

**Antecedents and consequences of customer experience
in online product recommendation services**

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Abstract

This study aims at empirically testing the hypothesis that the role of customer experience on customer participation and referral behaviour within the context of customer using online product recommendation agents (RAs). Customer experience is of great importance that identifies the satisfaction of the online shoppers and their consequent word-of-mouth behaviours. Besides, extensive marketing literature has addressed the merits of customer participation in a service-dominant view, however, recent research begins expressing concern about whether promoting customer participation could be a double-edged sword for companies. Therefore, this dilemma has evolved the niche to study whether customer experience serves as an essential role in affecting the performance outcomes of customer participation during the use of online recommendation services and provide relevant insights for online retailing business.

By using convenience sampling, data was collected from 228 local respondents who have engaged in online shopping and had the experience of using product recommendation agents on the online purchasing platform. This article explores how (1) customer participation in online product recommendation services leads to performance outcomes (i.e. word-of-mouth referral behaviour) through different customer experiences derived from emotional, cognitive and conative perspectives and (2) the effect of engaging in online product recommendation services on customers' experience in relation to the mediating effect of credibility.

Reliability test and regression analysis is used in testing the reliability and the measurement of the variables, customer participation, credibility, delight, perceived usefulness, purchase intention and referral. The test result suggest all variables are positive related. The level of customer participation positively affect the customer experience and leads to the word-of-mouth as the performance outcome.

Besides, another objective is investigating the mediating effect of recommendation credibility to delight and perceived usefulness, two aspects of customer experience. The results showing credibility acts as a partial mediator between them.

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1. Introduction

1.1 Background

Customer experience management is nowadays far beyond perfecting the qualities of products and enhancing the sales force' services only. In fact, evolving basis of marketing give rise to new opportunities for firms to engage and interact with customers through the use of online product recommendation agents (RAs). RAs are defined as online decision support tools created to elicit individuals' preferences or interests that allow customers to perform timely and accurate search among a pool of product alternatives and also make product recommendations accordingly (Xiao & Benbasat, 2007). Firms are using RAs to meet dynamic needs of customers through collaboration and value creation (Prahalad & Ramaswamy, 2000). The recommendation systems are offering more personalization possibilities and persuade customers better than those conventional recommendation origins like human experts, different product users and social groups (Senecal & Nantel, 2004). Content filtering and collaborative filtering are widely adopted in numerous e-commerce websites, propelling customers to screen, evaluate and select products based on specifications of product attributes and similar purchase patterns of like-minded users (Ansari et al., 2000). In return, firms can generate additional sales through personalizing the online customer relationship by the use of RAs (Postma & Brokke, 2002).

Accordingly, we believe that the goal of offering excellent customer experience is the fundamental reason that propels online purchasing platform to make use of RAs in order to satisfy customers, maintain customer relationships and also create positive word-of-mouth. Favourable customer experience will perhaps create positive bias towards the recommendation content and induce greater chances for the rise of purchase behaviour, which is the ultimate business objective of those commercial websites. We thereby hope to devote our efforts to the marketing research field by exploring the essence of customer experience in respect to the case of customer participation in online product recommendation services and also provide managerial implications for managing and improving customer experience on the virtual platform.

1.2 Objectives

Emphasis on customers' products or services consumption values have encouraged significant changes on the basis of marketing: Creating personalized shopping experiences and perceived values of customers rather than only perfecting the product design, in other words, from goods-centred to service-dominant logic of marketing (Vargo & Lusch, 2004). These changes illustrate why recent research were focusing on customer participation in firms' value chains and the corresponding consumption experience and value creation (Chan et al., 2010; Sheng & Zolfagharian, 2014).

However, to our knowledge, there has been no research examining the essence of customer experience in the process going from customer participation to word-of-mouth referral behaviour, which is a chain supported by the underlying reasons for firms to encourage customer participation: To improve customers' shopping experience and expand the customer network (Brown & Reingen, 1987). Past researchers focused on the values created by customer participation, and have employee job performance as the measurement outcome (Chan et al., 2010). Also, the consequences of customer experience are only reflected in conative aspect: intention to reuse the RAs, which is lack of behavioural measures to show actual performance outcomes of customer participation and the word-of-mouth networking effect (Sheng & Zolfagharian, 2014).

In addition, recent research has provided insights about credibility of the service providers can modify customers' attitude and thus affect the perceived information credibility (Cheung et al., 2009). Sussman and Siegal (2003) also pointed out that positive credibility will also deviate information receivers' judgement and increase their tendency to support the information. Extensive research has explored the moderating role of credibility in several contexts (Eagly & Chaiken, 1975; Moore et al., 1986). However, there is little empirical research showing the mediating effect of credibility, especially in the context of online product recommendation services.

Therefore, we concluded two main research objectives for this study:

First, to examine the important role of customer experience during customer participation in online product recommendation services and how it thereby leads to word-of-mouth behaviour.

Second, to study the mediating effect of credibility in relation to customer participation and customer experience in cognitive and emotional aspects.

2. Literature Review and Statement of Hypotheses

2.1 Customer Participation in Online Recommendation Services

Extensive services marketing research have explored the advantages of encouraging customer participation in the service value chain. Customer participation is the behavioural construct that examines the degree which customer willing to share information, raise suggestions and have involvement during the decision making process (Auh et al., 2007). Higher level of involvement leads to interdependence between customers and firms for co-creating beneficial outcomes (Sharma & Patterson, 2000). From customers' perspective, customers who receive more values created tend to obtain greater satisfaction (Ouschan et al., 2006). While from firms' perspective, firms are beneficial in terms of significant cost reduction and rise in productivity (Bowers et al., 1990).

