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Influence processes to e-WOM adoption on social media

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ABSTRACT

Nowadays, with the emergence of social commerce, shoppers are more likely to share their thoughts about the quality of goods or services, and shopping experience concerned as electronic word of mouth (e-WOM). Drawing on elaboration likelihood model, this research verifies how central and peripheral cues as well as tie strength between a sender and a recipient influence to e-WOM adoption in social media context. The results from analysis of 295 respondents reveals that argument quality, source credibility corresponding with the degree of involvement, cognitive level and tie strength have positive impact on attitude toward e-WOM which turns into adoption behavior.

KEYWORDS: Electronic word of mouth, Social media, Elaboration likelihood model, Tie strength

INTRODUCTION

Over the recent decades, Internet innovation has extensively modified individuals' way of life. In terms of internet shopping, e-commerce has showed fast improvement and turned into a favored channel for buying goods. Considering about sharing content online, social media use has expanded to be the prominent platforms of communication.
With the development of Web 2.0, user generated content *(UGC)* on systems are expanding. As indicated by a study, 91% of members said they look for online comments, blogs and different types of UGC before buying an item or service, and 46% of members showed that these reviews impacted their choice (C. M. Cheung & Thadani, 2012). Online reviews can diminish the dangers seen by purchasers (M. Y. Cheung, Luo, Sia, and Chen (2009);Park and Kim (2009)) and increase the level of satisfaction (Liang, Lai, & Ku, 2006) as well as their proficiency in deciding (M. Y. Cheung et al., 2009). It has been demonstrated that the volume of online reviews is significantly associated with sales. The number of both positive and negative reviews affect the purchaser's choices (Chatterjee (2001); M. Y. Cheung et al. (2009);Kamins and Assael (1987); Berger, Sorensen, and Rasmussen (2010)), while negative reviews have a more prominent effect than positive reviews (C. Park and T. M. Lee (2009);Herr, Kardes, and Kim (1991)). Meanwhile, e-WOM in web-based social networking (so called social media e-WOM) has played a more important part in advancing internet shopping these days, particularly with the rise of social business.
Nowadays, customers are more likely to use social networking to share their feeling about the overall quality of products or about their shopping experience. This type of e-WOM in social

media incorporates customer's posts on Twitter, Facebook, Weibo et cetera, as well as comments on others' posts.

E-WOM from social media affects buyers in term of of impression-management, emotion regulation, information acquisition, social bonding, and influence (Berger, 2014). As per a report from the China Internet Network Information Center (CNNIC) in 2012, 43.1% of users practice impulse buying relying on suggestions from companions via web-based networking media, 38.3% of users will relate to e-WOM before placing an order, and 37.2% of those will probably share their comments with friends via web-based networking media. Online networking has been utilized to report consumer preferences, and has appealed to business as marketing tools. In the study of C. M. Cheung and Thadani (2012), *information adoption* is characterized as a procedure in which individuals deliberately take part in utilizing information. In this paper, e-WOM adoption implies that buyers concur with the content of e-WOM and plan to make purchases in light of it.

In the online buying context, buyers are able to communicate with real or virtual relationship by taking an interest in various groups (Dholakia, Bagozzi, & Pearo, 2004); (Zhu & Chang, 2014)). For instance, shoppers can decide to mostly speak with associates on the Facebook or outsiders in virtual brand groups. Individuals have diverse state of mind and conduct in various social situations. In any case, learning about the impact of various relational relationship situations on e-WOM adoption is rare.

Hence, the aim of this research is to explore the individual elaboration process to drive users' attitude in the use of e-WOM and understand the factors by which individuals will be influenced on e-WOM adoption in web-bases social network. In addition to this, the research also explores the differences in relationship strength of communicators effecting e-WOM adoption on social media.

The conclusions derived from this research possibly provide insights for marketing managers to be able to recognize the drivers of the use of e-WOM and develop marketing communications to meet target audience on social networking sites.

This paper is organized as follows: the next section clarifies the theoretical foundations of the study. The third section explains the research model and hypotheses. The fourth section describes the research methodology. The research results are in the fifth section. Finally, the discussion and conclusions are laid out in the last part.

LITERATURE REVIEW

Electronic word of mouth

Word of mouth (WOM) has been recognized for a long time as a noteworthy impact on what individuals know, feel and do (Buttle, 1998). It has been identified as an informal communication aimed to other shoppers about the possession, utilization, or qualities of specific products and enterprises or their sellers (Berger, 2014).

E-WOM is comments about a product or service given by customers via networks (Hennig-Thurau, Walsh, & Walsh, 2003). It directly affects customers' trust and buying behavior (Dellarocas, Zhang, & Awad, 2007); (Duan, Gu, & Whinston, 2008). It can reduce the restrictions traditional WOM, so in this manner has been generally broke down in the field of internet business, information systems and marketing.

With the advancement of Web 2.0, social media has turned out to be increasingly mainstream. The contents via this web-based networking have turned into an imperative data source to help buyers decide. Customers progressively utilize reviews posted on Facebook, Twitter, and so forth., to valuate items and administrations before making a buy (Yan, He, Shen, & Tang, 2014).

Hawn (2009) pointed out that many patients use social media to discuss medical services and their doctors in order to optimize treatments.

