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The relationship between brand trust, online customer reviews and willingness to purchase.

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This research investigates how online customer reviews, a particular form of electronic word of mouth (eWOM), affect consumer decision-making (willingness to purchase) during a first time purchase of services or products. Using brand trust as a mediating variable in the relationship between online customers reviews and the consumer’s willingness to buy, data was collected through a quasi-experiment approach and then analyzed using Structural Equation Modelling. The findings demonstrated that the reliable dimension of brand trust has a mediating effect on online customer reviews valance to willingness to buy while the intentionality dimension had little effect.

Online reviews; eWom; brand trust; willingness to purchase.

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1. Introduction

Word of Mouth (WOM) has for many decades been considered to be more important than advertising in raising the awareness of a product, and in influencing consumers to trial it (Sheth 1971). More recently the effect of WOM has been significantly increased through the global and ubiquitous use of the internet, resulting in the concept of electronic Word of Mouth (eWOM). With the introduction of web 2.0, eWOM became a major element of User Generated Contents (UGC). Customers have been empowered to write online experiential product and service reviews which can be read by consumers in conjunction with the marketing information provided by the firm. That is, online customer reviews is one type of eWOM and it is one type of UGC. However, online customer reviews has become the most common form of eWOM. Furthermore, these online customer reviews have shown to have a significant influence on customer decision-making (Chen and Xie 2008). The ultimate goal of marketing is to develop an intense bond between the consumer and the brand (Hiscock 2001). This is usually associated with a relationship of trust between the customer and the brand, which then shapes consumer buying behaviour and customer loyalty, and can then lead to repeat purchases. Of paramount importance is to persuade consumers to make the first time purchase. For many products and services the buying action may be a one off. For instance, when travellers visit a place that they have never been there before, they are making a first time purchase of travel to that place. They may not visit the place again as they want another novel travel experience. In this case, whilst it is more relevant to focus on the first time buying decision, rather than repeat purchases, customer relationship development is still important as it may result in positive eWOM that positively affects the buying decision of new customers.

Past studies in eWOM have explored the antecedents that affect the generation of WOM activities and the relationships of WOM characteristics such as valance (Celso and Carlos 2008); and the outcome variables that include customer equity and brand purchasing probability (Buttle 1998; East et al. 2008; Vermeulen and Seegers 2009). With the advent of the Internet, eWOM has become the new focus of WOM research; however, there is a lack of studies that have focused on the causal relationships of the mechanisms that explain how eWOM leads to a customer’s purchase action.

Using a theoretical framework, this study examines the mechanisms underlying how online customer reviews can influence consumers’ purchasing decisions (willingness to purchase). In particular the study considers how online customer reviews can lead to the development of trust which subsequently affects the consumer’s willingness to purchase a product that is not familiar by the consumer and difficult to ask for a trial for the first time. In summary, it is the intention of this study to examine the mediating effects of ‘brand trust’ between online customer reviews and willingness to purchase.

2. Literature review

2.1 eWOM and customer review

Word of Mouth (WOM) has been described as person-to-person oral communication between a receiver and a communicator whom the receiver perceives as non-commercial, regarding a brand, organization, product or service (Arndt 1967). It represents the power of personal referral on consumer decision-making. The advance into the Internet age has brought some changes to this description. For instance, the presence of virtual WOM in bulletin boards is not face-to-face, oral and ephemeral. This form of WOM is usually referred as (Internet) iWOM or (electronic) eWOM in numerous studies. The development of the Internet into Web 2.0 has been characterized UGC and has permitted new forms of eWOM like online customer reviews based on personal usage experience. Online customer reviews can serve as a new element in the marketing communication mix and provide free sales assistance (Chen and Xie 2008).
recent studies on eWOM have been based on customer reviews (Park et al. 2007; Sen and Lerman 2007; Zhang et al. 2010), as well as being built upon the studies on WOM (Chen and Xie 2008; Lee et al. 2008).

A rich body of literature has been built up on the subject of WOM and generally supported that WOM is more influential than other marketing resources such as advertisement on purchasing decisions (Buttle 1998; Chen and Xie 2008). WOM is considered as more trustworthy, and independent of corporate influence, by consumers (Murray 1991). WOM has many characteristics like valence (positive or negative), focus-customer and supplier/alliance, timing-before or after purchase, solicitation, intervention, and incidence-intention and informed behaviour (Buttle 1998). Studies on WOM can be broadly categorized into two groups. The first group focused on the relationship between antecedents and the WOM characteristics, while the other group focused on the relationship between WOM characteristics and WOM’s effect on consumer decision making like brand equity. An integrative WOM model was introduced by Buttle (1998) that consists of Intrapersonal and Extrapersonal variables to explain the interaction of these variables that span across both groups of research. This study focuses on online customer reviews which are an important type of eWOM. Since online customer reviews are typically written by users and contain strong positive or negative opinions about their experiences, they can be seen as an extension of WOM. Referring to the positive or negative tone of WOM, Buttle (1998) acknowledges that valence is a significant characteristic of WOM. Intrapersonal variables are related to the process of generating input or output WOM. Among the intrapersonal variables, considerable attention has focused on the valance of WOM in numerous recent studies (Celso and Carlos 2008). The valance of WOM is inferred to be associated with the customer experiences of a product or service. When their expectations are met, satisfaction and delight will be experienced and this leads to positive WOM (Swan and Oliver 1989; Brown et al. 2005; Wangenheim and Bayón 2007). On the other hand, negative WOM is linked to dissatisfaction (Swan and Oliver 1989; Singh and Pandys 1991; Wetzer et al. 2007). Regarding the proportion of WOM with different valance, positive WOM is more common than negative WOM (East et al. 2007; Bronner and De Hoog 2010). For familiar brands, positive WOM has greater impact than negative WOM. Consumers resist negative WOM on the brand they are likely to choose and resist positive WOM to the brand they are unlikely to choose (East et al. 2008). However, the effect of WOM valance was found to be moderated by product type because of the difference in the nature of the consumption processes. Depending on different types of products, people tend to give more weight to negative information in the purchase evaluation process (Sen and Lerman 2007). Therefore, it seems that positive and negative WOM have different strengths and their effects are moderated by different variables. The valance of eWOM has also been modelled as having a moderating role on posting platform and consumer product judgment relationship (Lee and Youn 2009).