The evolution of Web 2.0 has further strengthened the abilities of customers to participate in firms' production and operation process through virtual means (Gyrd-Jones & Kornum, 2012). This nurtures the prevalence of RAs, which provides suggestions of products based on user-specified preferences and interests to aid customers' selection making (Wang & Benbasat, 2008) The degree of customer participation and satisfaction help conclude the duration of customer relationships (Payne et al., 2008).

2.2 Customer Participation and Credibility

External factors will exert influences on the perceived values and experiences during customer participation in using the online recommendation services. Recommendation sources can be categorized into three types: (1) human experts like salespersons (2) other customers like friends and relatives (3) expert computer algorithms like RAs (Senecal & Nantel, 2002). As RAs are commercially linked tools designed by the purchasing platform, information seekers will evaluate the credibility of information and consider how much the information provided should be trusted (Wathen & Burkell, 2002). In this study, we define credibility as the degree of information trustworthiness that one perceives, and is a predictor

of consumers' attitude and behavioural intentions toward the websites (Gilly et al., 1998; Tybout, 1978).

With reference to the attribution theory (Kelley, 1973), customers will suspect the qualities of recommendations and the expertise of the system due to non-product related motivations such as sales' commissions paid to the purchasing platform provider. By that, with a higher degree of participation in using the online recommendation systems, customers will definitely spend more effort and time interacting with the RAs. For example, screening products by different criteria to look for product alternatives (Sheng & Zolfagharian, 2014). The increased interaction will then reduce the doubts of customers based on their personal judgement through familiarizing themselves in using RAs. This rationale is supported by the readings stating customers' evaluations during the information persuasion process (Wathen & Burkell, 2002). Therefore, we expect the following:

H1: The level of customer participation in using the online product recommendation services is positively related to credibility.

2.3 Customer Experience

Customer experience management has been the major business focus for retailing firms and the service industry in recent years. However, this marketing practitioners' emphasis has been studied in a limited fashion in the services marketing literature. The rationale of how customer experiences can affect the behavioural sequences such as behavioural intention and actual behaviour is neglected in the antecedents. For example, Goodman (2014) has provided insights for practitioners about the communication channels, costs and technologies to provide good services in order to improve customer experience. Also, Pine & Gilmore (1999) pointed out the economic return if firms are providing sound customer experience.

In view of this, we hope to contribute to the customer experience literature with the support of the Technology-Acceptance Model (Davis, 1989), examining the role of customer experience in customer participation and word-of-mouth referral behaviour. The Technology-Acceptance Model suggested three determinants of behavioural intention: perceived

usefulness, attitude toward the act, and perceived ease or difficulty of use. We mainly adopted the framework of this theory but deleted perceived ease of use because it is a determinant examining the perceived ease of carrying out the behaviour, its importance becomes less significant nowadays because of the simplicity of RAs' design and the computer literacy of average internet users that remove the cognitive barrier to use RAs. Besides, firms tend to overemphasize perceived difficulty or ease of use but overlook perceived efficiency or usefulness of the IT system (Branscomb & Thoma, 1984). In short, we have attitude toward the act, perceived usefulness and behavioural intention as main components representing customer experience in using the online recommendation services.

2.3.1 Credibility and Delight

Credibility of the information provider propels the information reader to recognise the content received based on the expertise. Source expertise was proved to be positively related to customers' attitude towards an act (Gilly et al., 1998). In the case of online recommendation services, a website with high perceived creditability will generate greater satisfaction and positive affect because of the truthfulness of product recommendations.

Feelings and emotions are not only psychological characteristics but are relational experiences that focus on preferences and attitudes of individual (Holbrook & Hirschman, 1982). Customer delight is evolved whenever customers face exceptional good and positive performance provided by the service provider (Finn, 2005). Marketers usually stressed on improving satisfaction of customers, however, emotional response is found to be a more important determinant for future purchase intentions and behaviour than satisfaction (Schlossberg, 1993). Making customers satisfied by meeting basic expectations cannot nurture customers' loyalty while delight or positive affect can do so (Schneider & Bowen, 1999). Delight is consisted of surprise and joy, this elated emotion favours the post-consumption' evaluation by customers (Plutchik, 1980; Mano & Oliver, 1993). Therefore, we expect the following:

H2a: Credibility is positively related to customer delight.

2.3.2 Credibility and Perceived Usefulness

Source credibility is the main component affecting customers' judgement about the information received from the online purchasing platform (Wathen & Burkell, 2002). Prior research also found that a website with higher source credibility can generate higher readers' perceived information credibility, increasing their support toward the content received (Pornpitakpan, 2004). Davis (1989) pointed out that with a higher usage or participation rate, consumers will tend to perceive a higher usefulness of that particular technology.

In the customer participation process, customers' experience would be involved in three perspectives, i.e. cognitive, emotional and behavioural. And these three would lead to the outcome of customer satisfaction and the degree of customer involvement (Payne et al., 2008). Cognitive aspect is important to spot the difference between traditional and online shopping mode. In current trend of the online shopping, customized information should be emphasised in the cognitive dimension (Gommans et al., 2001). In which, customers' perceived usefulness of the recommendation provided by RAs is the best cognitive factor determining the purchase intention and actual behaviour. Perceived usefulness is defined as the perception of the extent of support that RAs can provide to facilitate information search and suggest better alternatives based on the quality of recommendations. Therefore, we expect the following:

H2b: Credibility is positively related to customer perceived usefulness.

2.3.3 Delight and Purchase Intention

Customer delight is an emotional response to the product or service, delight is composed of joy and high pleasure (Oliver et al., 1997). Consequently, there will be a greater effect on the message evaluation and post communication attitude, which makes the individuals more likely to have their behavioural intention expressed (Cacioppo et al., 1986). This positive emotion act as intrinsic motivation to give rise to a behaviour, which is beyond only having the measurable product values or monetary rewards (Isen & Reeve, 2005).

