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A DUAL-PROCESS MODEL TO ASSESS USER ATTITUDES AND THE LIKELIHOOD OF ELECTRONIC WORD-OF-MOUTH ADOPTION

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Abstract

The likelihood of electronic word-of-mouth (e-WOM) adoption is useful for academics and practitioners to understand the persuasion. To address this issue, the attitude-intention link was often assumed in information systems (IS) literature without further examinations in the persuasion contexts. This study develops a theoretical model, grounded in the elaboration likelihood model (ELM), to assess how recipients use central and peripheral routes to elaborate e-WOM. This study tests the theoretical model by surveying 395 users with viewing or posting experience in an online discussion forum. The empirical results of this study verify that the central variable (argument quality) directly and indirectly drives the likelihood of e-WOM adoption via cognitive and affective attitudes, whereas the peripheral cue (source credibility) directly and indirectly drives the likelihood of e-WOM adoption via cognitive attitudes only. However, affective attitudes rather than cognitive attitudes significantly determine the likelihood of e-WOM adoption, implying the attitude-intention link is valid in the central route to persuasion. Additionally, the use of central and peripheral routes to form attitudes is influenced by perceived control in online searching. This study also contributes to verify that argument quality acts as the diagnostic input, whereas source credibility acts as the accessible input in the elaboration of e-WOM.

Keywords: Electronic word-of-mouth (e-WOM), Elaboration likelihood model, Central route, Peripheral route.

1 INTRODUCTION

Compared with firm-generated advertising, electronic word-of-mouth (e-WOM) is more influential in the persuasion on recipients by acting as more reliable information cues. This study defines e-WOM as online communication concerning personal experiences with a product or a firm among users or consumers. The spreading of e-WOM can foster customer acquisition and brand building (Dellarocas 2003) and benefit sales in Internet stores (Amblee & Bui 2011). In sum, e-WOM delivers persuasive information that either encourages or discourages recipients' adoption.

The literature widely examined the determinants of e-WOM adoption from the perspectives of utilities (Hennig-Thurau et al. 2004) and social-psychological motivations (Cheung & Lee 2012). Previous studies of e-WOM confirmed the importance of persuasive information influence on consumers (Bickart & Schindler 2001; Cheung et al. 2009). However, few studies have addressed whether information influence of big review data can drive attitude formation and subsequent adoption in online forums. More importantly, the attitude-intention link was often assumed in information systems (IS) literature without further examinations in the persuasion contexts.

Sources, arguments, and recipients are three key elements in the persuasion of e-WOM communication. The elaboration likelihood model (ELM) is a dual-process theory of attitude formation and change via the central and peripheral routes to the persuasion (Petty & Cacioppo 1983). Hence, ELM provides an appropriate theoretical lens to predict user attitudes and adoption in terms of the elaboration of online reviews. Recipients are unlikely to remember which review they have adopted in the persuasion context. Actually, recipients often judge a few online reviews before making purchase decisions. Hence, recipients' perceived control in online searching or alternative evaluation is crucial for developing a consideration set or even a smaller choice set. Following the work of Angst and Agarwal (2009), this study employs "likelihood of adoption" to assess recipients' willingness to put some either positive or negative online reviews into consideration in developing a smaller choice set (Meservy et al. 2014). In sum, this study aims to address the following research questions concerning the persuasive influence of e-WOM:

- (1) Whether the central route and the peripheral route can drive user attitudes towards e-WOM?
- (2) Whether the central route and the peripheral route can directly or indirectly drive the likelihood of e-WOM adoption via user attitudes?
- (3) How does perceived control moderate the central and peripheral routes to attitude formation?

2 ELABORATION LIKELIHOOD MODEL

According to ELM (Petty & Cacioppo 1983), recipients take a central route to process issue-relevant arguments under high-relevance conditions, and they use a peripheral route to process non-argument cues under low-relevance conditions. Hence, recipients invest more cognitive efforts in using the central route to process argument cues, and less cognitive efforts in using the peripheral route to process non-argument cues. Recipients elaborate on the persuasive information to form their perceptions, which in turn may change their attitudes and subsequent behaviours (Petty & Cacioppo 1983; 1986a). In sum, ELM is a dual-process model of information influence routes, which can explain recipients' thoughtful elaboration of the content of a message and the cues relevant to the message (Dillard & Pfau 2002).