Extrapersonal variables are related to contextual conditions that influence the process of generating input or output WOM. This includes variables such as culture, social networks, incentives and business climate. It is well established that people from difficult cultures have differences in various cultural dimensions such as power distance or individualism and collectivism (Hofstede 2001; Schwartz 2006). Most studies in WOM have been undertaken in Western countries that are at the individualist end of the individualist/collectivist dimension; and researchers have indicated that there are inadequacies in this area (Watkins and Liu 1996; Money et al. 1998). A recent study on the effect of cultural values in WOM communication contended that Hofstede’s four cultural dimensions (Individualism, Uncertainty avoidance, Masculinity and Power distance) have significant effect on WOM engagement on Social in and out-groups (Lam et al. 2009). Social in-group are those people that the consumer knows personally versus out-group that are strangers to the consumer. In the online customer reviews context, it is unlikely for participants to read comments from other social in-group members. That is, although participants may belong to the social network group ‘Facebook’, it is more likely that they all have their own interests as individuals and have their own separate social in-groups. However, in a collective culture, consensus among social in-group members is value highly and could have significant impact in the process of decision making (Lam et. 2009).
Other study have also shown social in- and out- groups factor to have an effect on consumer’s trust in WOM (Keller 2007). With the popularity of social networking sites like Facebook and LinkedIn, recent researches on WOM have started to focus on the impact of social networks on the effect of WOM (Trusov et al. 2009). However, the effect of social networking as an online customer reviews characteristic is still uncertain.

2.1 Brand trust

Trust is considered to be one of the cornerstones in customer relationships that create a bond between the customer and the brand. It is an important variable affecting human relationships at all levels. Trust is the most important attribute any brand can own and many brand building activities use trust related words (Bainbridge 1997; Craig 2001). There are various definitions of trust and most of them are somewhat related to risk. For instance, trust refers to “a willingness to rely on an exchange partner in who one has confidence” (Moorman et al. 1993). Trust is the “willingness to take risk” and would lead to risk taking in a relationship moderated by perceived risk (Mayer et al. 1995; Schoorman et al. 2007). Trust exists “when one party has confidence in an exchange partner’s reliability and integrity” (Morgan and Hunt 1994). All these findings highlight the importance of reliability and confidence in conceptualizing trust in the marketing context.

Brand trust is a “feeling of security held by the consumer in his/her interaction with the brand that is based on the perception that the brand is reliable and responsible for the interests and welfare of the consumer”. This definition of brand trust was proposed in a study that aimed at developing a measure scale for the construct (Delgado-Ballester et al. 2003). Two theoretical dimensions have been established in the study for brand trust, namely the reliability and intentionality dimensions. The reliability dimension concerns the perception that the brand can fulfill or satisfy customer’s needs, whereas the intentionality dimension reflects an emotional security about the belief that the brand will take care of future problems in using the product. Furthermore, this study has shown that brand trust is a mediating variable in the relationship between customer satisfaction and customer loyalty. Other studies have highlighted that the customer’s brand trust is positively related to satisfaction (Kau and Loh 2006). The level of trust is positively related to the generation of positive WOM (Ranaweera and Prabhu 2003). Trust also has a strong effect on consumer’s inclination to stay or leave with the same service provider (Singh and Sirdeshmukh 2000). Whilst the research in the area of brand trust is still at an early stage, the findings suggest that there are relationships between customer satisfaction and brand trust, and the generation of WOM.

2.2 Willingness to purchase

Willingness to purchase is defined as the likelihood that the buyer intends to purchase the product (Dodds et al. 1991). The perceived risk associated with the purchase is a critical determinant of consumers’ willingness to purchase a new product or brand (Grewal et al. 1994). All things being equal, a buyer’s willingness to purchase is positively linked to their perceived acquisition and transaction value (Della et al. 1981). In a research context, it may be difficult to observe the purchase action. Consequently some researchers have adapted willingness to purchase instead of actual purchase to examine the purchase decision component of the consumer decision-making model (Teo and Yeong 2003). It has also been shown that intention to buy is good predictor of the actual decision (Douglas 1971; Midgley and Dowling 1993).
3. Research design

3.1 Research framework

While considerable research has noted the important effect of WOM on customer decision-making, little is known on the mechanism of how online customer reviews affects the purchasing action. This study tried to establish a causal model with online customer reviews characteristic as independent variables and customer’s willingness to buy as the dependent variable. Relevant variables are selected from the integrative WOM model by Buttle (1998) that has a number of Intrapersonal and Extrapersonal variables. Online customer reviews valance was selected from the independent Intrapersonal variables. The literature review has identified a substantial body of research that describes the various relationships between online customer reviews valance to various customer decision making variables. The findings attest the important of online customer reviews valance in the study of consumer purchase.