Social media content can also influence destination attractiveness in consumers' early travel decision-making stage brought up that numerous patients utilize online networking to talk about therapeutic administrations and their specialists with a specific end goal to improve medications. Web-based social networking substance can likewise impact goal allure in customers' initial travel basic leadership organize (Shu & Scott, 2014). The companies can use social media as an additional customer service and communication tool to gain insight into consumers' needs, wants, concerns and behaviors in order to serve them better The organizations can utilize web-based social networking as an extra client administration and specialized instrument to pick up knowledge into customers' needs, needs, concerns and practices with a specific end goal to serve them better (He, Zha, & Li, 2013)

EWOM adoption

Past studies about e-WOM can be partitioned into two gatherings: population aspect and individual aspect. The former for the most part concentrates on the connection amongst e-WOM and item deals in view of board information gathered from electronic business sites (Chen & Xie, 2005); (C. M. Cheung & Thadani, 2012); (Chevalier & Mayzlin, 2006); (Clemons, Gao, & Hitt, 2006)). The latter regards e-WOM as an intuitive procedure between shoppers. The correspondence between the senders and collectors of e-WOM at last impacts the choice of recipients (C. M. Cheung, Lee, & Rabjohn, 2008); (Park & Kim, 2009); (Zhang & Watts, 2008). Our examination concentrates on the appropriation of e-WOM amid a customer's decision making procedure.

Elaboration Likelihood Model

The elaboration likelihood model (ELM) is an essential information processing theory ((C. Park & T. M. Lee, 2009), (D.-H. Park & J. Lee, 2009); (C. M. Cheung et al., 2008); (Chu & Kamal, 2008); (Gupta & Harris, 2010); (Lee, Park, & Han, 2008); (R. Petty & Cacioppo, 2012)), which clarifies how people are affected by the received messages in persuasive communication (Shih, Lai, & Cheng, 2013). The model defines two routes for processing: the central route and the peripheral route. The central route is utilized when the message beneficiary can comprehend the message without being diverted by whatever other superficial information.

The central route highlights the applicability of the message to individuals' concern. People tend to investigate and elaborate more on the message when it is more relevant and interested in. (Morris, Woo, & Singh, 2005). The peripheral route happens when the message recipients are not going to or resistant to think deeply on the message. The message receivers choose whether to concur with the message in light of different cues other than the quality of the arguments or thoughts in the message

Past researchers have exactly affirmed the efficacy of ELM in e-WOM setting. Argument quality ((M. Y. Cheung et al., 2009); (Chu & Kamal, 2008); (Park, Lee, & Han, 2007); (Zhang & Watts, 2008) and decisive information ((C. M. Cheung & Thadani, 2012), (Kamins & Assael, 1987)) have been considered as the most critical central routes factors; and source credibility ((C. M. Cheung et al., 2008); (Zhang & Watts, 2008), information consistency (Zhang & Watts, 2008), information volume and rating (M. Y. Cheung et al., 2009), (Duan et al., 2008); (Park & Kim, 2009)) are usually considered as the typical peripheral route factors (Luo, Wu, Shi, & Xu, 2014).

HYPOTHESES/MODEL

Argument quality

Argument quality has been reliably recognized as a principal criterion in the persuasion and communication literature (Slater & Rouner, 1996). In ELM, message quality associates with "the audience's subjective awareness of the strength and persuasion of the arguments in the subject of message (R. E. Petty, Cacioppo, & Goldman, 1981). As a central route, message quality refers to the attitude of receivers towards a message fundamentally through careful elaboration about the benefits of the arguments introduced. A message with solid arguments is more likely to receive more good reactions. At the point when argument quality is strong, the message contains truths that are advocated and convincing (R. E. Petty et al., 1981) and more persuasive generally. Persuasive messages emphasize on the attention of the subject, prompting to a reallocation of intellectual resources and eliciting responses (such as an attitude change) or a behavior (Tam & Ho, 2005). O'keefe (2002) show that if messages prompt to prevalent positive considerations, the message is said to be generally effective in encouraging changes in attitude and behavior. It has also been indicated to affect on how people perceive the reliability of web information (M. Y. Cheung et al. (2009); Wathen and Burkell (2002)). Argument quality has a positive effect on customer's attitude and its persuasiveness increases with its strength. Therefore, e- WOM with a stronger argument quality will generate positive attitude to customers in the context of e-WOM adoption.
H1: Argument quality has a positive effect on customer's attitude toward e-WOM.

Source credibility

As per ELM, individuals do not only elaborate the message based on message's arguments. They might consider on what ELM alludes to as peripheral cues instead. Dissimilar to central route signals (e.g., argument quality), peripheral cues are more likely to concentrate on the correspondence environment and comprise considerations other than the benefits of the messages themselves. In term of literature, we have distinguished three peripheral cues that are critical in assessing the validity of online reviews: review sidedness, review consistency, and source credibility. According to Chaiken (1980), source credibility refers a beneficiary's view of the validity of a message source; it is not concerned with the message itself. Source believability has reliably been recognized as an essential signal in informational influence process (Chaiken and Maheswaran (1994); Pornpitakpan (2004); Sussman and Siegal (2003)). It is essential concern of customers when participating in online activities (J. Brown, Broderick, and Lee (2007); M. Y. Cheung et al. (2009); Pavlou and Dimoka (2006)). Therefore, the second hypothesis is:
H2: Source credibility has a positive effect on customer's attitude toward e-WOM

Tie strength

The perception of tie strength can be characterized as the strength of a tie combining of time consuming, the passionate intensity, the closeness, and the complementary services which portray the tie *(M. S. Granovetter, 1973).* Two sorts of *ties* are ordinarily referred to in the literature. One is a *weak* social tie, which is a connection between two people who are not firmly associated, for example, *casual* acquaintances or collaborators who don't interact frequently. The other is a solid social tie, which refers to the association between intimate companions who communicate frequently. Examining on the impacts of tie strength show both strong and weak ties affect spreading of information (M. S. Granovetter, 1973), looking for a job ((Bridges &