Purchase intention is defined as the eagerness to perform an action and accepting the consequences, such as willing to buy a product from a purchasing website (Wetzels et al., 1998). People are always having the corresponding purchase intention based on anticipated emotion. That is, a higher level of positive attitude will lead to a better drive to plan and have subsequent behavioural intentions in the conative aspect (Bagozzi, 2005). Bian and Forsythe (2012) also proved emotions are of great importance in forming central attitude, which then lead to the intention towards behaviour. Therefore, we expect the following:

H3: Customer delight is positively related to customer purchase intention.

2.3.4 Perceived Usefulness and Purchase Intention

When an individual has more involvement in a process, they should possess a higher need for cognition based on the availability of information. Therefore, perceived usefulness act as the major indicator of a clearer idea and knowledge towards the product recommendation. It involves the calculative consideration about the extent of benefits (e.g. monetary value of the recommended products) that will be generated when adopting the information provided (French et al., 2005). However, perceived usefulness is a cognitive component that is subjected to change due to counter-argumentation (Oliver, 1999). That is, it has a higher tendency to be changed by the influence of external information received, when compared with the intrinsic variable in the affective aspect.

Customers will have favourable response if the service providers are deemed to share the same values and ambitions with them, as customers are looking for compliances between

product offerings and their internal cognition (Bian & Forsythe, 2012). Cognition about the information content represents a major determinant in consumers' evaluation about websites (Montoya-Weiss et al., 2003). Literature of E-commerce also explored the positive relationship between information trusts, usefulness and shopping intentions (Koernig, 2003). As stated in the Technology-Acceptance Model (Davis, 1989), perceived usefulness is proved to have a direct relationship with behavioural intention because availability of helpful information has lowered the risk of cognitive dissonance and smoothed the decision making process. Therefore, we expect the following:

H4: Customer perceived usefulness is positively related to customer purchase intention.

2.4 The mediating role of credibility

As examined in the above, credibility is expected to have positive relationship with customer participation and customer experience in using the online recommendation services. According to the source credibility theory (Hovland et al., 1953), the persuasive power of information will be strengthened under the condition that the source is deemed to be credible. Therefore, we believe that credibility is a crucial linking factor that can generate favourable cognitive bias and attitudes during customer participation.

More specifically, the logic of the mediating role of credibility flows with: the level of customer participation will positively affect credibility, which in turn affects the customer experience in the affective and cognitive aspects. A more credible brand allows the product or service providers to obtain lower cost in gathering and processing information, which indicated customers are more willing to share information with and purchase from the service providers due to positive emotions and cognition (Erdem et al., 2006). With a higher level of involvement in using the online recommendation services, customers will get to know more the functions and trustworthiness of the website, then generate positive experiences due to trust and belief when reading recommendations.

Credibility is a non-product related attribute that shapes customers' perceptions and attitudes about the product or service suppliers (Buil et al., 2009). Thanks to great variety of product

alternatives and innovations in the competitive business world, customers are requiring additional service features to distinguish one retailing firm from the others. Credibility is one of the additional factor that aims at improving customers' perceived usefulness of information and delightful consumption experience. Without the presence of credibility, the cognitive and affective customer experience will not be significant enough to drive for customer satisfaction. Therefore, we expect the mediating role of credibility on the impact of customer participation on customer experience in affective and cognitive aspects:

H5a: Credibility mediates the relationship between customer participation in using online recommendation services and customer delight.

H5b: Credibility mediates the relationship between customer participation in using online recommendation services and customer perceived usefulness.

2.5 Word-of Mouth Referral Behaviour as the performance outcome

During the process of customer participation in online recommendation services, every individual gets their own opinion and influence in deciding their products, this induces a high need of cognition, with the attitudes formation in positive or negative, a specific behavioural intention is formed, which is their stance or attitudes towards the brand or the product. In distinction to the emotional and cognitive level, there is behavioural tier. The implication of brand loyalty in behavioural level, which is intended to repurchase, the desire can be anticipated (Oliver, 1999). Between the relationship between consumer experience and performance outcome, word-of-mouth transmission, referral is significantly related to consumer affective experience, which is the emotional consumer experience we suggest (Westbrook, 1987). Also, the linkage between the behavioural intentions and referrals to others are lacks of empirical support from the existing services marketing literature. There is no doubt that extensive literature has explored and confirmed the direct relationship between purchase intention and purchase behaviour in different product or service contexts (Newberry et al., 2003; Cannière et al., 2009). Nonetheless, we believe that the creation of purchase intention may not necessarily aim at one-off purchase behaviour only, but in fact paving the path to expand the customer base by means of word-of-mouth referral behaviour and

customer network building. In other words, nurturing one's purchase intention is the stepping stone for generating multiple sales and potential markets in a long run.