The ELM literature widely assessed the effects of persuasion on recipients in terms of argument quality and source expertise (Sussman & Siegal 2003). According to ELM, high elaboration likelihood indicates a strong level of information influence on recipients, whereas low elaboration likelihood indicates a weak impact of information influence. ELM literature suggests that attitude change through a central route may persist longer than attitude change through a peripheral route. Hence, attitudes formed via a central route are more influential than attitudes formed via a peripheral route to predict subsequent behaviours (Petty & Cacioppo 1986a). ELM literature often addressed the persuasive influence on information adoption by incorporating the attitude-intention link into model development (Angst & Agarwal 2009; Bhattacharjee & Sanford 2006). In this study we contribute to re-examine but not question the attitude-intention link by applying ELM to assess attitude formation and predict the adoption of e-WOM in a big data context.

3 THEORETICAL MODEL AND HYPOTHESES

Consumers seek advice online either for satisfying personal needs or reducing financial risks in making purchase decisions (Hennig-Thurau & Walsh 2003). Previous studies indicate that the adoption of advice is influenced by argument quality and source credibility (Sussman & Siegal 2003) or social networks (Brown et al. 2007). This study focuses on informational influence rather than social influence because recipients can easily access online reviews without incurring high switching costs to end their relationships with a website or a poster. According to ELM (Petty & Cacioppo 1983; 1986a), recipients use central and peripheral routes to assess the information influence of message content and message source, respectively. Hence, ELM literature often viewed argument quality and source credibility as a central factor and a peripheral cue, respectively. Moreover, argument quality and source credibility are likely to affect the direction of attitude change via the central and peripheral routes, respectively. Applying the accessibility-diagnostics model (Feldman & Lynch 1988) to assess the dual-process model, this study considers argument quality as more related to diagnostic information that provides impression-inconsistent cues to help recipients judge the validity of prior impression. In contrast, this study considers source credibility as more related to accessible information that provides impression-consistent or non-ambiguous cues to reinforce the impression and generate a common view. ELM indicates that experienced recipients have the ability to elaborate argument quality, whereas inexperienced ones rely on source credibility in the elaboration. To address the two views on review elaboration, this study develops a theoretical model to examine the influence of argument quality and source credibility in e-WOM persuasion.

Literature conceptualized attitudes as consisting of three related components: cognition, affect, and conation (i.e. intention) (Breckler 1984). Hence, this study splits the attitude construct into cognitive attitudes, affective attitudes, and intentions to examine the influence routes to attitude formation and subsequent adoption. Lord et al. (1995) indicated that attitude rather than behaviour is a function of combined information influence via central arguments and peripheral cues. IS literature widely verified the attitude-intention link from Fishbein and Ajzen (1975) in the theory of reasoned action (TRA) and also identified by Ajzen (1985) in the theory of planned behavior (TPB). In line with ELM and the attitude-intention link, this study examines how argument quality and source credibility drive the likelihood of e-WOM adoption via cognitive and affective attitudes.

3.1 Argument Quality

In this study, argument quality refers to the strength of argument contained in e-WOM. According to ELM, the quality of the argument embedded in the persuasion determines the extent of information influence on recipients (Cheung et al. 2009; Petty & Cacioppo 1986a). Hence, argument quality can serve as a central factor in the elaboration of e-WOM. The judgment of argument quality is based on recipients' cognitive and affective elaboration of the persuasion (Petty & Cacioppo 1986b). Cognitive elaboration is a relative objective elaboration of the persuasion, whereas affective elaboration is a relative subjective elaboration. Cognitive elaboration develops more on the basis of rational thoughts, whereas affective elaboration develops more on the basis of emotional feelings (Petty & Cacioppo 1986b). The elaboration of argument quality of an online review can create cognitive and affective influences on recipients and thereby motivate their cognition and affect toward the review. We thus posit the following:

Hypothesis H₁: Argument quality positively affects users' cognitive attitudes towards e-WOM.

Hypothesis H₂: Argument quality positively affects users' affective attitudes towards e-WOM.

The ELM literature indicates that argument quality can shape recipients' attitudes, which in turn determine the acceptance or rejection of the persuasion according to the attitude-intention link (Fishbein & Ajzen 1975; Ajzen 1985). Given that attitudes encompass the intention component (Breckler 1984), we extend the effect of argument quality on attitude that is grounded in ELM to the intention construct regarding the adoption of e-WOM. Consistent with the elaboration-behavior information processing model (Tam & Ho 2005), we induce a causal link from argument quality to intention to adopt reviews in the persuasion. We thus posit that:

Hypothesis H₃: Argument quality positively influences the likelihood of e-WOM adoption.