Villemez, 1986); (M. Granovetter, 1985), and degrees of income ((Corcoran, Datcher, & Duncan, 1980); (Simon & Warner, 1992)). Researches on the composition of social ties utilizing public good experiments demonstrates that tie formation is dependent upon the achievement of the game. The aggregation of individual ties includes a social network, and the significance of

social network structure on the forming of trust has been touted in the social psychology literature. Also, research by (Karlan, Mobius, Rosenblat, & Szeidl, 2009) models a setting where social structures are utilized as collateral in procuring loans, demonstrating that networks can build trust when operators utilize their associations as social collateral.
In the C2C communication context, buyers can decide to mostly interact with real or virtual connections by joining in various groups. (Steffes & Burgee, 2009) shows that social ties contribute to the process of consumer decision making in various interaction contexts. J. J. Brown and Reingen (1987) claimed that information gotten from strong ties are more powerful in buying intention than that from weak ties with regards to offline WOM communication. Real interpersonal connections among individuals are probably going to be more solid and stable than those virtual connections among individuals in online groups (Dholakia et al., 2004). Correspondingly, the present study recommends that the impact of tie strength on the assessment of product usefulness is more substantial when consumers mostly connect with real relationships than with virtual connections in online communities. Hence, the hypothesis can be stated as:
H3: Tie strength is positively related to consumer's attitude toward e-WOM

Involvement degree and cognitive level

Recipients' elaboration likelihood increases with involvement levels – characterized as the degree of personal relevance of the argument to the receiver- and in turn affects recipients' cognitive effort to be undertaken to thoughtfully consider the message. Message with high involvement are probably elaborated deliberately into the message itself while those with low involvement tend to be analyzed based on the peripheral route such as source credibility(R. E. Petty and Cacioppo (1986), R. E. Petty et al. (1981)).
Park and Kim (2009) pointed out that cognitive level has obvious influences on consumers' use of online reviews, meanwhile, customers with high expertise are able to evaluate information according to their own experience and knowledge. Doh and Hwang (2009) pointed out that consumers' involvement and prior knowledge partially moderate the relationship between the ratio of messages and the e-WOM effect.
Argument quality is more salient than source credibility when receivers that are high involvement and cognitive level while those that are not involved will be less likely to engage in elaboration and more likely to be influenced by peripheral cues such as source credibility.
In the context of the use of e-WOM, the preceding discussion is summarized in the following hypothesis:
H4a: *The greater the recipient's involvement in messages, the more argument quality affects attitude.*
H4b: *The greater the recipient's involvement in message, the less source credibility affects attitude.*
H5a: *The greater the recipient's cognitive level in messages, the more argument quality affects attitude.*
H5b: *The greater the recipient's cognitive level in message, the less source credibility affects attitude.*

Attitude

There is a definite relationship between attitudes and intentions which is well-documented (Ajzen (1985); Ajzen (1991); Ajzen and Madden (1986);Fishbein and Ajzen (1974);Fishbein (1975)), consisting of an comprehensive literature investigating this connection in the context of IT adoption (Agarwal and Prasad (1998); Davis (1989); Bagozzi, Davis, and Warshaw (1992); Taylor and Todd (1995); Venkatesh, Morris, Davis, and Davis (2003)). Festinger and Carlsmith (1959) mentioned about this relationship extracting from the fundamental need of human being to acquire cognitive consistency. Hence, hypothesis is stated:
H6: Positive attitude toward e-WOM will be positively related to e-WOM adoption

Based on proposed hypothesis, this research comes up with a research framework as showed in figure 1:

Figure1: Conceptual model
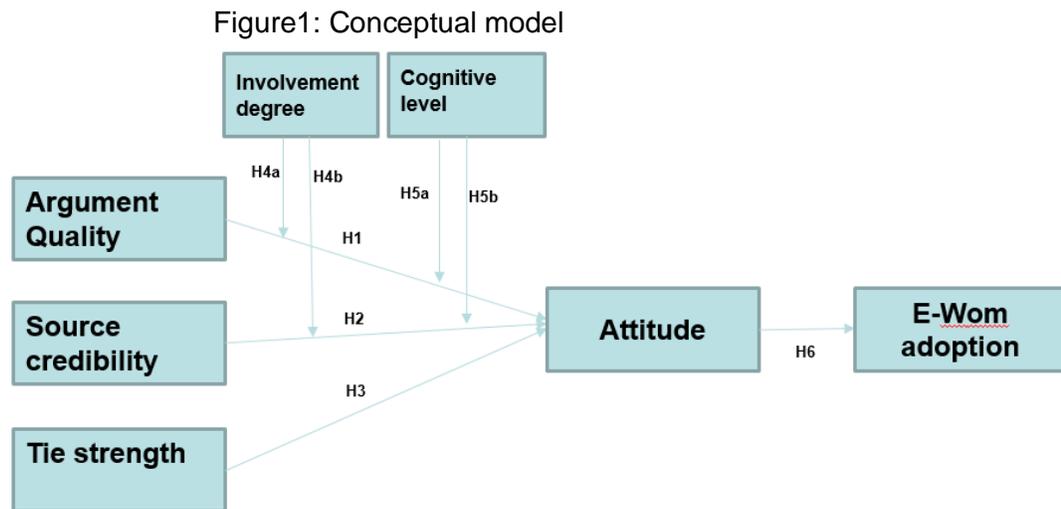
METHODS

Data collection and measurement

A survey was used to collect data. In this research, data were collected through a questionnaire survey. There are 25 items in the main part of the survey which are adapted from the scales of previous studies as demonstrated in Table 1. The questionnaire uses a 5 point Likert scale, with 1 for "strongly disagree" and 5 for "strongly agree."
A total number of respondents are 295 with 150 female (50.8%) and 145 male (49.1%) from a large university in Taiwan. Among this group of participants, 56,9 % are between 21 and 25 years old and 70.5 % studying bachelor degree.

Table 1: Constructs and instruments			
Construct		Instruments	Reference
Argument Quality	AQ1	The information of e-WOM on social media is informative	Bhattacherjee and Sanford (2006)
	AQ2	The information of e-WOM on social media is helpful	
	AQ3	The information of e-WOM on social media is persuasive	
	AQ4	The information of e-WOM on social media is valuable	
	SC1	People who share e-WOM on social media is knowledgeable	
	SC2	People who share e-WOM on social media is trustworthy.	