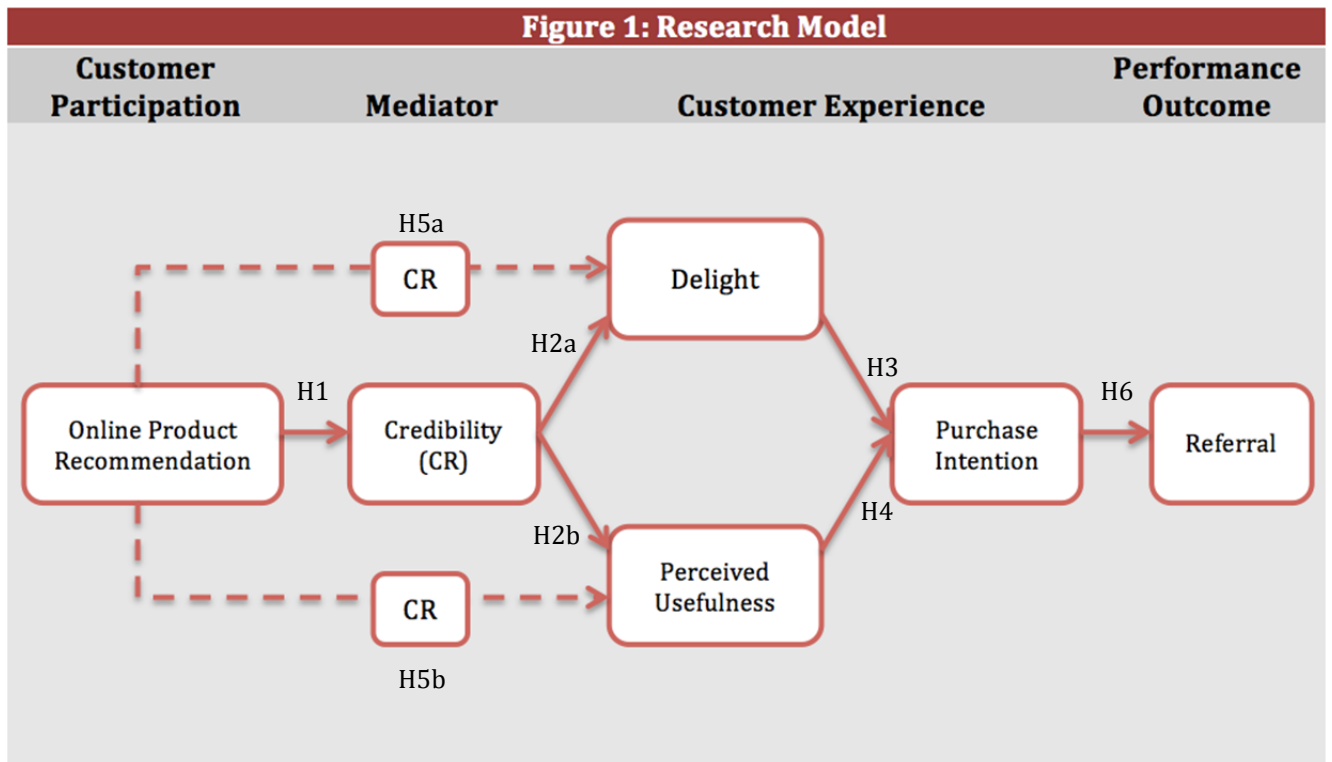
Besides, the performance outcome of examining customer participation in co-creation can be satisfaction of customer and employee on job (Chan et al., 2010). There are four behaviours as customer citizenship, they are feedback, advocacy, helping and tolerance, which can label and measure the customer experience (Gong, 2013). Advocacy is a voluntary actions to shows their satisfaction in their experience and it is an objective measurement. We make no difference between the terms "Advocacy" and "Word-of Mouth Referral" since they both act as the behavioural measure to expand the customer network and directly reflect the customer participation performance.

By that, we have chosen word-of-mouth referral behaviour as the performance outcome of customer participation in online recommendation services:

H6: Customer purchase intention is positively related to word-of mouth referral behavior.

3. Research Model

Based on the literature above, the research model illustrated below in Figure 1 is proposed. It portrays the mechanism between customer participation through online product recommendation and customer experience. There are three aspects in customer experience; they are delight (affective), perceived usefulness (cognitive) and purchase intention (conative). Meanwhile, credibility is proposed in mediating between customer participation and customer experience. Referral acts as the performance outcome in this mechanism. All hypothesis, H1 – 6 are depicted in it.



4. Methodology

4.1 Research Approach

4.1.1 Questionnaire Design – format and measurement

The questionnaire (Appendix I) consists 36 questions and separates into 8 parts (Part A-H).

Part A, 2 screening questions are included. These two questions identify suitable respondents for the questionnaire. They should be the users of online shopping in the recent 6 months and used the recommendation agent. Thereafter, respondents are instructed to name a platform they visited recently and the frequency of doing online shopping through that platform. These questions require the respondents' recall past experience and they are required to answer the subsequent questions according to this experience.

Part B and C are composed of questions measuring customer participation (IV) and credibility (X) respectively.

Table 1: Items measuring the variables of customer participation and credibility

Construct	Items	Literature
Customer participation	When using the agent, the amount of information I provided was...	Sheng & Zolfagharian (2014)
	When using the agent, the level of effort I put in was...	
	When using the agent, the amount of work I did was...	
	The amount of time I spent in using the agent was...	
Credibility	The recommendation of the agent is believable.	Luo, Luo, Schatzberg & Sia (2013)
	The recommendation of the agent is factual.	
	The recommendation of the agent is credible.	
	The recommendation of the agent is trustworthy.	

Part D and E included the questions measuring the variable of customer experience in using the recommendation agent, they are delight and perceived usefulness respectively. In these two parts, Five-Point Likert Scale was used, ranging from “strongly disagree” to “strongly agree”.

**Table 2: Items measuring the variables of delight
and perceived usefulness**

Construct	Items	Literature
Delight	I found it interesting to use this agent.	Sheng & Zolfagharian (2014)
	I had a lot of fun interacting with the agent.	
	It was boring to use the agent.	
	I very much enjoyed using the agent.	
	The way the agent works was entertaining to me.	
Perceived usefulness	The agent enhanced my effectiveness in searching for product information.	Sheng & Zolfagharian (2014)
	I found the agent very helpful in accomplishing my task.	
	I think this agent would be very useful in the future to help me make purchase decisions.	

Part F and G consist items measuring the variables of purchase intention and the performance outcome - referral respectively. Half of the items in measuring perceived usefulness used Seven-Point Likert Scale ranging from “to the smallest extent” and “to the largest extent”.

**Table 3: Items measuring the variables of
purchase intention and referral**

Construct	Items	Literature
Purchase intention	I think this agent would be very useful in the future to help me make purchase decisions.	Lin & Lekhawipat (2014);
	I consider this web site as my first choice.	
	I expect to do more business with this web site in the next few years.	Luo, Luo, Schatzberg &
	To what extent has the content of the recommendation motivated you to make the purchase decision?	Sia (2013)
	How closely did you follow the recommendation to make your purchase decision?	
	To what extent do you agree with the information provided by the recommendation?	
Referral	I said positive thing about the web site to others.	Yi & Gong (2013)
	I recommended the web site to others through online.	
	I encouraged friends and relatives to use that web site.	