Social in- and out-group was selected from the independent extra-personal variables (Buttle 1998). The rationale to include this variable is due to the increased popularity of social networking and its importance in marketing. However, very few popular online customer review sites are integrated with social networking sites. In general, it is rare that students/participants will come across online customer reviews generated from people whom they know personally when visiting these online customer review. The literatures suggest that a new customer’s decision-making process could be affected by the post-purchase experience of existing customers though the offering of online customer reviews. A higher level of satisfaction will lead to positive and higher-level eWOM activities and dissatisfaction will produce the opposite effect (Swan and Oliver 1989; Singh and Pandys 1991). On the other hand, the brand trust model adopted from Delgado-Ballester (2003) provides empirical support for a causal relationship whereby satisfaction leads to an increase in brand trust which acts as a mediating variable for customer loyalty. From these two findings, we hypothesize that online customer reviews is related to brand trust. Since brand trust consists of reliability and intentionality dimension, the following hypotheses are proposed.

H1: An increase in the proportion of positive valance will lead to a higher trust in reliability dimension whereas an increase in the proportion of negative valance will reduce the trust in reliability dimension.

H2: An increase in the proportion of positive valance will lead to a higher trust in intentionality dimension whereas an increase in the proportion of negative valance will reduce trust in intentionality dimension.

The review of literature also contend that the perceived risk of purchase is critical to a consumer’s purchasing decision (Grewal et al. 1994). The perceived risk has a negative relationship with the consumer’s overall evaluation of the purchase, and the overall evaluation has a positive relationship with consumer’s willingness to purchase online (Teo and Yeong 2003). Reference to eWOM is considered to be a risk-reduction strategy that will affect the purchasing intention (Buttle 1998). The valance of WOM has significant effect on the consumer probability of purchasing a brand (East et al. 2008). Brand trust leads to customer loyalty through a long-term relationship between the consumer and the brand and is inherently related with risk. However, loyalty cannot be developed without a first purchase with a satisfactory service experience. Therefore, brand trust has a direct relationship on the customer’s willingness to purchase. Since this study investigates the causal relationship between online customer reviews and willingness to buy, brand trust is hypothesized as the mediating variable in this context. These lead to the following hypotheses.
H5: A higher trust in reliability dimension will lead to higher level of willingness to buy
H6: A higher trust in intentionality dimension will lead to higher level of willingness to buy

The relationship between customer review, brand trust and willingness to buy can be depicted in the model show in Figure 1. The model has two independent latent variables that are the two characteristics of online customer reviews. The first one is the valance of the online customer reviews that can be either positive or negative. The second one is the in- and out-group relationship that can be either belonged or not belonged to the same social group. There are two intervening latent variables that measure the brand trust construct: reliability and intentionality which are dimensions of the brand trust scale. The dependent variable is the customer’s willingness to buy. Since valance has positive and negative states and social-group relationship has in-group and out-group states, a multi-group full factor two by two (valance and social-group relationship) quasi-experiment design was used in this research.

Figure 1: Research Framework

3.2 Data collection

Participants were Chinese undergraduate students in a Macau university and English is the teaching media. Although they are university students from Macau, they have extensive travel experience with local and regional countries (that is, these Macau university students had travel experience in Hong Kong, Singapore, Thailand etc). With the strong economic growth in Asia (including Macau), Asian travelers are visiting Western Europe in large numbers and Macau university students will be part of this trend. Indeed, most of these university students have indicated their intention to visit Western Europe in the next 1-2 years (including Paris). Hence, our sample selection of Macau university students for this study could be seen as compatible when compare to other new travelers seeking hotels in new holiday destinations.

An invitation was sent out to 384 final year university students for this study. That is, the invitation letter stating the purpose of this study; consent form stating the voluntary nature and confidentiality requirements of this study. 240 students presented voluntary for this study. (a response rate of around 70%). These 240 returns were divided up into 4 groups of 60 (i.e. multi-group full factor two x two design) and a structured questionnaire was given to each group of student to complete (i.e. each group is based on a multi-group full factor two by two (valance and social-group relationship). The questionnaire consisted of hotel accommodation for leisure travellers in Paris (e.g. quality, price, location, star rating etc) and reviewers’ positive or negative experience using the hotel. The student would rate each of these questions after reviewing the online customer reviews. That is, their willingness to buy rating will be submitted for each question.
This research was designed following the recommendations by Calder et al. (1981) and Lynch (1982) on external validity issues that are critical to the generalization of results in experimental consumer research. These authors contended that the design should afford the strongest possible inferences about the relationships between variables and a homogeneous sample instead of a representative sample should be used for this purpose. That is, the homogenous sampling approach could hold constant some background factors which might interacts with the treatment factors. Therefore, the selection of students as participants is considered appropriate because they represent a generation (i.e. homogenous group) that are willing to embrace Internet shopping practices, participate in social networking activities, and are most likely the main group of consumers who will be affected by online customer reviews in the future. Lynch (1983) and Calder et al. (1981) have pointed out that a homogeneous sample may be more appropriate in theory building research like this study. Other researches on consumer decision making process reported that this design helped to control for intelligence, social class and some aspiration factors (Lan and Sudharshan 2002; Grewal et al. 2003; Lee and Youn 2009; Cheema and Kaikati 2010). Finally, this study also includes tests on the homogeneity of the Internet usage behaviour of different participant groups.