Source Credibility	SC3	People who share e-WOM on social media is credible.	Bhattacherjee and Sanford (2006)
	SC4	People who share e-WOM on social media is an expert	
Attitude	ATT1	In my opinion, e-WOM on social media is a good source of information	Leclerc et al. (1994)
	ATT2	In my opinion, I like e-WOM on social media	
	ATT3	In my opinion, I hold a positive attitude to e-WOM on social media	
	ATT4	In my opinion, I think e-WOM on social media is attractive.	
	ATT5	In my opinion, I approve e-WOM on social media	
Tie strength	TIE1	Consumers who share e-WOM on social media often communicate with me	Levin and Cross (2004), Marsden and Campbell (1984)
	TIE2	Consumers who share e-WOM on social media have communicated with me for a long time	
	TIE3	Consumers who share e-WOM on social media have had prior significant communications with me	
	TIE4	Consumers who share e-WOM on social media have had prior significant communications with me	
	TIE5	Consumers who share e-WOM on social media often communicate with me	
Degree of Involvement	INV1	The product is of e-WOM on social media is concern to me	Wang et al., 2012
	INV2	The product is of e-WOM on social media is relevant to me.	
	INV3	The product is of e-WOM on social media is important to me.	
Cognitive level	COG1	I am knowledgeable about the product	Park and Kim, 2009
	COG2	I have rich purchasing experience on the product	
	COG3	I agree with the content of e-WOM on social media	
E-WOM adoption	ADOP1	I will follow the suggestion of e-WOM on social media information e-WOM on social media motivates me to make purchase decision	Sussman and Siegal, 2003
	ADOP2	Consumers who share e-WOM on social media have a close relationship with me	

RESULTS

This study use Amos 18 and SPSS 22 software to process and analyze the data.
In this study, structural equation modelling (SEM) approach is used to test the hypotheses that are presented in Figure 2 (research model). Structural Equation Model (SEM) is a means to test the causal relationship between constructs and a way to know whether the model of this research is valid and reliable. In other word, SEM is applied to measure how well a proposed model or hypothetical construct explains the collected data (Hair et al. 2006). The SEM approach employed a two-step hybrid method by specifying a measurement model in a confirmatory factor analysis and testing a latent structural model developed from the measurement model (Kline, 2011).

Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is used to test whether there is a significant correlation between constructs and their factors. It is also a statistical test to determine whether a good model fit can be achieved. After first order factor analysis, all variables with factor loadings less than 0.6 were deleted which are AQ3, AQ4, SC1, ATT1, ATT5. Furthermore, the overall CFA model indicates that this model has CFA model indicates that this model has GFI of 0.912, NFI of 0.868, CFI of 0.906, AGFI of 0.863, RMR of 0.065, RMSEA of 0.084, Chi-square of 205.7, Chi-square/df=3.07 and p – value of 0.000. Based on the criteria of model fit, it can be concluded that the overall measurement quality shows a good fit in the model.

Measurement model

The CFA results from Table 2 show that internal consistency of variables with the significant level of t-values, which are all greater than 1.96 and p-values, which are all lower than 0.05. Moreover, the CR and AVE test are conducted to know whether the constructs are reliable enough or not. CR and EVA should pass the criteria of 0.7 and 0.5 respectively. According to the results, source credibility and e-WOM adoption are the two constructs which CR and AVE values are not greater than 0.7 and 0.5 respectively. Therefore, we can conclude that the convergent validity of these two constructs are not supported. Whereas, three other constructs including argument quality, tie strength, attitude all satisfied the criteria and significantly correlated to each of their factors and the relationship between the variable and its factors which are reliable and valid.

Table 2: Results of convergent validity testing								
Indicators		Constructs	Standardized loading	Error variance	t-value	*p*	CR	AVE
AQ1	←	Argument Quality	0.743	0.109	7.525	***	0.796	0.662
AQ2	←		0.879	0.132	A	***		
SC2	←	Source Credibility	0.612	0.067	7.246	***	0.659	0.392
SC3	←		0.621	0.055	7.299	***		
SC4	←		0.645	0.078	A	***		
TIE1	←	Tie strength	0.654	0.060	10.088	***	0.830	0.552
TIE2	←		0.770	0.059	11.668	***		
TIE3	←		0.829	0.054	12.267	***		
TIE4	←		0.708	0.706	A			
ATT2	←	Attitude	0.745	0.059	11.338	***	0.803	0.577
ATT3	←		0.795	0.053	11.838	***		
ATT4	←		0.737	0.058	A	***		
ADOP1	←	e-WOM adoption	0.070	0.074	8.121	***	0.664	0.498
ADOP2	←		0.079	0.077	A	***		

χ2/d.f 205.7/67) = 3.07, GFI=0.912, NFI= 0.868, CFI= 0.906, AGFI = 0.863, RMR = 0.065, RMSEA=0.084, p = 0.000.
Notes: ***p<.001; **p<.01; *p<.05 and they were significant at a t-value >1.96. A regression weight was fixed at 1.00 CR=Composite Reliability; C.R=Critical Ratio (C.R=t-value); AVE= Average Variance Extracted.

The discriminant validity of the measurement model was verified by comparing the square root of the AVE for each construct with the correlations among the constructs.
If the square root of the AVE were greater than the correlations among the constructs, then this outcome would indicate the discriminant validity of the model (Fornell & Larcker, 1981). As shown in Table 3, the square root of the AVE for each construct exceeded the correlations among the constructs. Therefore, discriminant validity was established.

Table 3: Correlation of constructs and AVE					
	AQ	SC	TIE	ATT	ADOP
AQ	1				
SC	.059	1			
TIE	.124*	.488**	1		
ATT	.399**	.231**	.370**	1	
ADOP	.283**	.311**	.361**	.494**	1

Note: *. Correlation is significant at the 0.05 level (2-tailed).
     **. Correlation is significant at the 0.01 level (2-tailed).