Part H consists 7 demographic questions collecting personal information of the respondents. Those information including gender, age, education level, internet usage time (per week), online shopping experience (times in recent one year), online shopping spending in recent one year and their monthly income level. These are used as control variables in the further regression analysis.

The constructs above are developed from pervious mentioned literature. Besides the special one mentioned above, the items in part B to G used Seven-point Likert Scale, ranging from “Strongly disagree” to “Strongly agree”.

Moreover, some changes were made after the pretest procedure to make the questionnaire more accurate in measuring. First of all, pictures in the first page indicating the recommendation agent were changed, as respondents in pretest felt so confused. Secondly, wordings in the second screening question have been modified in order to deliver a precise definition on ‘recommendation agent’; some examples are quoted in the question. The revised questionnaire was set up and distributed after the procedure of pre-testing which involved 60 samples of respondents.

4.1.2 Questionnaire design – approach

Screening questions in this questionnaire are crucial in filtering appropriate respondents with respect to accurate measurement and analysis from the proposed model.

Part A is a critical part in identifying the target respondents for the proposed model. The screening question not only required persons participated in online shopping, but also participated recently, within 6 months. Those selected respondents would have a more complete and clearer memory comparatively on the past experience in using the online recommendation agent.

Beneficial to consistent and distinct centralized route in responding the following question, respondents were asked to list a platform that they did online shopping and participated the recommendation agent.

After those screening questions, respondents proceed to the questions designed according to the proposed model from part B to G.

In the last part, demographic information of the respondents are collected in order to test the generalization of the research result.

4.1.3 Sampling method selection

A non-probability sampling technique - Convenience sampling is adopted. It is a method to approach sample at the convenience of the researcher (Hair, 2010). Friends, relatives and schoolmates were invited to participate in this research. Besides, pedestrian were invited at high-traffic areas (Lee Garden, Causeway Bay). Moreover, snowball sampling method was adopted as some are the respondents were referred by the initial respondents.

As minimizing the selection bias in adopting non-probability sampling, screening questions in Part A filtered suitable respondents for this research.

4.1.4 Sample size determination

The expenses of carrying out the data collection, and the need of have convincing statistical power are concerns when determining the sample size (Malhotra, 2010). Sample size in similar study is ranging from 200 to 250. (Chan et al., 2010 & Luo et al., 2013). Therefore, the research targets the similar target size as well. Moreover, according to the factor analysis suggested by Hair et al. (2006), the sample size should at least be five times of the variables being analyzed or in the ratio of 8:1 for a more acceptable sample size. Thus, the sample size of this study should be with the range of 180 (36×5) to 288 (36×8). A further step is taken to make sure the sample collected is adequate, Kaiser-Meyer-Olkin Measure of Sampling Adequacy was used for testing. Kaiser-Meyer-Olkin Measure of Sampling Adequacy measures the accuracy of the sampling. If the value is greater than 0.5, the sample size is adequate (Kaiser H, 1970 & 1974). According to the table in Appendix II, the KMO value is 0.841 with $p=0.00$, the sample size is proven large enough.

4.1.5 Data Collection procedure

As the research was conducted in Hong Kong, the questionnaire was translated to Traditional Chinese in the interest of accurate interpretation of wordings. They were distributed through online and by person to our university schoolmates, friends and relatives. There are 20 paper questionnaires were distributed on street as well. They were collected in Causeway Bay on Saturdays, participants are interviewed in high-traffic areas. The data collection period was from 18th March to 3rd April 2015. There was a sum of 296 respondents participated, among those, 228 set of data proceeded for further analysis, excluding 59 unusable data as the respondents did not have experience of using recommendation agent and 9 incomplete questionnaires.

In short, 130 sets of data were collected by person and 98 were through online. One-way ANOVA test was used to test any statistical difference between data collected by two means (Hair, 2010). As reported in Appendix III, showing no difference between 2 means of collection, as the significant level of all constructs are ranged from 0.123-0.847, all >0.05 , all insignificant, means no difference between data collected by person and through online.

4.1.6 Data analysis methods

The statistics software IBM Statistical Package of Social Science (SPSS Statistics) (version 22) was used for analysis the data and tests the hypothesis. Firstly, demographic data was input and generated its frequency and percentile. Secondly, reliability test was conduct to check the whether the data are valid and reliable. Last but not least, simple and multiple regression analysis were used for analyzing the relationships among the independent variables, dependent variables and mediator.

5. Research analysis and results

5.1 Primary Data Analysis with Descriptive Statistics and Frequency

Distribution

5.1.1 Demographic characteristics

Altogether there were 228 completed surveys with the following demographic characteristics. Table 4 below shows there are 39.8% of male respondents and 60.2% of female respondents in the survey. Most of them are aged 21-25, variant of 65.3%. Most of the respondents are in tertiary education level, 93.5%. The monthly income of most respondents is \$2000-4999 (46.8%) and \$0-1999 (21.8%).