Hotel accommodation for leisure traveller was selected as the product in this study given the importance of eWOM in the hospitality and tourism industry (Litvin et al. 2008). Empirical studies have shown that customers are more likely to rely on WOM in the service context because of the intangibility and experiential nature of services (Murray 1991; Zeithaml et al. 1993). For the large variety of service products, online customer reviews have an important impact on the sales of hotel rooms since these are intangible products that are difficult to evaluate prior to their consumption. There is a significant relationship between online customer reviews and the business performance of hotels (Qiang et al. 2011). Moreover, exposure to online customer reviews in general enhances consumer’s consideration of a hotel (Vermeulen and Seegers 2009). Most consumers buy hotel rooms from a service provider they might never know in a destination they never visited. Furthermore, they are unlikely to be able to return the product/ service (i.e. a hotel room) and the only feasible way to express their un-satisfaction might be through posting an online review.

To minimise the background factors, the instruction of the questionnaire supplied some background information to participants about the hotel search exercise. For instance, the purpose of the trip is for vacation and the hotel they are viewing has already satisfy other selection criteria such as price, quality, and location. To avoid the bias that the some participants might have impression on some famous hotel chains like Novotel, a small boutique hotel in Paris that was not known by the participants was selected from a hotel review website (Tripadvisor.com). Online customer review sites are important for small and luxury hotels that are not known by most consumers. Since the study is focused on the trust of the product, Tripadvisor.com is selected as the channel/platform because it is a renowned independent hotel review site that is not involved in sales transaction. Hence, there is no conflict of interest and the website accepts both positive and negative reviews without censorship. The name of the site is also shown in the instruction for the sole purpose of revealing the source of information.

The image of the exterior, lobby, and the guest rooms were shown to the participants. Genuine customer reviews of the hotel with both positive and negative valance were randomly selected from the source. Since Doh and Hwang (2009) argued that that the credibility of the web site can be damaged if all the eWOM message were of the same valance and by considering the amount of information needed to present to the participants and not making the reading boring, four reviews with different amount of positive and negative reviews were included. The group receiving positive valence treatment was shown three positive reviews and one negative review while the group receiving the negative valance treatment were shown three negative reviews and one positive review. For the testing of the social-group relationship variable, a highlighted statement was printed at the beginning of the review statements indicating that the reviews were coming from reviewers in the same social network with the participant.
The questions in the instrument were adopted from existing literature (Table 1). The brand trust scale from Delgado-Ballester (2003) was adopted because it was vigorous tested and few other scales were available. The scales used a seven-point Likert scale ranging from ‘strongly agree’ or ‘very high’ to ‘strong disagree’ or ‘very low’. The original set of questions in the study that established the brand trust scale was used in order to verify this set of trust scales in a different cultural context, and to focus on a first time purchase experience. The wording of the original statement was modified to adapt to the context of this study. That is, the wording ‘[X] brand name’ in the original brand trust scale for both reliability and intentionality dimensions was replaced by ‘Hotel A’. The rest of the wording in the original instrument was unchanged. Four questions were also included to test the Internet usage pattern and the information seeking behaviour of different groups of students.

**Table 1: Survey adopted from existing literature**

<table>
<thead>
<tr>
<th>Construct and measures</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reliability dimension (BTR)</strong></td>
<td></td>
</tr>
<tr>
<td>TR1 1. With Hotel A I obtain what I look for in a room</td>
<td>(Delgado-Ballester 2004).</td>
</tr>
<tr>
<td>TR2 2. Hotel A meets my expectations</td>
<td></td>
</tr>
<tr>
<td>TR3 3. I feel confidence in Hotel A</td>
<td></td>
</tr>
<tr>
<td>TR4 4. Hotel A is a brand name that never disappoints me</td>
<td></td>
</tr>
<tr>
<td>TR5 5. Hotel A brand name is not constant in satisfying my needs</td>
<td></td>
</tr>
<tr>
<td><strong>Intentionality dimension (BTI)</strong></td>
<td></td>
</tr>
<tr>
<td>TI1 1. Hotel A would be honest and sincere in addressing my concerns</td>
<td></td>
</tr>
<tr>
<td>TI2 2. Hotel A would make any effort to satisfy me</td>
<td></td>
</tr>
<tr>
<td>TI3 3. I could rely on Hotel A to solve the problem</td>
<td></td>
</tr>
<tr>
<td>TI4 4. Hotel A would be interested in my satisfaction</td>
<td></td>
</tr>
<tr>
<td>TI5 5. Hotel A would compensate me in some way for the problem with the room</td>
<td></td>
</tr>
<tr>
<td>TI6 6. Hotel A would not be willing in solving the problem I could have with the room</td>
<td></td>
</tr>
<tr>
<td><strong>Willingness to buy (WB)</strong></td>
<td></td>
</tr>
<tr>
<td>WB1 1. If I were going to travel, the probability of buying this hotel room is</td>
<td>(Dodds et al. 1991; Grewal et al. 1998)</td>
</tr>
<tr>
<td>WB2 2. The probability that I would consider booking from hotel A is</td>
<td></td>
</tr>
<tr>
<td>WB3 3. The likelihood that I would book from hotel A is</td>
<td></td>
</tr>
<tr>
<td><strong>Other test questions</strong></td>
<td></td>
</tr>
<tr>
<td>T1 1. Other peoples comments are very important for me to make purchase decision</td>
<td>(Srinivasan and Ratchford 1991)</td>
</tr>
<tr>
<td>T2 2. I spent a lot of time surfing the internet before I decide upon online purchase</td>
<td>(Lam et al. 2009)</td>
</tr>
<tr>
<td>T3 3. I only gather information about a product from my close friends or family before I buy</td>
<td></td>
</tr>
<tr>
<td>T4 4. I like to seek advice or information only from my close friends or family when making a purchase decision.</td>
<td></td>
</tr>
</tbody>
</table>
3.3 Data analysis

In order to test the causal relationship of the variables, Structural Equation Modelling (SEM) was used to analyse the data collected from the experiment. SEM is an extension of the general linear model and serves a purpose similar to multiple linear regression but with the following advantages: SEM has the unique ability to simultaneously test two or more dependent relationships while also simultaneously analysing multiple dependent variables (Bollen 1989); it enables a simultaneous assessment of the overall and specific elements of measurement validity (Lin and Germain 2003); it allows the use of unmeasured latent variables with directly observable indicators/variables; measurement errors and residual errors can be explicitly modelled.