Table 4 presents the degree of correlation between factors. The values with stars imply that both of the intersecting factors are significantly correlated to each other.

Table 4: Correlation matrix among research variables (n=295)

Variables	Mean	Std. Deviation	AQ1	AQ2	SC2	SC3	SC4	ATT2	ATT3	ATT4	TIE1	TIE2	TIE3	TIE4	ADOP1	ADOP2
AQ1	2.95	1.196	1													
AQ2	3.14	1.176	.653**	1												
SC2	2.94	.986	.182**	.092	1											
SC3	3.13	.887	.051	.013	.351**	1										
SC4	2.91	1.070	.002	-.079	.430**	.393**	1									
ATT2	2.81	1.086	.359**	.358**	.095	.103	.097	1								
ATT3	2.99	1.056	.256**	.343**	.133*	.143*	.171**	.592**	1							
ATT4	3.17	1.076	.242**	.285**	.186**	.251**	.185**	.543**	.591**	1						
TIE1	3.15	1.050	.085	.060	.291**	.370**	.312**	.171**	.280**	.344**	1					
TIE2	3.11	1.139	.031	-.003	.254**	.310**	.312**	.258**	.184**	.243**	.524**	1				
TIE3	2.92	1.133	.190**	.120*	.294**	.278**	.210**	.290**	.295**	.276**	.476**	.684**	1			
TIE4	2.95	1.191	.158**	.082	.319**	.376**	.354**	.143**	.229**	.341**	.479**	.455**	.625**	1		
ADOP1	2.95	1.027	.267**	.231**	.235**	.254**	.212**	.309**	.373**	.319**	.278**	.170**	.175**	.204**	1	
ADOP2	3.09	1.064	.202**	.191**	.200**	.218**	.142*	.377**	.415**	.376**	.423**	.340**	.237**	.207**	.496**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

AQ = Argument quality; SC = Source credibility; ATT= Attitude, TIE = Tie strength

Structural model

To investigate the main effects, we examined the structural model based on the measurement model. The χ 2 statistic fit was 289.556 with 73 degrees of freedom (χ 2/df = 3.966, p < .000). The model has GFI of 0.881, AGFI of 0.828, NFI of 0.814, CFI of 0.853, RMR of 0.150, RMSE

of 0.100, and p-value of 0.00). Although this SEM model does not meet all the standard of overall model fit, the differences are not much so that the conceptual model is still acceptable. The conceptual model designed is not a good fit with the data collected. However, the differences are not much so the conceptual model is still acceptable. The reason for this is possibly caused of a few data collected (N=286) that makes hard to get good model fit. So that more data is needed to have a good model fit.

Hypothesis testing – main effects

The squared multiple correlations (R2: coefficient of determinant) for the structural equations for attitude toward e-WOM and e-WOM adoption are shown in Figure 2. For attitude toward e-WOM, 37.2% of the variance was explained by the direct effects of argument quality, source credibility and tie strength. While 47.7% of the variance in e-WOM adoption was explained by the direct effects of attitude toward e-WOM.

Figure 2: Results of Path Relationships
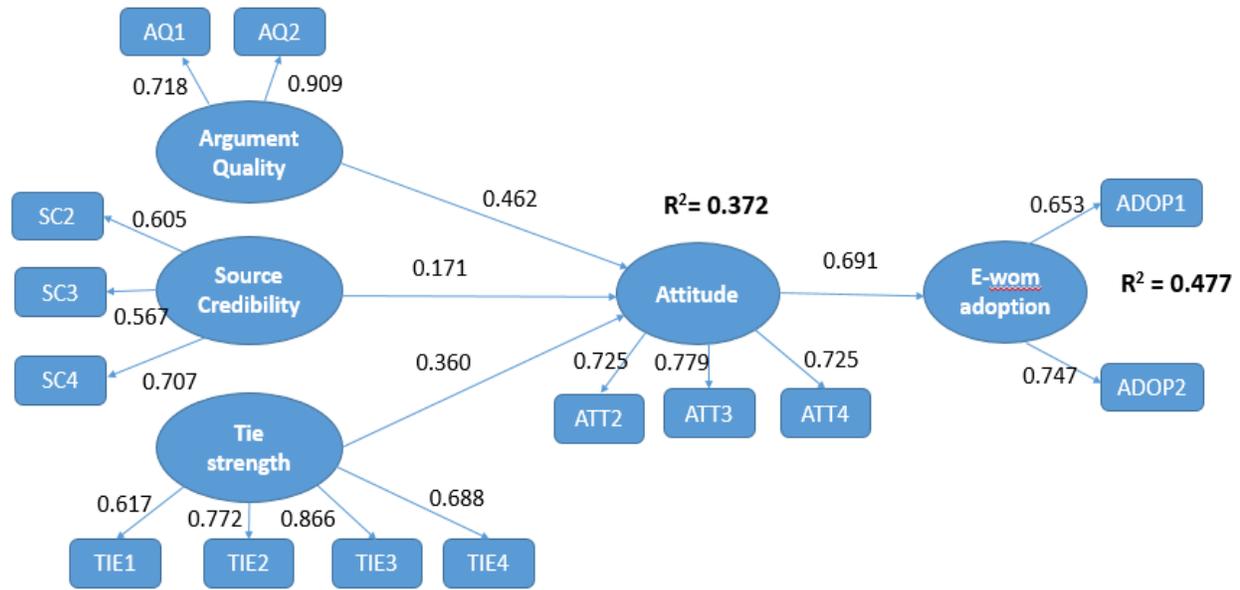
Argument quality had a positive effect on attitude toward e-WOM (β = 0.462, t-value = 5.571) with statistical significance at the $p < .001$ level; thus, this result supports H1.

The significant positive effect of source credibility on attitude toward e-WOM supports H2 (β = 0.171, t-value = 2.399, $p < .001$). In addition, tie strength also positively affects attitude toward e-WOM (β = 0.360, t-value = 5.297, $p < .001$), supporting H3.