Table 4: Result of Demographic Characteristics

Items	Categories	Frequency	Percentage
Gender	Male	91	39.9
	Female	137	60.1
Age	Below 16	0	0
	16-20	47	20.6
	21-25	149	65.4
	26-30	7	3.1
	31-35	4	1.8
	36-40	6	2.6
	41-45	5	2.2
	46-50	4	1.8
	Above 50	6	2.6
Education	Primary	0	0.0
	Secondary	10	4.4
	Tertiary	212	93.0
	Postgraduates	6	2.6
Monthly income	\$0-1999	47	20.6
	\$2000-4999	103	45.2
	\$5000-9999	24	10.5
	\$10000-49999	50	21.9
	\$50000-99999	2	0.9
	Above \$100000	2	0.9

5.1.2 Internet usage and online shopping pattern

Regarding the Internet usage of respondents, 41.7% spend 1-10 hours on Internet per week, 26.4% spend 11-20 hours per week, 6.0% spend less than 1 hour a week and 5.9% spend above 20 hours per week. Nearly half of the respondents, 48.8% shopped online for 1-5 times in the recent year, 31.0% shopped online for 6-10 times, remaining 23.1 % shopped online above 10 times. Along 37.0% spend \$1000-5000 in the recent year, 30.6% spend \$501-999, 26.9% spend \$1-500 and 5.6% spend above \$5000.

Table 5: Result of Internet usage and online shopping pattern

Items	Categories	Frequency	Percentage
Internet Usage	Less than 1 hour	13	5.7
	1-10 hours	95	41.7
	11-20 hours	61	26.8
	Above 20 hours	59	25.9
Online shopping experience	1-5 times	103	45.2
	6-10 times	72	31.6
	Above 10 times	53	23.2
Spending in online shopping	\$1-500	59	25.9
	\$501-1000	70	30.7
	\$1000-5000	85	37.3
	Above \$5000	14	6.1

5.2 Reliability Test

After recoding all reverse items, all items proceed to the Cronbach's Alpha for determining the reliability, the consistence in the measurement. All the variables are reliable as the Cronbach's Alpha Coefficient of all items is over the general acceptance level (0.7). Table 5 shows that they are ranged from 0.762 to 0.907. The result showing all the items in the questionnaire is reliable and able to proceed to the further steps.

Table 6: Reliability Test Result

Construct and items	N of items	Cronbach's Alpha Coefficient
Customer Participation	4	0.842
Credibility	4	0.907
Delight	5	0.812
Perceived Usefulness	3	0.772
Purchase Intention	6	0.762
Referral	3	0.862

5.3 Analysis for Regression

5.3.1 Regression Analysis

Simple regression will be used for testing the relationship between customer participation (IV) and the customer experience: delight (DV) and perceived usefulness (DV). Also, it will be used for testing the relationship between delight (IV) and perceived usefulness (IV) and purchase intention (DV) respectively. Moreover, relationship between purchase intention and referral will be tested. Furthermore, the mediating effect of credibility on customer participation to delight and perceived usefulness will be examined. The criteria for justification are standardized coefficient (β Value) and 95% confidence level ($p < 0.05$).

5.3.2 Simple Regression Analysis

Figure 2 below illustrates the relationships of the independent variable, customer participation and two dependent variables, delight and perceived usefulness.

For the first hypothesis, the relationship between customer participation and credibility is positive. As shown in Appendix VI, the beta standard coefficient is 0.313 (< 0.001), which indicates the relationship is significant and the hypothesis one is supported.

H1: Relationship between Customer Participation and Credibility					
	R	R²	Adjusted R²	ANOVA (F)	Beta
Value	0.313	0.098	0.094	24.562	0.313
p-value	0.000			0.000***	0.000***

Moreover, the relationship between the credibility and delight and perceived usefulness respectively, these hypothesis are supported as well. As shown in Appendix VII, the beta standard coefficient of credibility and delight is 0.503 ($p < 0.001$) and Appendix VIII, the beta standard coefficient of credibility and perceived usefulness is 0.541 ($p < 0.001$). These prove that they are positive related.

H2a: Relationship between Credibility and Delight					
	R	R ²	Adjusted R ²	ANOVA (F)	Beta
Value	0.503	0.253	0.249	76.347	0.503
p-value	0.000			0.000***	0.000***

H2b: Relationship between Credibility and Perceived Usefulness					
	R	R ²	Adjusted R ²	ANOVA (F)	Beta
Value	0.541	0.292	0.289	93.429	0.541
p-value	0.000			0.000***	0.000***

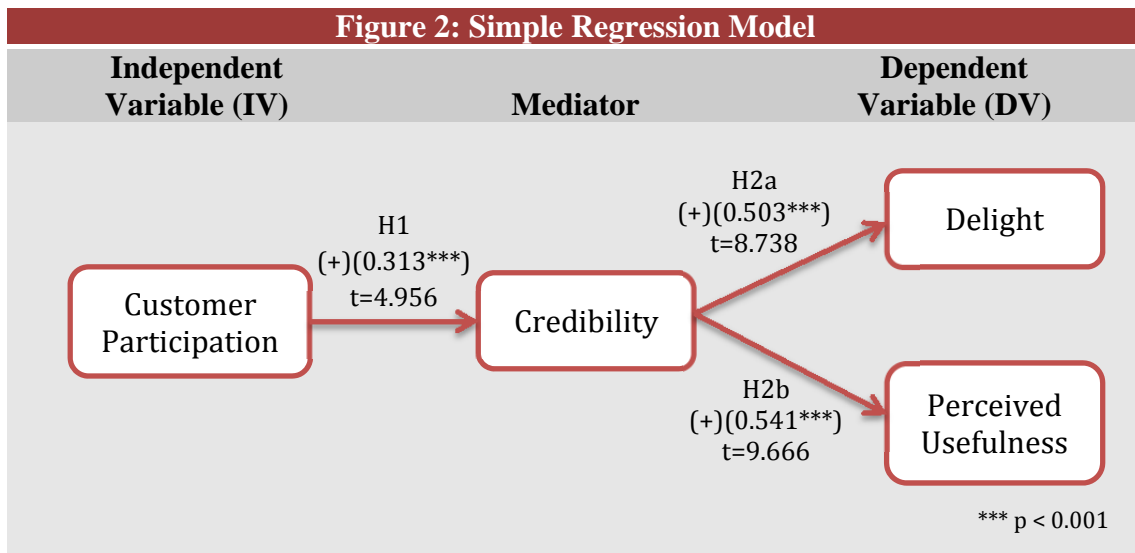


Figure 3 below illustrates the relationship between delight (IV) and purchase intention (DV) as well as perceived usefulness (IV) and purchase intention (DV). Foremost, shown in Appendix IX and X, both relationships are significant ($p < 0.001$) as the standard coefficient of beta is 0.585 with $p = 0.000$; and standard coefficient of beta is 0.599 with $p = 0.000$ correspondingly. Besides, they are positively related, which support the hypothesis, H3 and H4.