3.2 Source Credibility

Source credibility refers to the degree to which an information source is perceived to be professional, trustworthy, credible, and knowledgeable by information recipients (Petty et al. 1981). Recipients who want to spend the least efforts to reduce information uncertainty in making decisions are likely to use the peripheral route to process available peripheral cues in the persuasion. Among available peripheral cues, source expertise plays a more salient role than others in driving recipients' perceptions and attitudes towards the persuasion (Petty & Cacioppo 1983). The effect of source credibility is significant when recipients evaluate online reviews based on reviewers' credibility rather than the quality dimension that needs effortful elaboration. Previous research has verified the effect of source expertise on individual attitudes towards the persuasion (Bhattacharjee & Sanford 2006). Given that the attitude construct encompasses cognition and affect (Breckler 1984), we extend to address the formation of cognitive and affective attitudes towards e-WOM persuasion. According to ELM (Petty & Cacioppo 1986b), elaboration of source credibility encompasses cognitive and affective elaboration of the persuasion. Recipients elaborate the credibility of review sources in terms of cognitive and affective components are likely to form cognitive and affective attitudes towards the review. We thus posit that:

Hypothesis H₄: Source credibility positively affects users' cognitive attitudes towards e-WOM.

Hypothesis H₅: Source credibility positively affects users' affective attitudes towards e-WOM.

Recipients rely on experts' reviews or recommendations that facilitate them to spend less effortful thoughts in scrutinizing the persuasion via a peripheral route. According to ELM, a peripheral cue such as source credibility of advice is likely to affect user attitudes, which in turn determine user intention to adopt the advice. Given that the attitude construct encompasses the intention component (Breckler 1984), we extend to examine the effect of source credibility on the likelihood of e-WOM adoption. Recipients perceive reviewers as more credible are more likely to adopt the reviews from those trusted experts according to the peripheral route to persuasion. The elaboration-behaviour information processing model (Tam & Ho 2005) also provides a theoretical lens to examine the association between source credibility and likelihood of e-WOM adoption. Hence, we posit that:

Hypothesis H₆: Source credibility positively influences the likelihood of e-WOM adoption.

3.3 Cognitive and Affective Attitudes

Cognitive attitudes refer to the degree to which an individual develops specific beliefs related to an attitude object, whereas affective attitudes refer to the degree of emotional attraction towards an attitude object (Bagozzi & Burnkrant 1979). The two-component (affective/cognitive) model of attitude is better than the single-component model of attitude in predicting self-reported behaviour (Bagozzi & Burnkrant 1979) and assessing distinct influence processes in IS adoption (Yang & Yoo 2004). To assess how central and peripheral routes to online reviews drive e-WOM adoption via cognitive and affective attitudes, we follow the attitude-intention link (Fishbein & Ajzen 1975; Ajzen 1985) to posit that:

Hypothesis H₇: Cognitive attitudes positively influence the likelihood of e-WOM adoption.

Hypothesis H₈: Affective attitudes positively influence the likelihood of e-WOM adoption.

Affective responses to an object often develop based on an individual's cognitive evaluations of the properties and attributes of the object (Zajonc & Markus 1982). Cognitive attitudes refer to evaluative judgments that are stored in memory, whereas affective attitudes are psychological processes that can drive behavioural intention (Olson & Zanna 1993). Hence, Yang and Yoo (2004) suggest a causal link from cognitive attitudes to affective attitudes in the prediction of IS use. We thus extend the cognitive-affective attitudes link to the persuasive context by positing that:

H₉: Cognitive attitudes positively influence affective attitudes towards e-WOM.

3.4 Perceived Control

ELM has addressed how personal motivation and ability moderate the central and peripheral routes to attitude change (Petty & Cacioppo 1981; 1983). According to ELM, whether recipients adopt the central or peripheral route to elaborate upon the persuasion would depend on their ability and motivation. Ability refers to product knowledge or cognitive capacity of a recipient to process the persuasive information. Motivation refers to a recipient's personal involvement in assessing the persuasion. Recipients with high motivation and ability would use a central route to elaborate the persuasive messages. In contrast, recipients with low motivation or ability would use a peripheral route in the elaboration of persuasion (Petty & Cacioppo 1983; 1986a). Previous studies widely examined the moderating effects of expertise or job relevance, without paying attention to the moderating effect of perceived control on the persuasion (Bhattacharjee & Sanford 2006; Cheung et al. 2012).

Perceived control refers to the extent of individual control over the environment and related actions (Csikszentmihalyi 1990). This study defines perceived control as the extent to which recipients believe they can control the elaboration of online reviews in online searching and alternative evaluation for developing a smaller choice set. Ability refers to personal capacity of information processing, whereas perceived control refers to self-control over the choice of online reviews in the assessment. Recipients may choose the review that meets their preferences or experiences but not the review they cannot assess. In this study, we categorize perceived control into high and low levels (High Perceived Control – HPC, Low Perceived Control – LPC). People rely on perceived control over the choice of information cues to determine whether they should use the sufficient approach (systematic processing) or the least effort approach (heuristic processing) to reduce information uncertainty (Steenbergen et al. 2011). Recipients perceive higher control over the elaboration of online reviews, implying that they can access sufficient information to make better decision quality. In contrast, recipients perceive lower control over the elaboration of online reviews imply that they are more likely to apply the least effort to reduce information uncertainty in the persuasion. Hence, recipients are likely to use the central route (the sufficient approach) to elaborate argument quality of online reviews to form their attitudes under the condition of HPC. In contrast, recipients are likely to use the peripheral route (the least effort approach) to elaborate source credibility of online reviews to form their attitudes under the condition of LPC. In sum, we posit the following hypotheses concerning attitude formation under different conditions of perceived control over the elaboration of online reviews.