H6 states that attitude toward e-WOM is associated with e-WOM adoption. The result shows that attitude toward e-WOM had a significant positive effect on e-WOM adoption (β = 0.691, t-value = 6.804, $p < .001$). Thus this result supports H6.

Table 5: Standardized path coefficients of the structural model—Overall model (N=295)				
Hypothesis/Path	Standardized Coefficient	S.E.	t-value	Model fit statistics
Proposed Theoretical Model (M_T)				
Hypothesis 1 : Argument Quality → Attitude	0.462	0.060	5.571	χ 2/df = 289.556/73=3.966, GFI = 0.881, AGFI = 0.828, NFI = 0.814, CFI = 0.853, RMR = 0.150, RMSE = 0.100, p-value = 0.00
Hypothesis 2 : Source Credibility → Attitude	0.171	0.073	2.399	
Hypothesis 3 : Tie strength → Attitude	0.360	0.064	5.297	
Hypothesis 6: Attitude → e-WOM adoption	0.691	0.086	6.804	

Hypothesis testing – moderating effects

We present the moderating effect of Degree of Involvement and Cognitive level in Table 5; we also analyze the remaining hypotheses, H4a,b and H5a,b. The researcher uses Regression analysis with Andrew Hayes' process tool**.** The results indicated that the coefficients from each path among argument quality, source credibility and Attitude toward e-WOM for the high and

low degree of involvement and cognitive level groups were significantly different from their corresponding coefficients in the structural model.

In the case of H4a, argument quality more significantly affected attitude toward e-WOM in the high degree of involvement (high degree of involvement: 0.3546 > low degree involvement: 0.2301, t-value = 5.7941, $p < 0.001$). Therefore, the results supported H4a. In the case of H4b, source credibility more significantly affected attitude toward e-WOM in the high degree of involvement (high degree of involvement: 0.2141 > low degree of involvement: 0.1241, t-value = 2.4543, $p < .1$), thus H4b is not supported. In the case of H5a, argument quality more significantly affected attitude toward e-WOM in the high cognitive level (high cognitive level: *0.3680* > low cognitive level: 0.2189, t-value = 5.8431, $p < 0.01$). Therefore, the results support H5a. In the high cognitive level source credibility more significantly affected attitude toward e-WOM (high cognitive level: *0.3098* > low cognitive level: -0.0157, t-value = 2.4543, $p < 0.001$), so H5b is not supported.

Table 5 Comparison of path coefficients between high and low involvement groups						
Moderator	Hypotheses	Path	A: High degree of involvement	B: Low degree of involvement	t-value	Test Results
Degree of involvement	H4a	Argument quality -> Attitude toward e-WOM	0.3546***	0.2301**	5.7941	supported
	H4b	Source credibility -> Attitude toward e-WOM	0.2141*	0.1241	2.4543	Not supported

Table 6. Comparison of path coefficients between high and low cognition groups						
Moderator	Hypotheses	Path	A: High cognitive level	B: Low cognitive level	t-value	Test Results
Cognitive level	H5a	Argument quality -> Attitude toward e-WOM	0.3680**	0.2189***	5.8431	supported
	H5b	Source credibility -> Attitude toward e-WOM	0.3098***	-0.0157	1.9952	not supported

DISCUSSION AND CONCLUSIONS

Based on the Elaboration Likelihood Model (ELM), this study identified the influence processes effecting e-WOM adoption with the moderating role of product involvement and cognition to e-WOM information adoption on social media context. We proposed several hypotheses and conduct the survey to test these hypotheses. Finally, all the hypotheses were supported except for H4b and H5b. Three major findings emerged from this research are discussed below:

Firstly, argument quality has a positive effect on e-WOM information adoption. The quality of arguments contained within persuasive information determines the degree of informational influence when a person cognitively elaborates on persuasive information (R. E. Petty &

Cacioppo, 1986). Consumers need to cognitively elaborate information which comes from social media to help them make task-related decisions.

Second, for source credibility as peripheral routes, consumers encounter to positive online review on social media, and their attitudes become favorable due to the proportion of positive e-WOM increase. the result of this study assures that source credibility has a positive effect on e-WOM information evaluation On the other hand, a negative recommendation on social media (low-quality online review) can significant influence the attitude of customer negatively. Moreover, the greater level of involvement/ cognition toward the product purchasing, the higher degree of e-WOM adoption. The findings suggest that the companies should identify the key factors of customers when they looking for the online reviews and product information through various social media initiatives, so they can tailor the most effective way to communicate with customer via these online channel.

Third, in this paper, we aimed to explore the role of tie strength between the poster and reader on an individual attitude toward e-WOM. We found that tie strength exerts a significant effect on E-wom attitude in which stronger level of tie strength in the relationships among communicators will cause higher level of positive attitude toward the e-WOM information. Tie strength played an important role in predicting the e-WOM information adoption: the closer the relationship, the more one likely adopt the usefulness of e-WOM on social media. The dimension of communication between poster and reader is crucial to form a tie strength link on social media. Fourth, the relationship between attitude toward e-WOM and e-WOM adoption matches with the expectation which is consistent with the previous research findings.

Lastly, the research clarifies under conditions of consumer involvement and cognitive will lead to that positive relationship. Not only focus on enhancing the credibility of source of E-WOM, but also the product information is needed to take into consideration on social media. Because of the complicated communication on social media, consumers interact with others in a one – to – many or many – to – many relationships. Consequently, people are different in product knowledge level, product information from those who are perceived to be believable, competent, and trustworthy will be considered more effective in enhancing consumer attitude toward e-WOM messages and vice versa.