A pre-analysis of data to examine the non-existence of co-linearity and the process of multivariate normality was carried out to ensure that the data met the basic assumptions of the use of SEM (Byrne 2005). This study then adopted a two-step model-building approach that is recommended by scholars (Anderson and Gerbing 1988; Kline 1998). The first step is the testing of the pure measurement model that determines the meaningfulness of the latent variable and their indicators. This consists of testing the uni-dimensionality, and the validity of the measurement scales. Uni-dimensionality refers to the existence of a single construct underlying a set of measures. Uni-dimensionality alone is not sufficient to ensure the usefulness of a scale; it is the assumption for calculating composite reliability.

After uni-dimensionality has been acceptably established, the composite reliability (CR) and the Average Variance Extracted (AVE) can be calculated. These two values are used to test convergent validity to assure the internal consistency among the indicators for a construct and discriminate validity that assure the constructs are different. Confirmatory Factor Analysis based on SEM is used to test the measurement model’s uni-dimensionality and the resulting factor loadings are used to calculate the CR and AVE. When an acceptable measurement model that has both a good fit to data, and is theoretically supported, the analysis proceeds to the testing of the structural model. The structural model constructed based on the measurement model will be analysed and a model building approach will be used to develop a new model that shows a good fit to data. Only after such a model is found, will the hypotheses that are represented by individual paths in the structural model be tested for significance.

The data collected were analysed by using SPSS 18 and AMOS 18. Since there is not a definite measure on assessing a model’s fit, multiple indicators are used to assess the goodness of fit of the models (Byrne, 2005; Breckler, 1990). This study used the following statistics in addition to Chi-square and p-value to assess the goodness of fit: the Chi-square/degree of freedom (CMIN/DF) value, Root Mean Square of Error Approximation (RMSEA), Tucker-Lewis Index (TLI – also known as the Bentler-Bonnet non-normed fit index NNFI) as well as comparative fit index (CFI).

The research framework was modelled as a multiple indicator, multiple independent cause (MIMIC) model instead of using a multiple group analysis. The latent variable has the usual multiple indicators, but in addition it is also caused by observable variables. The online customer reviews valence and social-group relationship were modelled as observable variables that can be measured without error. Some studies refer to this as a group code approach (Aiken et al. 1994; Russell et al. 1998). In fact, the logic is the same as the use of dummy variables in regression analysis. For instance, the variable ‘V’ is used to distinguish the identity of the groups. Groups with positive valance are coded ‘1’ and the others ‘0’. If the path from the group variable to the latent variable is significantly different from zero, then the means of the two groups are different across the latent variable. This approach reduces the number of parameters to be estimated and hence the number of samples required. However, this approach also has the restriction that only one common measurement model is estimated across all data (Aiken et al. 1994). In this study, it was confident that the above condition should be meet with fairly homogenous groups in the experiment.
4. Results

4.1 Descriptive statistics and testing of assumptions

The response rates of the groups are shown in table 2. V+ means positive online customer review valance and V- means negative online customer review valance. G+ means that there exists an social-group relationship and G- means that there is no social group relationship.

<table>
<thead>
<tr>
<th>Groups</th>
<th>V+G-</th>
<th>V+G+</th>
<th>V-G+</th>
<th>V-G-</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>86</td>
<td>91</td>
<td>91</td>
<td>80</td>
<td>348</td>
</tr>
<tr>
<td>Response</td>
<td>54</td>
<td>60</td>
<td>79</td>
<td>47</td>
<td>240</td>
</tr>
<tr>
<td>Response rate</td>
<td>62%</td>
<td>65%</td>
<td>86%</td>
<td>58%</td>
<td>68.96%</td>
</tr>
</tbody>
</table>

The response rates do not have a big variation among different groups and are high enough to make the survey results suitable for analysis. The proportion of gender (male/female) of the response is 29.6/70.4. The greater proportion of female respondents is based on the fact that the proportion of female in the student population (65.58%) is much more than that of male respondents. This also occurred in other studies of WOM (Lee and Youn 2009) and the establishing of the brand trust scale (Delgado-Ballester et al. 2003). About 82.5% of respondents belong to some kind of social network such as Facebook or Renren.com, and 32.1% of them belong to more than one social network.

Since the group code approach was used in applying SEM in the analysis of samples, the total sample size of 240 was considered to be satisfactory. Structural Equation Modelling that uses maximum likelihood estimation relies on the asymptotic theory that needs normal approximation and a large sample size. Many studies have recommended a minimum sample size of 100 but preferably more than 200 (Loehlin 1992; Hoyle 1995). The model has 12 measured variables and this translated to 20 cases per variable. This is more than the rule of thumb of 15 cases per measured variable or indicator (Stevens 2002).

ANOVA tests were carried out to see if the characteristics in using Internet among the groups were the same. These tests compared the sample mean with the null hypothesis that the groups were equal in the four testing survey questions. The results are shown in table 3 and indicate that the groups do not have a significant difference in term of Internet usage.