H₁₀: Perceived control has a positive moderating effect on the association between argument quality and cognitive attitudes towards e-WOM.

H₁₁: Perceived control has a negative moderating effect on the association between source credibility and cognitive attitudes towards e-WOM.

H₁₂: Perceived control has a positive moderating effect on the association between argument quality and affective attitudes towards e-WOM.

H₁₃: Perceived control has a negative moderating effect on the association between source credibility and affective attitudes towards e-WOM.

4 METHOD

4.1 Measurement Development

We developed most of the measurement items used in this study from previous studies, such as argument quality and source credibility (Bhattacharjee & Sanford 2006), cognitive and affective attitudes (Yang & Yoo 2004). Given the difficulty to judge the adoption of each review in developing a smaller choice set (Meservy et al. 2014), we measured the likelihood of e-WOM adoption rather than actual adoption by modifying previous scales (Jeon & Park 2003). All measures are anchored using the five-point Likert scale and shown in Appendix A. Perceived control was measured in terms

of one self-reported measure regarding the assessment of personal self-control in processing online reviews for building a choice set.

4.2 Sample Survey

Yahoo (Taiwan) e-auction is a consumer-to-consumer (C2C) platform that builds an online discussion forum to support users to share or exchange personal opinions or experiences by posting queries and replies of product reviews. The online forum provides an open web-based platform where users can view and post online reviews. Users who use this online forum can access not only online reviews, but also the ratings of reviews and reviewers within the online forum. The portal-sponsored discussion forum is more appropriate than firm-sponsored forums for the survey of users to test the research model. In addition, Yahoo (Taiwan) e-auction is a representative C2C website that has the largest number of users. We thus collected the data to examine influence routes in e-WOM communication. More details about the website can be found in the work of Lin et al. (2012). We collected data from those users who had used the online discussion forum at Yahoo (Taiwan) e-auction website to capture online reviews in making purchase decisions. We posted the questionnaire on an online survey centre under a mutual agreement contract to collect targeted samples. Owing to strong concern on the unbalanced and sequence of online review (Purnawirawan et al. 2012-13), this study did not ask subjects to read self-selected e-WOM. All subjects were asked to judge their perceptions, attitudes, and behavioral intentions regarding their self-selected viewing of online reviews about computer-related products and vendors during the past month (e.g., July 2012). Thousands of reviews about computer-related products can be created every month in the website. During a one-week period in August 2012, we obtained 395 (Male = 172, Female = 223) completed questionnaires that provided data to validate the research model. More than 65% of the respondents were aged below 34 year old, and 63% of them possessed college or above degrees. Each respondent spent at least thirty minutes every week to participate in the online discussion forum for viewing reviews. All the respondents received a special gift coupon from the online survey centre once they completed the questionnaire survey.

5 RESULTS

5.1 Reliability and Validity

Table 1 shows that all the factor loadings for the indicators of the corresponding construct significantly exceed the 0.60 threshold and also exceed the cross-loadings for other indicators from other constructs (Hair et al. 2010). Each indicator also loads higher with its respective construct than with the others. Other items having low factor loadings were dropped in the test. Hence, the measurement achieves acceptable convergent validity. The Cronbach's alphas and the composite reliability (CR) for the five theoretical constructs (Table 2) significantly exceed the 0.70 threshold (Nunnally 1978), suggesting acceptable internal consistency. The average variance extracted (AVE) for all the constructs exceed the 0.50 threshold (Table 2), which suggests that the measurement achieves convergent validity (Fornell and Larcker 1981). The square root of the AVE for each construct exceeds the correlation between that and any other constructs (Table 2), which indicates that the measurement exhibits acceptable discriminant validity (Fornell & Larcker 1981). Using the structural equation modeling (SEM) package (AMOS) to perform confirmatory factor analysis (CFA), An acceptable fit of the measurement model ($\chi^2/df = 2.674$, GFI = 0.94, AGFI = 0.90, NFI = 0.96, CFI = 0.97, RMR = 0.01, RMSEA = 0.06) and the structural model ($\chi^2/df = 2.643$, GFI = 0.98, AGFI = 0.94, NFI = 0.96, CFI = 0.98, RMR = 0.03, RMSEA = 0.06) has achieved in the test (Bagozzi & Yi 1988; Chau 1997).