In the summary, our research elaborates social media as a persuasive tool for e-WOM information adoption based on the ELM theory, depending on the level of involvement and cognition. Our results have business implications for both sellers and social media service providers:

Firstly, user- generated comments on social media plays an important role on product attitude, seller should pay attention to increase the customer attitude by increase both the quality of product reviews and the reliable of information source. The results implicit that for customers possessing a higher level of involvement, firms should promote the reputation of website or create convincing campaign with experienced people who are "opinion leaders" or "influencers", such as prior users and experts to talk about the benefits and advantages of products since peripheral cues motivate those customers. On the other side, to deal with consumers with a lower level of involvement, firms should provide relevant information with regard to the value, benefit, and advantage of products. A well-articulated message, and communicating useful arguments about products usage, may cause consumers to perceive the usefulness and ease of usage.

In the social media operators' perspective, it is worthwhile to make e-WOM easier to be accessed and retrieved by consumers. Every website has its own way to show online customer review. The study offers the concrete guideline for determining what and how information a site should show to increase customer attitude. For instance, when a product already had a high proportion of positive online reviews, the system automatically emphasizes on giving more

product's information to boost sales. In the contrary, the system could also emphasize the review information in case of low-involvement customer. Even though the information system itself could not exactly decide which level of customer involvement, it could detect the level by click-stream data since the online shopping tasks vary among the level of involvement. Last but not least, the ability of socialized marketing can also be enhanced based on the improved management of social media e-WOM. To enhance customers' behavior intention, firms need to provide an environment, which can help customers perceive the usefulness of products and feel positive about usage. Without a positive attitude, customers may not switch to other alternatives.

Besides some highlighted implications above, this research also has several limitations. First, there are different types of social media platforms which frequency of interaction among consumers and degree of tie strength are different. Hence, the future research should examine e-WOM adoption in a specific research scenario to enhance accuracy and validity of the results. Second, as data are collected only from students in Taiwan, the generalization of research is limited. Exploring diverse groups of consumers should be concerned in future research. Third, further study should get more other cues involved in addition to argument quality and source credibility as possible antecedents influencing attitude. On the other hand, experimental design to measure the impact of those cues in high and low level on the adoption of e-WOM should be further considered. Finally, tie strength should be paid more attention in the future research, for example investigating on the role of tie strength as moderator in dual processes of elaboration likelihood model or comparing differences in tie strength affecting to e-WOM adoption.

REFERENCES

Agarwal, R., & Prasad, J. (1998). The antecedents and consequents of user perceptions in information technology adoption. Decision support systems, 22(1), 15-29.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior Action control (pp. 11-39): Springer.

Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), 179-211.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior-attitudes, intentions, and perceived behavioral-control. Journal of experimental social psychology, 22(5), 453-474.

Bagozzi, R. P., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. Human relations, 45(7), 659-686.

Berger, J. (2014). Word of mouth and interpersonal communication: A review and directions for future research. Journal of Consumer Psychology, 24(4), 586-607.

Berger, J., Sorensen, A. T., & Rasmussen, S. J. (2010). Positive effects of negative publicity: When negative reviews increase sales. Marketing Science, 29(5), 815-827.

Bridges, W. P., & Villemez, W. J. (1986). Informal hiring and income in the labor market. American sociological review, 574-582.

Brown, J., Broderick, A. J., & Lee, N. (2007). Word of mouth communication within online communities: Conceptualizing the online social network. Journal of interactive marketing, 21(3), 2-20.

Brown, J. J., & Reingen, P. H. (1987). Social ties and word-of-mouth referral behavior. Journal of consumer research, 14(3), 350-362.

Buttle, F. A. (1998). Word of mouth: understanding and managing referral marketing. Journal of strategic marketing, 6(3), 241-254.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. Journal of personality and social psychology, 39(5), 752.

Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. Journal of personality and social psychology, 66, 460-460.

Chatterjee, P. (2001). Online reviews: do consumers use them?

Chen, Y., & Xie, J. (2005). Third-party product review and firm marketing strategy. Marketing Science, 24(2), 218-240.

Cheung, C. M., Lee, M. K., & Rabjohn, N. (2008). The impact of electronic word-of-mouth: The adoption of online opinions in online customer communities. Internet research, 18(3), 229-247.

Cheung, C. M., & Thadani, D. R. (2012). The impact of electronic word-of-mouth communication: A literature analysis and integrative model. Decision support systems, 54(1), 461-470.

Cheung, M. Y., Luo, C., Sia, C. L., & Chen, H. (2009). Credibility of electronic word-of-mouth: Informational and normative determinants of on-line consumer recommendations. International Journal of Electronic Commerce, 13(4), 9-38.

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. Journal of marketing Research, 43(3), 345-354.

Chu, S.-C., & Kamal, S. (2008). The effect of perceived blogger credibility and argument quality on message elaboration and brand attitudes: An exploratory study. Journal of Interactive Advertising, 8(2), 26-37.

Clemons, E. K., Gao, G. G., & Hitt, L. M. (2006). When online reviews meet hyperdifferentiation: A study of the craft beer industry. Journal of Management Information Systems, 23(2), 149-171.

Corcoran, M., Datcher, L., & Duncan, G. (1980). Information and influence networks in labor markets. Five thousand American families: Patterns of economic progress, 8(S 1), 37.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 319-340.

Dellarocas, C., Zhang, X. M., & Awad, N. F. (2007). Exploring the value of online product reviews in forecasting sales: The case of motion pictures. Journal of Interactive Marketing, 21(4), 23-45.

Dholakia, U. M., Bagozzi, R. P., & Pearo, L. K. (2004). A social influence model of consumer participation in network-and small-group-based virtual communities. International journal of research in marketing, 21(3), 241-263.

Doh, S.-J., & Hwang, J.-S. (2009). How consumers evaluate eWOM (electronic word-of-mouth) messages. CyberPsychology & Behavior, 12(2), 193-197.

Duan, W., Gu, B., & Whinston, A. B. (2008). Do online reviews matter?—An empirical investigation of panel data. Decision support systems, 45(4), 1007-1016.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. The Journal of Abnormal and Social Psychology, 58(2), 203.