H3: Relationship between Delight and Purchase Intention					
	R	R ²	Adjusted R ²	ANOVA (F)	Beta
Value	0.585	0.342	0.339	117.414	0.585
p-value	0.000			0.000***	0.000***

H4: Relationship between Perceived Usefulness and Purchase Intention					
	R	R ²	Adjusted R ²	ANOVA (F)	Beta
Value	0.599	0.359	0.356	126.323	0.599
p-value	0.000			0.000***	0.000***

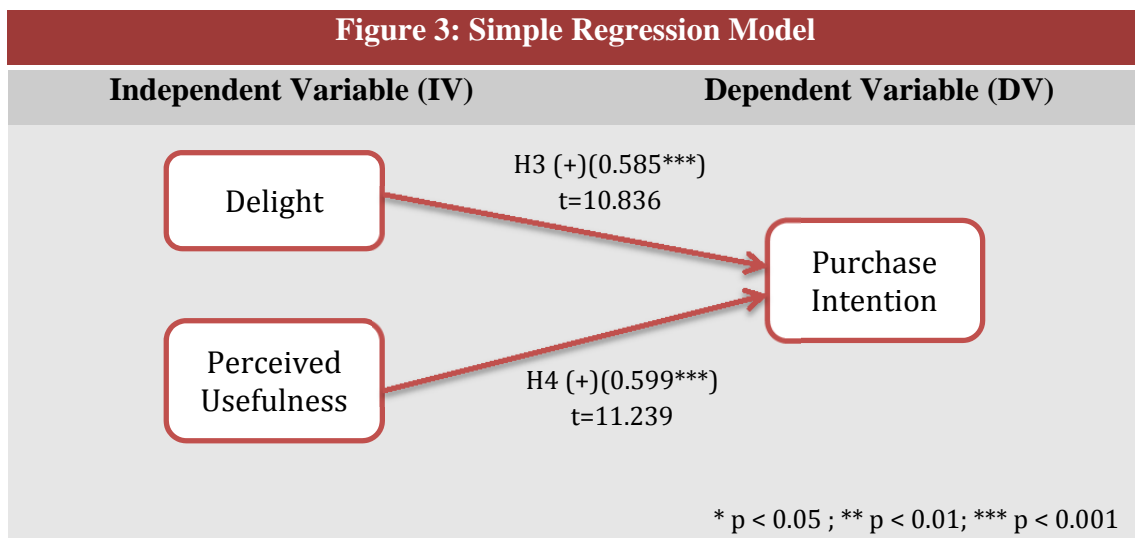
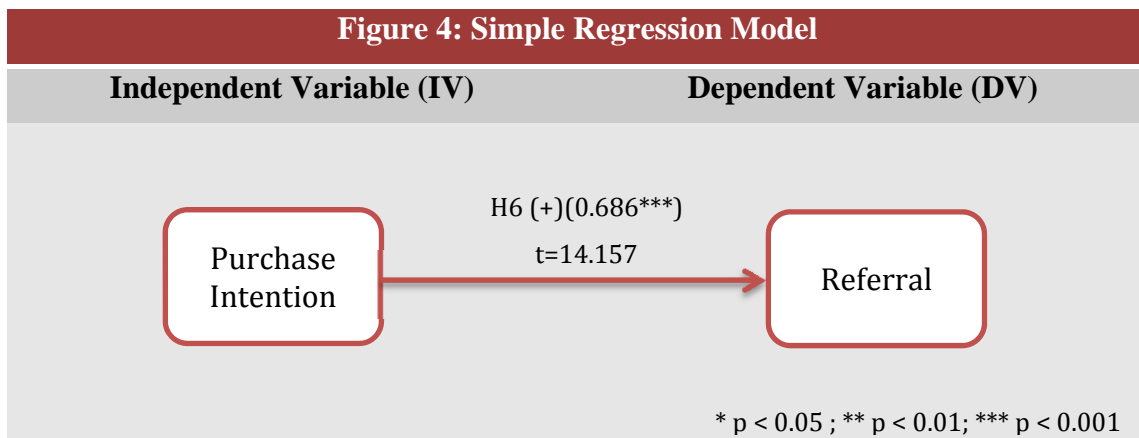


Figure 4 below shows the positive relationship between purchase intention (IV) and referral (DV). They are significant as $p=0.000$ and the standard coefficient of beta is 0.686, shown in Appendix XI. This supports the hypothesis, H6.

H6: Relationship between Purchase Intention and Referral					
	R	R²	Adjusted R²	ANOVA (F)	Beta
Value	0.686	0.470	0.468	200.419	0.686
p-value	0.000			0.000***	0.000***



5.3.3 Mediating effect of credibility on customer participation

Table 7 below shows the mediating effect of credibility on customer participation to delight and perceived usefulness correspondingly. These relationships are tested by the 3 steps suggested by Baron and Kenny (1986).

In essence, 7 control variables are added into the test in order to eliminate their possible effects on customer participation, credibility and delight and perceived usefulness. The control variables are gender, age, education level, monthly income, internet usage per week (Internet Usage), times of online shopping in recent year (Times) and spending on online shopping in recent year (Spending).