5.2 Common Method Variance Analysis

We followed the recommendation by Podsakoff et al. (2003) to avoid the effects of common method variance (CMV) in the design of questionnaire survey, including guarantee of respondent anonymity, counterbalance of question order, and improvement of scale items. Moreover, most constructs are

measured in terms of previously validated measures and examined via pre-test in order to increase the validity of the theoretical model (Sharma et al. 2009). We also examined CMV using a *post-hoc* approach with two tests on the self-reported data. First, the test of inter-construct correlations (Table 2) shows that the highest correlation (0.656 for AQ-SCR) is far below the threshold of 0.90 (Bagozzi et al. 1991), indicating no evidence of CMV. Second, following the recommendation by Podsakoff et al. (2003) and Liang et al. (2007), we re-ran the measurement model by adding a common method factor that was created to encompass all the indicators of the measurement. The CMV analysis shows that the average explained variance of indicators is 0.697, while the average explained variance of the method factor is 0.0035. The ratio between the method factor and the indicators is 0.005, suggesting that CMV is unlikely to be a problem. In sum, the effect of CMV is not a major concern in the survey.

Item	SCR	LOA	AQ	CA	AA
SCR1	0.754	0.230	0.282	0.161	0.231
SCR2	0.766	0.193	0.392	0.193	0.151
SCR3	0.818	0.175	0.349	0.140	0.122
SCR4	0.794	0.383	0.122	0.170	0.126
LOA1	0.235	0.781	0.234	0.209	0.096
LOA2	0.229	0.821	0.207	0.127	0.191
LOA3	0.317	0.697	0.284	0.139	0.278
AQ1	0.290	0.260	0.748	0.104	0.278
AQ2	0.451	0.266	0.712	0.158	0.157
AQ3	0.386	0.324	0.721	0.217	0.059
CA1	0.186	0.230	0.182	0.745	0.332
CA2	0.201	0.141	0.123	0.856	0.224
AA1	0.222	0.196	0.091	0.283	0.825
AA2	0.147	0.235	0.305	0.341	0.707

Table 1. Factor loadings and cross-loadings of measurement items

Construct	Mean	S.D.	Cronbach Alpha	CR	AVE	AQ	SCR	CA	AA	LOA
AQ	3.67	0.59	0.88	0.95	0.53	0.728				
SCR	3.72	0.58	0.92	0.97	0.61	0.656	0.781			
CA	3.81	0.60	0.78	0.89	0.64	0.413	0.407	0.800		
AA	3.67	0.58	0.79	0.90	0.59	0.487	0.442	0.596	0.768	
LOA	3.83	0.56	0.86	0.94	0.50	0.591	0.551	0.430	0.481	0.707

Diagonal elements represent the square roots of the AVEs of the constructs, while the other matrix elements represent the inter-construct correlations.

Table 2. Internal consistency, convergent validity, and discriminant validity

5.3 Hypothesis Testing

We followed the recommended procedures by Preacher and Hayes (2004) to run SPSS Macro (e.g., process.spd) to test the indirect effects on the likelihood of adoption via cognitive and affective attitudes. By using the Bootstrapped approach, the two attitude constructs (CA and AA) are significant mediators in the test. According to Zhao et al. (2010), the structural model with partial

mediations is appropriate to test the hypotheses. To rule out alternative plausible explanations, we examined three control variables (e.g., age, gender, and education level). The SEM results show that the effects of the three control variables on the likelihood of adoption are not significant (Figure 1). In sum, hypotheses H₁, H₂, H₃, H₄, H₆, H₈, and H₉ are supported, whereas hypotheses H₅ and H₇ are not supported. The ELM variables account for higher variances in affective attitudes than in cognitive attitudes. The theoretical model accounts for more than 50% of the variances in the likelihood of e-WOM adoption, showing significant explanatory power.