Fishbein, M. (1975). i Ajzen, I.(1975). Belief, Attitude, Intention, and Behaviour: An Introduction to Theory and Research: Addison-Wesley.

Fishbein, M., & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioral criteria. Psychological review, 81(1), 59.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. Journal of marketing Research, 382-388.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. American journal of sociology, 91(3), 481-510.

Granovetter, M. S. (1973). The strength of weak ties. American journal of sociology, 78(6), 1360-1380.

Gupta, P., & Harris, J. (2010). How e-WOM recommendations influence product consideration and quality of choice: A motivation to process information perspective. Journal of Business research, 63(9), 1041-1049.

Hawn, C. (2009). Take two aspirin and tweet me in the morning: how Twitter, Facebook, and other social media are reshaping health care. Health affairs, 28(2), 361-368.

He, W., Zha, S., & Li, L. (2013). Social media competitive analysis and text mining: A case study in the pizza industry. International Journal of Information Management, 33(3), 464-472.

Hennig-Thurau, T., Walsh, G., & Walsh, G. (2003). Electronic word-of-mouth: Motives for and consequences of reading customer articulations on the Internet. International Journal of Electronic Commerce, 8(2), 51-74.

Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnosticity perspective. Journal of consumer research, 17(4), 454-462.

Kamins, M. A., & Assael, H. (1987). Two-sided versus one-sided appeals: A cognitive perspective on argumentation, source derogation, and the effect of disconfirming trial on belief change. Journal of marketing Research, 29-39.

Karlan, D., Mobius, M., Rosenblat, T., & Szeidl, A. (2009). Trust and social collateral. The Quarterly Journal of Economics, 124(3), 1307-1361.

Kline, R. B. (2011). Convergence of structural equation modeling and multilevel modeling: na.

Lee, J., Park, D.-H., & Han, I. (2008). The effect of negative online consumer reviews on product attitude: An information processing view. Electronic Commerce Research and Applications, 7(3), 341-352.

Liang, T.-P., Lai, H.-J., & Ku, Y.-C. (2006). Personalized content recommendation and user satisfaction: Theoretical synthesis and empirical findings. Journal of Management Information Systems, 23(3), 45-70.

Luo, C., Wu, J., Shi, Y., & Xu, Y. (2014). The effects of individualism–collectivism cultural orientation on eWOM information. International Journal of Information Management, 34(4), 446-456.

Morris, J. D., Woo, C., & Singh, A. (2005). Elaboration likelihood model: A missing intrinsic emotional implication. Journal of Targeting, Measurement and Analysis for Marketing, 14(1), 79-98.

O'keefe, D. J. (2002). Persuasion: Theory and research (Vol. 2): Sage.

Park, C., & Lee, T. M. (2009). Information direction, website reputation and eWOM effect: A moderating role of product type. Journal of Business research, 62(1), 61-67.

Park, D.-H., & Kim, S. (2009). The effects of consumer knowledge on message processing of electronic word-of-mouth via online consumer reviews. Electronic Commerce Research and Applications, 7(4), 399-410.

Park, D.-H., & Lee, J. (2009). eWOM overload and its effect on consumer behavioral intention depending on consumer involvement. Electronic Commerce Research and Applications, 7(4), 386-398.

Park, D.-H., Lee, J., & Han, I. (2007). The effect of on-line consumer reviews on consumer purchasing intention: The moderating role of involvement. International Journal of Electronic Commerce, 11(4), 125-148.

Pavlou, P. A., & Dimoka, A. (2006). The nature and role of feedback text comments in online marketplaces: Implications for trust building, price premiums, and seller differentiation. Information systems research, 17(4), 392-414.

Petty, R., & Cacioppo, J. (2012). Communication and persuasion: Central and peripheral routes to attitude change: Springer Science & Business Media.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. Advances in experimental social psychology, 19, 123-205.

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. Journal of personality and social psychology, 41(5), 847.

Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. Journal of Applied Social Psychology, 34(2), 243-281.

Shih, H.-p., Lai, K.-h., & Cheng, T. (2013). Informational and relational influences on electronic word of mouth: An empirical study of an online consumer discussion forum. International Journal of Electronic Commerce, 17(4), 137-166.

Shu, M., & Scott, N. (2014). Influence of social media on Chinese students' choice of an overseas study destination: An information adoption model perspective. Journal of Travel & Tourism Marketing, 31(2), 286-302.

Simon, C. J., & Warner, J. T. (1992). Matchmaker, matchmaker: The effect of old boy networks on job match quality, earnings, and tenure. Journal of labor economics, 10(3), 306-330.

Slater, M. D., & Rouner, D. (1996). How message evaluation and source attributes may influence credibility assessment and belief change. Journalism & Mass Communication Quarterly, 73(4), 974-991.

Steffes, E. M., & Burgee, L. E. (2009). Social ties and online word of mouth. Internet research, 19(1), 42-59.

Sussman, S. W., & Siegal, W. S. (2003). Informational influence in organizations: An integrated approach to knowledge adoption. Information systems research, 14(1), 47-65.

Tam, K. Y., & Ho, S. Y. (2005). Web personalization as a persuasion strategy: An elaboration likelihood model perspective. Information systems research, 16(3), 271-291.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. Information systems research, 6(2), 144-176.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478.

Wathen, C. N., & Burkell, J. (2002). Believe it or not: Factors influencing credibility on the Web. Journal of the American society for information science and technology, 53(2), 134-144.

Yan, G., He, W., Shen, J., & Tang, C. (2014). A bilingual approach for conducting Chinese and English social media sentiment analysis. Computer Networks, 75, 491-503.

Zhang, W., & Watts, S. A. (2008). Capitalizing on content: Information adoption in two online communities. Journal of the Association for Information Systems, 9(2), 73.

Zhu, D. H., & Chang, Y. P. (2014). Understanding motivations for continuance intention of online communities in China: A comparison of active users of social networking sites and virtual communities. Information Development, 30(2), 172-180.