<table>
<thead>
<tr>
<th>Question</th>
<th>F</th>
<th>p-value</th>
<th>pairwise t-test</th>
<th>Mean for all groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1. Other peoples comments are very important for me to make purchase decision</td>
<td>1.15</td>
<td>.3288</td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>T2. I spent a lot of time surfing the internet before I decide upon online purchase</td>
<td>0.11</td>
<td>.9567</td>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td>T3. I only gather information about a product from my close friends or family before I buy</td>
<td>2.60</td>
<td>.0532</td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>T4. I like to seek advice or information only from my close friends or family when making a purchase decision</td>
<td>3.29</td>
<td>.0213</td>
<td>V+G- / V-G-</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Table 2: Response rate of groups

Table 3: Result of ANOVA
The data for questions T1 to T4 were further analysed using a t-test to examine whether they are significantly different from the mean of the scale. The results of T1 and T2 show that Internet is an important source of information to the respondents and other people’s comments or reviews were important in making purchasing decision. However, the results of T3 and T4 were not significantly different from the scale mean. This suggested that the respondents did not only consider information from just their close friends or family member. They also consider comments from people within a wider range of relationships.

Tests were then conducted to test the presence of collinearity that need to be satisfied on the application of Structural Equation Modelling and other statistical analysis tools. The test on collinearity (or multi-collinearity) is required because when one independent variable is a linear function of another independent variable, the variable will suffer from data redundancy resulting in over-fitting in regression analysis that reduces its reliability. The collinearity of indicators is tested for using a formal detection-tolerance and the Variance Inflation Factors (VIF) as suggested by the SPSS manual where: Tolerance = 1 – R², VIF = 1/tolerance. A tolerance of less than 0.1 or VIF greater than 10 indicates a collinearity problem. The indicators were subjected to a linear regression test with W1 as the dependent variable to generate the test statistics. The test results show that all variables satisfied the criteria and confirmed that the data did exhibit collinearity.

4.2 Analysis of measurement model

This part of the analysis examined the uni-dimensionality, normality, convergent validity (internal consistency), and discriminant validity of the measurement scales. Confirmatory factor analysis was used to determine a plausible representation of the causal structure of the variables. The hypothesized model was first tested with goodness of fit statistics. If the model is a poor fit, the analysis then proceeds in an exploratory fashion to determine which parameters in the model were mis-specified. Adding or removing constraints in the model determined the different models. The results of the final measurement models are shown in Figure 2.

Figure 2: Measurement model
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The figure displays the standardized diagram that shows the correlation, factor loading and the squared multiple correlation values. The model has a Chi-square = 50.485, p=.233, RMSEA = .025, NFI = .971, CFI = .996 and TLI = .994. This suggests that it can be considered as a good-fit model. The model validated the existence of a single latent variable underlying a set of indicators that satisfy the test of uni-dimensionality. Incidentally, after the model building process, the final measurement model only included the four measures TR1, TR2, TR3, TR4 for variable BTR and four measures TI1, TI2, TI3, TI5 for variable BTI. These are exactly the same measures that were left in the final model in the original study that established the brand trust model.

The CFA using AMOS provided a test of multivariate normality for the indicators. The absolute values of all critical values were below 2.00. This showed that the indicators did not have statistically significant degrees of non-normality. It also provided a test on the outlier of data. One case was considered as an outlier and was removed from the data set. Lastly, the standardized regression weights were used to calculate the composite reliability and the Average Variance Extract (AVE) values of the indicators. The results are show in table 4.

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Composite reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability dimension (BTR)</td>
<td>0.80</td>
<td>0.62</td>
</tr>
<tr>
<td>Intentionality dimension (BTI)</td>
<td>0.76</td>
<td>0.54</td>
</tr>
<tr>
<td>Willingness to buy (WB)</td>
<td>0.89</td>
<td>0.78</td>
</tr>
</tbody>
</table>

The value of composite reliability is higher than the benchmark value of 0.7 and the AVE is greater than 0.5 which indicates that convergent validity is satisfied. The AV values were compared with the square of the correlation between the latent variables that are equal to: $0.83^2=0.68$, $0.89^2=0.79$, $0.90^2=0.81$. The results suggest that there are problems with discriminate validity because the AVE values are not larger than the square of the correlation between the latent variables. Although the original study on the brand trust scale showed that the discriminate validity criterion was satisfied, the present study casts some questions on this area. Therefore, the two sets of indicators were proved to reflect two different constructs (reliability and intentionality), but the analysis cannot prove that the two latent variables are reflecting two different constructs. Despite of this, the measurement model was submitted for a structural analysis since brand trust as a whole is considered as a mediating variable.

4.3 **Analysis of structural model**

The testing of the structural model employs a model development methodology that combines the confirmatory and exploratory approach. The structural model was formed by adding straight arrows to connect the latent variables which resolved the double arrows in the measurement model in Figure 2. The straight arrows represent the causal relationships between the latent variables. The result on the analysis of the initial structural model is shown in Figure 3.
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Figure 3: Initial structural model

The diagram displays the standardized path coefficients (Beta values), correlation and the squared multiple correlation values (reliability) which is not affected by identification constraints. The circles pointing to the indicators of exogenous and endogenous latent variables are the measurement error. The residual error terms reflect the unexplained variance in the latent endogenous variables due to all unmeasured causes.