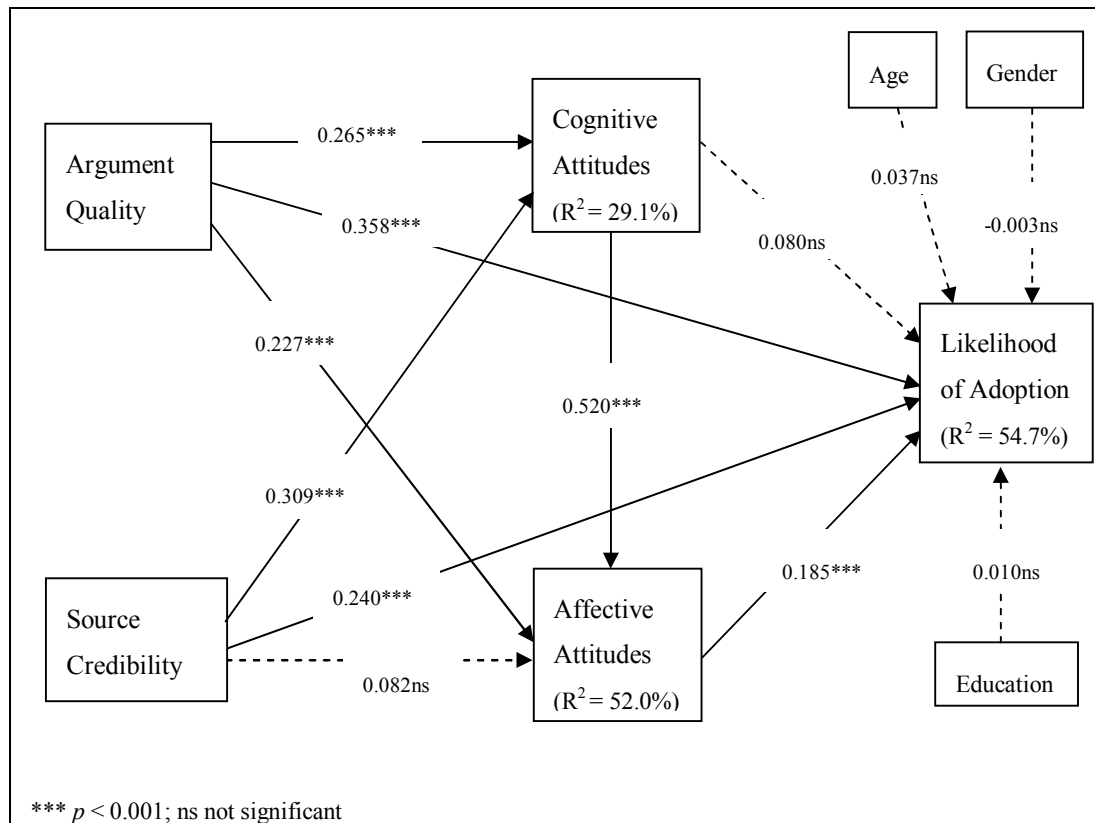


Figure 1. Empirical results

The J-shaped distribution of the bimodal distribution of product reviews indicates that the median average rating of 3 is not statistically meaningful and thereby might be a poor proxy of product quality (Hu et al. 2009). To make the review data to approach a symmetric bimodal distribution, we divided the whole sample into two groups based on the sample median (median=4) of perceived control: HPC ($n_1=185$) and LPC ($n_2=210$). Empirical results show that perceived control negatively moderates the effect of argument quality but positively moderates the effect of source credibility on cognitive attitudes (Figure 2a). In contrast, perceived control positively moderates the effect of argument quality on affective attitudes, whereas the moderating effect of perceived control on source credibility-affective attitudes link is not significant (Figure 2b). In sum, hypothesis H₁₂ is supported, whereas hypotheses H₁₀, H₁₁, and H₁₃ are not supported.

