOM referral behavior
- H3: Affection is positively related to film e-WOM referral behavior
- H4: Commitment is positively related to film e-WOM referral behavior

## 3. Research Methods and Data Analysis

### 3.1. Questionnaire Design and Investigation Method

The questionnaire uses a 5-level Likert scale, which shows the change of attitude from 1 to 5. According to the four dimensions of relationship quality finally selected in this research: satisfaction credibility, affection and commitment, the survey questionnaire was designed.

This questionnaire is distributed online, and 421 questionnaires are collected from different regions, occupations and generations. Due to the design of the skipping questions of the questionnaire, there are 20 respondents who have never used Douban platform, so the final number of valid questionnaires is 401. SPSS25.0 software is used to make an empirical analysis of the specific data collected by the questionnaire.

### 3.2. Descriptive Statistical Analysis of Questionnaires

According to the survey data, the sample of this study shows that, in terms of gender, male interviewees accounted for 43.3% and female interviewees 56.7%. In terms of age, the proportion of the generation after 00's

was 39.3%, and the proportion the generation after 90's was 39.5%. The age of samples showed a younger trend. In the distribution of education level, the proportion of undergraduate was the highest, accounting for 62.9%, followed by the proportion of junior college was 20.5%. In terms of occupation, 64% are students and 14% are employees of enterprises. In terms of the cities where they are located, second-tier cities and above account for 89.1%.

**Table 2.** Descriptive information for subjects (N = 421).

Variables	Category	Frequency	Percentage (%)
Gender	Male	182	43.3
	Female	238	56.7
Generation	After 00's	165	39.3
	After 90's	166	39.5
	After 80's	51	12.1
	After 70's and above	38	9
Education background	High school or below	55	13.1
	Junior college	86	20.5
	Undergraduate	264	62.9
	Graduate	15	3.6
Occupation	Internal student	269	64
	Enterprise staff	59	14
	Civil servants	11	2.6
	Public sector	16	3.8
	Freelancer	23	5.5
	Housewife	21	5
	Private business	15	3.6
	Other	6	1.4
Region	First-tier cities	76	18.1
	New first-tier cities	54	12.9
	Second-tier cities	244	58.1
	Third-tier cities	23	5.5
	Fourth-tier cities	10	2.4
	Tier 5 and below cities	13	3.1

### 3.3. Reliability Analysis of Questionnaires

Reliability is assessed using Cronbach's  $\alpha$ . All  $\alpha$  values are greater than 0.7 (e-WOM = 0.859, satisfaction: 0.868, credibility = 0.880, affection = 0.859, commitment = 0.858), and the reliability is good, which can be accepted as the questionnaire survey. The fruit has high stability and can be used.

**Table 3.** Reliability analysis of the measurement model(N=401).

Variables	Cronbach's Alpha	N of items
Overall questionnaire	0.968	15
E-WOM Referral	0.859	3
Satisfaction	0.868	3
Credibility	0.880	3
Affection	0.859	3
Commitment	0.858	3

### 3.4. Validity of Questionnaires

In this study, KMO and Bartlett tests are carried out on the 5 variables respectively, so as to test whether the results are suitable for factor analysis. The KMO value is greater than 0.7 and the chi-square value of Bartlett's spherical test reached a significant level, indicating that the structure validity of the questionnaire is good.

**Table 4.** Validity test of the measurement model (N=401).

KMO & Bartlett's test		
KMO measure of sampling adequacy		0.983
Bartlett's test of sphericity	Approximate Chi-Square	5,334.922
Approx. Chi square	df	105
	sig.	0.000

Extraction method: principal component analysis

**Table 5.** Total variance explained (N=401).

Component	Initial eigenvalues			Extraction sum of squared loadings			Rotation sum of squared loadings		
	Total	% of variance	Cumulative %	Total%	% of variance	Cumulative %	Total%	% of variance	Cumulative %
1	10.41	69.399	69.399	10.410	69.399	69.399	2.760	18.403	18.403
2	0.467	3.116	72.515	0.467	3.116	72.515	2.752	18.349	36.751
3	0.427	2.845	75.360	0.427	2.845	75.360	2.356	15.707	52.458
4	0.387	2.583	77.943	0.387	2.583	77.943	2.311	15.410	67.868
5	0.363	2.42	80.363	0.363	2.420	80.363	1.874	12.495	80.363
6	0.354	2.358	82.720						
7	0.347	2.315	85.035						
8	0.331	2.204	87.239						
9	0.326	2.176	89.415						
10	0.312	2.083	91.498						
11	0.288	1.921	93.420						
12	0.266	1.776	95.196						
13	0.256	1.709	96.905						
14	0.243	1.621	98.526						
15	0.221	1.474	100.00						

Extraction method: principal component analysis

### 3.5. Correlation Analysis of Questionnaires

This study adopts correlation analysis method to study the correlation between four dimensions of relationship quality and word-of-mouth recommendation behavior.