The structural model shows that online customer review Valence (V) has a statistically significant negative relationship with BTR (-0.74) and BTI (-0.58). However, valence has no significant relationship with WB. On the other hand, social-group relationship variable (G) has no significant relationship to all the three other latent variables. It is recommended that in order to test the mediating effect, alternative models with additional constraints should be created by setting the regression weight on path online customer review Valence to Willingness to Buy’s as zero. The difference of the model fit indexes of the two models should be compared. However, the present result shows that the effect of online customer review Valence to Willingness to Buy is effectively nil with a regression weight of -0.08. This already provides enough support to the claim that brand trust is a mediating variable in the research framework.

Considering the relationship between the mediating variables and willingness to buy, BTR has a significant positive relationship to willingness to buy while BTI has a very low and non-significant relationship to willingness to buy. The latter result also makes the unconfirmed discriminate validity issue less important since BTI has nearly no effect in the model. Hence, although there is a high correlation in the measurement model between BTI and BTR, they have a significantly different effect on willingness to buy and the convergent validity is also supported. We have tried to remove the social-group relationship variable (G) and BTI to arrive at new model show in Figure 4. This model has a better fit with Chi-square=44.193, p=.194, RMSEA = 0.029, NFI=0.975 that can be considered as a good fit model. Since the model is a good fit and acceptable in all the calculation modes, the individual paths can be examined in more detail and used to test the hypotheses.
There are six hypotheses in the framework. By examining the paths in the structural model, the results on the testing of hypothesis are listed in table 5. Three hypotheses are supported with the statistical significance based on the SEM results. Hypothesis 1 that links online customer review valance with brand trust reliability dimension (mean = -0.74, p<0.05) is supported in the reverse direction due to the assignment of one in the scale as ‘highly agree’. Therefore, positive valance will lead to higher reliability. Hypothesis 2 (mean = -0.58, p< 0.05) is also supported. Again, positive valance will lead to high intentionality. Hypothesis 5 that links the reliability dimension to willingness to purchase is supported (mean = 0.77, p<0.05). That is, a high reliability dimension leads to more willingness to purchase. Hypotheses 3, and 4 that link the social-group relationship variable to reliability and the intentionality dimension as well as Hypothesis 6 that links intentionality to willingness to purchase are not supported.

<table>
<thead>
<tr>
<th>Path</th>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valance -&gt; Reliability</td>
<td>H1</td>
<td>Supported</td>
</tr>
<tr>
<td>Valance -&gt; Intentionality</td>
<td>H2</td>
<td>Supported</td>
</tr>
<tr>
<td>Social-Group -&gt; Reliability</td>
<td>H3</td>
<td>Not-supported</td>
</tr>
<tr>
<td>Social-Group -&gt; Intentionality</td>
<td>H4</td>
<td>Not-supported</td>
</tr>
<tr>
<td>Reliability -&gt; Willingness to purchase</td>
<td>H5</td>
<td>Supported</td>
</tr>
<tr>
<td>Intentionality -&gt; Willingness to purchase</td>
<td>H6</td>
<td>Not-supported</td>
</tr>
</tbody>
</table>

5. Implications and discussions

5.1 Theoretical implications

The results of the analysis established the model shown in Figure 5. The effect of online customer review valance mediating by Trust-reliability dimension explains 82% variance of willingness to buy. This shows a clear and strong causal relationship between the variables. The indirect effect of online customer review valance on willingness to buy has a value of 0.57. This suggests that the presence of more positive online customer review valance in customer reviews will lead to an increase in consumer’s willingness to buy that is mediated by an increase
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in the reliability dimension of trust on a particular brand or service provider. The trust-reliability dimension is a measure of the perception that the brand can fulfil or satisfy consumers’ needs. This provides significant support of the importance of trust-reliability in consumer decision-making and online customer reviews is a critical determinant in building up this trust. The major reason for this might be that the perceived risk of purchase is critical to the consumer’s purchasing decision, and trust has a direct effect on the level of risk. This is in line with the assertion that satisfaction leads to higher trust and this study provides an explanation that satisfaction as an antecedent produces online customer reviews activities that lead to an increase in brand trust. The study also revealed that valance of ONLINE CUSTOMER REVIEWS has a strong effect on the trust building process that is in consistent with other studies that suggested the valance of WOM leads to a higher probability of the purchase action (East et al. 2008).

![Figure 5: Results in final model](image)

The analysis in the measurement model provides empirical support to the establishment of the brand trust scale by Delgado-Ballester (2003) that was adopted in the study of online customer reviews and a Chinese consumer context. The same measurement scale was obtained by reducing the original scale of 11 indicators to 8 indicators in the final model. However, we failed to provide empirical support in this study on the significance of the intentionality dimension to the willingness to buy variable (0.09, not significant), though there is a significant relationship between online customer reviews valances to intentionality dimension (-0.58, p<0.05). Furthermore, there is a problem in the discriminant validity of the reliability and intentionality dimensions. Nevertheless, we found support for the convergence validity of the indicators in the two dimensions. In Delgado-Ballester’s study, the model used to test the brand trust scale use satisfaction as the independent variable and brand trust as the mediating variable. Whereas, this study hypothesised online customer reviews characteristics as the independent variables because satisfaction is an antecedent of online customer reviews. The path brand trust to customer loyalty was replaced by brand trust to willingness to buy, since a first purchase precedes loyalty development. This suggests that the indicators might not have clearly separated the meaning of the two scales when they were applied in the context of this study.