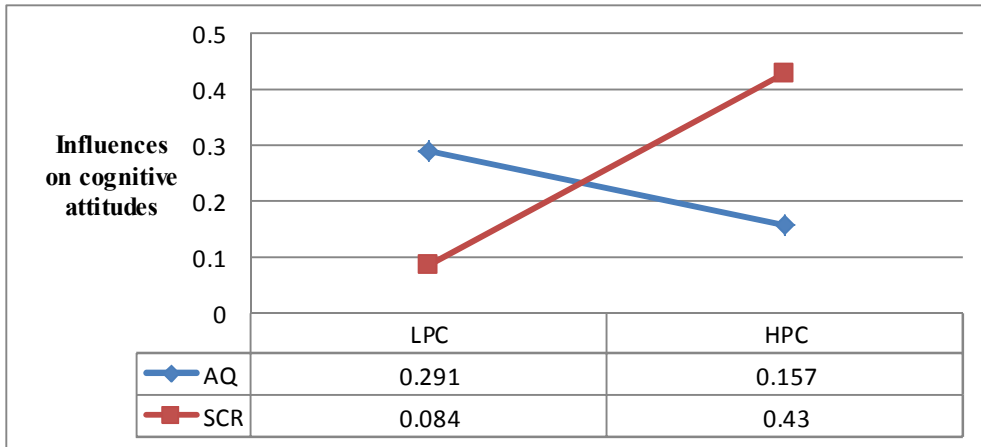


Figure 2a. Moderating effects of perceived control on cognitive attitudes

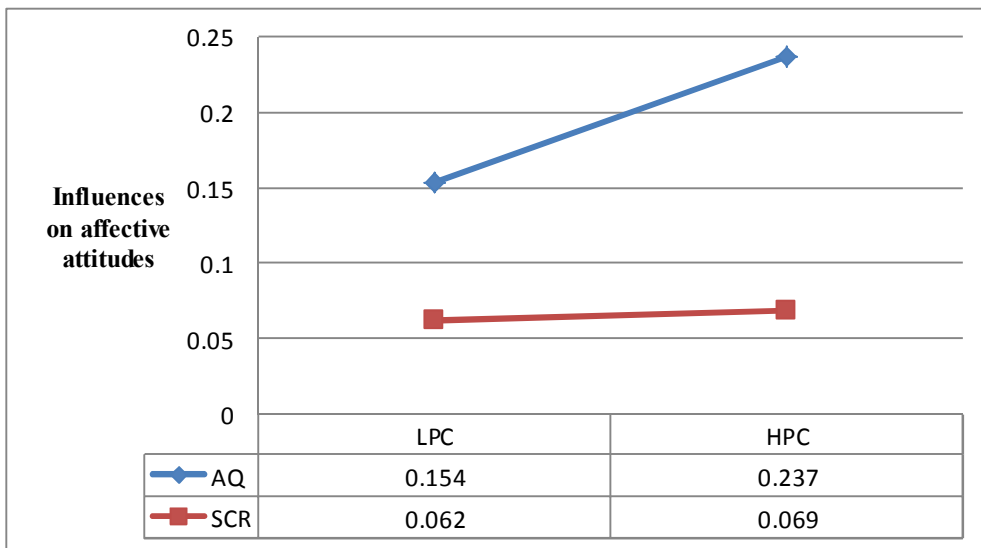


Figure 2b. Moderating effects of perceived control on affective attitudes

6 DISCUSSION

We develop a theoretical model for predicting e-WOM adoption from the perspectives of ELM and re-examining the attitude-intention link. We test the theoretical model by surveying experienced users of an online discussion forum. The IS literature suggested that the peripheral variable rather than the central variable affected the attitude construct (Bhattacharjee & Sanford 2006). Our empirical results advance to reveal that the central variable (argument quality) significantly affects recipients' cognitive and affective attitudes towards e-WOM. In contrast, the peripheral variable (source credibility) significantly affects cognitive attitudes rather than affective attitudes. Cognitive and affective attitudes are two significant determinants of user behaviour of IS (Yang & Yoo 2004). In contrast, our empirical results indicate that affective attitudes rather than cognitive attitudes significantly affect the likelihood of e-WOM adoption. We explain this phenomenon by inferring that affective attitudes likely play a highly accessible attitude object than cognitive attitudes do (Petty & Wegener 1999), which foster recipients to easily recall the impression from their minds and thereby guide their intentions to adopt e-WOM.

Our empirical results indicate that recipients having high perceived control would develop cognitive attitudes in terms of more peripheral cues but less central cues of online reviews. We explain the phenomenon by inferring that recipients likely view argument quality as a peripheral cue rather than as a central message in shaping their cognitive attitudes under the condition of high perceived control

in online searching and alternative evaluation. We also infer that recipients likely view source credibility as a central factor rather than as a peripheral cue in shaping their cognitive attitudes under the condition of high perceived control. The ELM perspective can partly explain our findings that recipients view argument quality as a central factor to form their affective attitudes under the condition of high perceived control. We did not find the evidence that recipients view source credibility as a peripheral cue when developing affective attitudes under the condition of high perceived control.

7 IMPLICATIONS

7.1 Theoretical Implications

Our theoretical model extends the study of ELM by examining whether recipients elaborate a message-based factor (e.g., argument quality) using the central route, and elaborate a non-message factor (e.g., source credibility) using the peripheral route to the persuasion in the big review data context. First, we contribute to the ELM literature that focused on attitude change by verifying the direct effects of the central and peripheral influences on the likelihood of e-WOM adoption (intention). Literature of social psychology considers attitude as a predictor of behaviour (Fishbein & Ajzen 1975; Ajzen 1985). Hence, the study of ELM often postulated a causal link between attitudes towards the persuasion and behavioural intention (Bhattacharjee & Sanford 2006; Lord et al. 1995). However, our empirical results indicate that the cognitive component of attitudes is not a significant determinant of e-WOM adoption intention. Second, the attitude-intention link is not valid in using cognitive attitudes to predict user intention to adopt the persuasive information. IS literature widely addressed post-adoption behaviours in terms of user attitudes. Re-examination on the attitude-intention link in the post-adoption of IS can provide rich information in the prediction of voluntary users. ELM literature argued that an accessible attitude can shape behavioural judgment via effortful (cognitive process) and non-effortful (affective process) processing modes (Petty & Wegener 1999). Third, the extant empirical results of this study imply that the attitude-intention link should hold via the formation of affective attitudes, but not cognitive attitudes.