The correlation coefficients for the study variables reveal that generation is significantly positively correlated with credibility ( $r = 0.223$ ,  $P < 0.01$ ); satisfaction is significantly positively correlated with e-WOM referral ( $r = 0.860$ ,  $P < 0.01$ ); credibility is significantly positively correlated with e-WOM referral ( $r = 0.848$ ,  $P < 0.01$ ); affection is significantly positively correlated with e-WOM referral ( $r = 0.854$ ,  $P < 0.01$ ) and commitment is significantly positively correlated with e-WOM referral ( $r = 0.854$ ,  $P < 0.01$ ).

**Table 6.** Correlation analysis of each variable.

	Mean	Std	Gender	Generation	Education	Occupation	Region	Satisfaction	Credibility	Affection	Commitment	Buying Intention
Gender	1.56	0.497	1									
Generation	1.93	0.941	-.800	1								
Education	2.56	0.770	.105*	-.338**	1							
Occupation	2.14	1.902	.260	.574**	-.300**	1						
Region	2.69	1.089	-.001	-.069	-.096	-.022	1					
Satisfaction	11.43	2.916	-.305**	.216**	-.098	-.076	-.041	1				
Credibility	11.50	2.989	-.302**	.223**	-.088	-.050	-.007	.854**	1			
Affection	11.45	2.991	-.296**	.232**	-.131**	-.031	-.014	.845**	.844**	1		
Commitment	11.41	2.863	-.259**	.204**	-.083	-.104*	-.020	.850**	.849**	.856*	1	
Buying Intention	11.37	2.858	-.273**	-.248**	-.108**	-.045	-.047	.860**	.848**	.854**	.854**	1

\* At the 0.05 level (double-tailed), the correlation was significant.

\*\* At the 0.01 level (double-tailed), the correlation was significant.

### 3.6. Regression Analysis of Questionnaires

This study uses linear regression analysis to test whether the four dimensions of relationship quality have significant causal relationship. Among them, customers' purchase intention is the dependent variable, and the four dimensions of relationship quality are the independent variables.

To evaluate the Hypothesis 1-4, the direct impact of the hypothesized model based on standardized regression weights are presented in Table 7. The results reveal that satisfaction is positively related to film e-WOM referral behavior (0.836,  $P < 0.001$ ; credibility is positively related to film e-WOM referral behavior (0.416,  $P < 0.001$ ); affection are positively related to film e-WOM referral behavior (0.328,  $P < 0.001$ ) commitment is positively related to film e-WOM referral behavior (0.226,  $P < 0.001$ ).

**Table 7.** Regression analysis of each variable (N=401).

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	-0.234	-0.010	0.009	0.015	0.008
Generation	0.364	0.081	0.059	0.053	0.043
Education	-0.036	-0.006	-0.010	0.003	0.001
Occupation	-0.259	-0.030	-0.025	-0.026	-0.008
Region	-0.024	-0.007	-0.019	-0.024	-0.023
Satisfaction		0.836	0.490	0.341	0.276
Credibility			0.416	0.271	0.205
Affection				0.328	0.246
Commitment					0.226
R <sup>2</sup>	0.171	0.744	0.790	0.815	0.825
Adj. R <sup>2</sup>	0.160	0.740	0.787	0.811	0.821
F	16.225	190.693	211.248	215.331	203.729
D-W		2.012	1.895	1.938	1.89

## 4. Conclusions

This research is based on the four dimensions of relationship quality (satisfaction, credibility, human hypothesis, affective factors and commitment) to analyze the impact of film e-WOM referral in the current big data media ecological environment in China. The result shows that all four dimensions are positively and significantly related to the film word-of-mouth referral behavior.

In the context of the Internet, most of the traditional marketing channels have been transformed into online media. Similarly, the development of the film industry also needs Internet media. As an outstanding representative of the Douban film review platform, it has built an e-WOM referral ecosystem of films and

greatly influenced the contemporary film market. It is not difficult to find that the generation of e-WOM referral directly comes from consumers' dependence on the use of the platform, that is, the relationship quality between users and the platform. Thus, quality relationship becomes the key factor in contemporary film market.

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(Editor: Xiaoxuan Liu)