There is a lack of significance in the intentionality - willingness to buy path. The intentionality dimension focuses on the belief that goes beyond available evidence that one feels that the brand will take care of unforeseeable problems due to change in future circumstances. The present finding might imply that consumers do not consider this to be important to their first time purchase of an intangible product with the possibility of no repeated purchase. One of the possible reasons might be that young people that are the respondents in this study do not emphasize on beyond available evidence belief or these young people may be trying to consider too much in the future changes in situation when they consume the service or product. This may be explained by the commonly seen phenomenon that when purchasing electronic gadgets, young people place more emphasis on the trendy and new features rather than considering whether they are durable or the manufacturer will be able to repair the produce in case they break down. The cultural factor might also contribute to this finding. Chinese have a locus of control that tends to have the belief that the source of control over events affecting them is a result of external factors such as luck, fate or others (Selart 2005; Molinsky 2007). Therefore, intentionality is considered as outside their locus of control and is not an important factor in purchase decision making. For example, it might be a surprise for Chinese travellers to discover that in European skiing trips may be refunded if there is no snow in the destination. Most Chinese travellers will just accept that they have bad luck. This might also contribute to the lack
of discrimination of the reliability and intentionality dimension, as intentionality is not considered separately in this type of purchase.

Regarding the social-group relationship variable, the finding shows that the variable does not seem to have any significant effect in the brand trust variable. To understand the implication of this finding, it should be studied under the context that the consumers are assumed to read the customers reviews from independent sources. Although friends are top sources of information and most influential, consumers reading online customer reviews in these independent sites seems put more emphasis on the online customer reviews itself rather than the affiliation of reviewers to their own social network. This is consistent with the original WOM definition that receivers expect the communicator to be non-biased, and to not associate with the brand. This finding further extends the characteristic that the communicator should be independent as well. This result is consistent (also along) with the result of the testing questions (T1 to T4) showing that the respondents did not have a tendency to gather information or seek advice only from their close friend or family. Therefore, it is not surprise that reviews from people, with the much more loose relationship of belonging to the same social network, does not have any significant impact on buying decisions.

5.2 Managerial implications

From a management perspective, since the model revealed that the brand trust reliability dimension is an important mediating variable, managers should focus on maintaining and restoring brand trust when they encounter negative online customer reviews. Many businesses are only just beginning to understand the dynamics of how eWOM impacts on organizational performance. For instance, although hotels acknowledge the impact of online customer reviews, most of them are unsure how to respond. They should develop strategy to deal with different types of online customer reviews with the goal of improving the brand trust level of consumers. The brand trust reliability dimension refers to the perception that the brand can fulfil or satisfy consumers’ needs. Research also shown that dissatisfaction is a significant determinant to prompt customers to produce negative reviews. Therefore, business should focus on the satisfaction level of their customers. To deal with negative online customer reviews, they should respond with sincerity and turn them into useful feedback. They should find out why the producers of these reviews are not satisfied, instead of just ignoring these reviewers. Some recent legal actions from hotels against independent sites who display negative online customer reviews probably would not protect their brand. Online customer reviews is the development of a common trust to the brand for all potential customers through repetitive comments of previous purchasers. The writer and the reader are usually not the same person. It is important that brands can create a positive reinforcement cycle such that positive online customer reviews increases brand trust and leads to a first purchase action. A satisfactory and delightful experience leads to even higher trust from customers that produce more positive online customer reviews which draws in more new customers or other non-customers that read the reviews.

Studies have revealed that independent sites, or the brand site, have more influence on consumer’s willingness to recommend a product than a personal blog with positive online customer reviews and the detrimental effect is the same regardless of the platforms (Lee and Youn 2009). This study also shows that the social-group relationship possessed by the online customer reviews does not have a significant effect on building trust. Therefore, corporations should allocate more resources on managing and responding to consumer reviews on the independent review sites. This should not be forgotten as more and more corporations are setting up their own pages within social networks. These social pages cannot replace the independent review sites, as consumers may still prefer to write reviews in independent sites to avoid any association with the brand itself and readers may put more weight on independent sources.
5.3 Limitations and future research issues

This study focuses on theory building that generalizing to a well specified population (the younger generation represented by the homogeneous sample of participants). The background factors are minimised to improve the external validity of the research. This approach leads to limitation on generalizing across subpopulations of a population that may not be specifiable, such as consumer using the Internet. While both are equally important, future research can address this by replicating the study on different subpopulations. The present study covers only two characteristics of online customer reviews. Perhaps future research can expand the model with different WOM characteristics like incidence, frequency or quantity of online customer reviews. This study cannot provide evidence to support the social-group relationship in the purchase of travel service we have selected. In an independent review site, it may be rare to actually see reviews of a hotel that come from someone the consumer knows or is in the same social network. It may be of interest for future research to study whether the social-group relationship in other settings would produce different results. For example, a future study may examine the effect of consumers seeing online customer reviews in an independent site against those seeing online customers reviews on a social website for different categories of products. Since this study was carried out with Chinese respondents, some of the implications may relate to cultural characteristics, further research is needed to verify the model in other cultural contexts. The high proportion of female respondents may be a concern although other studies have shown similar situation and some commercial reports indicating that females are more likely to participate in eWOM activities. Future studies may be conducted to different gender groups to verify the results.

6. Conclusions

This study contributes to a better understanding of the mechanisms of on online customer reviews’s influence on consumer’s first time purchase decision making. The research revealed a causal relationship showing that online customer reviews affects consumer’s willingness to buy through the reliability dimension of brand trust that functioned as the mediating variable. This study also provided empirical support to the brand trust scale proposed in Delgado-Ballester’s (2003) study and to a large extent in the Chinese cultural context. This study leads to practical implications that brands should focus on handling negative online customer reviews with the objective to improve their brand trust and hence lead to consumer’s higher willingness to buy. They should also develop strategies to establish a positive enforcement cycle that starts by provide satisfaction service to customer to minimize negative online customer reviews.
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