Petty and Wegener (1999) argued that whether variables can serve as arguments or cues should vary with situational and individual factors. Cheung et al. (2012) provide empirical results to suggest that an information cue plays a central cue in one situation of the recipient variable, and plays a peripheral cue in another situation of the recipient variable. Fourth, our empirical results contribute to the ELM literature by suggesting that recipients view argument quality as a peripheral cue under high perceived control. Fifth, we contribute to the ELM literature by suggesting that recipients view source credibility as a central factor under high perceived control. In sum, we verify the view of Petty and Wegener (1999) that the degree of elaboration rather than the information cue determines the central or the peripheral route to process the persuasion of e-WOM.

7.2 Practical Implications

This study provides managerial implications useful for practitioners who are keen to know what information influence can motivate e-WOM adoption. The first implication for practitioners is to motivate users for engaging in thoughtful elaboration on argument-based cues. Owing to the concern over negative WOM (Richins 1984), practitioners should encourage the spreading of high-quality online reviews that foster recipients to develop affective attitudes to override negative impression in the mind. In the persuasion of e-WOM, recipients often put more cognitive efforts in the elaboration of argument factors than non-argument factors mainly because of the difficulty in assessing the former (e.g., positive or negative e-WOM) compared with the ease in accessing the latter (e.g., reviewer credibility). Second, recipients form cognitive attitudes do not imply that they are likely to adopt eWOM. Hence, practitioners should focus on the e-WOM with credible sources and reliable information, which likely motivate recipients' affective attitudes. Third, practitioners that aim to put e-WOM into online advertisements should understand that perceived control is crucial for shaping the two influence mechanisms.

8 CONCLUSION AND LIMITATIONS

We test the theoretical model by surveying target users of an online discussion forum. This study contributes to verify the two assumptions that argument quality acts as diagnostic input, whereas source credibility acts as accessible input in the judgment of e-WOM. Responding to the first question, both the central and peripheral routes (variables) are effective in shaping user attitudes towards e-WOM. The central route is effective to shape cognitive and affective attitudes. In contrast, the peripheral route can shape cognitive attitudes rather than affective attitudes. Second, the central route directly and indirectly drives the likelihood of e-WOM adoption, whereas the peripheral route directly but not indirectly drives the likelihood of e-WOM adoption. Affective attitudes rather than cognitive attitudes significantly determine the likelihood of e-WOM adoption, implying the attitude-intention link is valid in the central route to persuasion. Responding to the third question, perceived control positively moderates the central route to form affective attitudes. In contrast, perceived control negatively moderates the central route but positively moderates the peripheral route to form cognitive attitudes.

In this study, there are some limitations that should be noted when generalizing the theoretical model to other online contexts. First, this study surveys only one online forum without collecting more data from other forums. Hence, the empirical results should be used carefully when extending to predict e-WOM adoption in other online forums. Second, this study only examines one central factor and one peripheral cue. Future research should examine more central and peripheral cues in the e-WOM persuasion. Third, this study does not show specified online reviews to subjects and ask them to provide their perceptions, attitudes, and willingness to adopt in the persuasion.

Appendix A. Measurement Items

A.1 Argument Quality (AQ)

AQ1 Review arguments on the online discussion forum are valuable

AQ2 Review arguments on the online discussion forum are informative

AQ3 Review arguments on the online discussion forum are helpful

A.2 Source Credibility (SCR)

SCR1 Reviewers on the online discussion forum are professional

SCR2 Reviewers on the online discussion forum are trustworthy

SCR3 Reviewers on the online discussion forum are credible

SCR4 Reviewers on the online discussion forum are knowledgeable

A.3 Cognitive Attitudes (CA)

It is to access the electronic word-of-mouth posted on the online discussion forum.

CA1 Very wise vs. Very foolish

CA2 Very harmful vs. Very beneficial

CA3 Very worthless vs. Very valuable (dropped)

A.4 Affective Attitudes (AA)

It is to access the electronic word-of-mouth posted on the online discussion forum.

AA1 Very like vs. Very dislike

AA2 Very annoyed vs. Very happy

AA3 Very bad vs. Very good (dropped)

A.5 Likelihood Of Adoption (LOA)

LOA1 I will refer to the specified electronic word-of-mouth posted on the online discussion forum

LOA2 I will refer to the specified electronic word-of-mouth posted on the online discussion forum when making the choice

LOA3 I intend to use targeted electronic word-of-mouth posted on the online discussion forum

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