Firstly, customer participation shows significant positive effect on delight. ($\beta=0.356$, $R^2=0.161$, $p<0.001$)

Secondly, the positive relationship of customer participation and credibility is significant, which is proved and mentioned in the former part. ($\beta=0.284$, $R^2=0.129$, $p<0.001$)

Thirdly, the mediating effect of credibility on customer participation to delight is significant and positive related. ($\beta=0.234$, $R^2=0.296$, $p<0.001$) In this step, customer participation (IV) is significant, so the standardized coefficient of beta of customer participation in the first and third step need to be compared. As customer participation in step three ($\beta=0.234$) is smaller than the one in the first step ($\beta=0.357$). Therefore, credibility, the mediator is proved be the partial mediator between customer participation and delight.

**Table 7: Analysis of mediating effect of credibility on
customer participation and delight**

<u>Independent variables</u>	Step 1 (DE)	Step 2 (DE)	Step 3 (DE)	Step 1 (PU)	Step 2 (PU)	Step 3 (PU)
<u>Controls</u>						
Gender	0.066	-0.037	0.081	-0.10	-0.037	0.009
Age	-0.023	-0.008	-0.019	0.012	-0.008	0.016
Education Level	-0.018	0.046	-0.038	0.027	0.046	0.003
Income Level	0.131	0.075	0.099	0.024	0.075	-0.014
Internet Usage	0.070	0.039	0.053	0.088	0.039	0.068
Times	0.111	0.040	0.094	-0.096	0.040	-0.116
Spending	-0.058	0.095	-0.099	-0.023	0.095	-0.071
<u>Predictor</u>						
Customer Participation	0.356***	-	0.234***	0.293***	-	0.147*
<u>Mediator</u>						
Credibility	-	0.284***	0.431***	-	0.284***	0.513***
R	0.402	0.359	0.569	0.334	0.359	0.583
R²	0.161	0.129	0.323	0.111	0.129	0.340
Adjusted R²	0.131	0.097	0.296	0.079	0.097	0.313
ANOVA (F)	5.272***	4.041***	11.581***	3.340***	4.041***	12.497***

Notes: *p<0.05, **p<0.01, ***p<0.001

DE=Delight

PU=Perceived Usefulness

Internet Usage=Internet usage per week

Times=Times of online shopping in recent year

Spending=Spending on online shopping in recent year

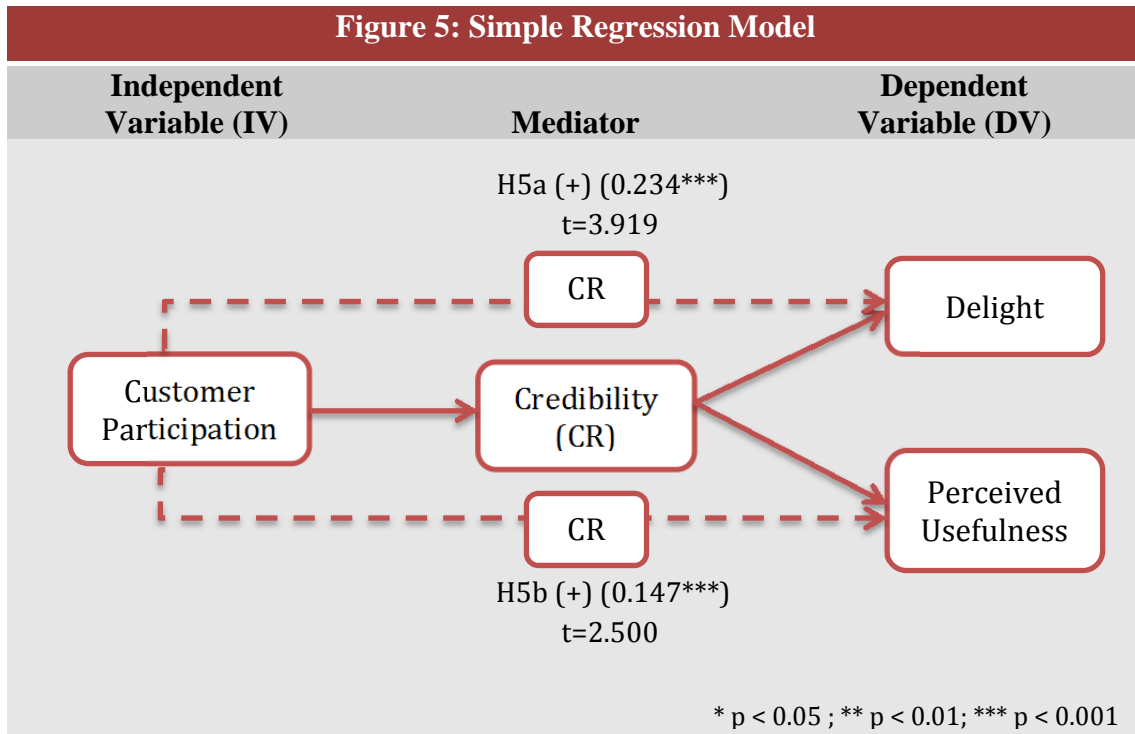
Same method and steps are used in testing the mediating effect of credibility on customer participation and perceived usefulness, shown in Table 7 as well.

Foremost, customer participation and perceived usefulness is positive related and significant. ($\beta=0.293$, $R^2=0.111$, $p<0.001$)

Then, the relationship between customer participation and credibility is positive and significant which is same and proved on the above. ($\beta=0.284$, $R^2=0.291$, $p<0.001$)

Last but not least, the mediating effect of credibility on customer participation and perceived usefulness is tested. They are significant and related. ($\beta=0.147$, $R^2=0.313$, $p<0.05$). As the relationship is significant, credibility tested not to be the fully mediator between customer participation and perceived usefulness. By comparing the standardized coefficient of beta of customer participation of this and in the relation to perceived usefulness, credibility is proved as the partial mediator as standardized coefficient of beta is smaller in the last step.

To sum up, credibility is the partial mediator between customer participation and delight and perceived usefulness, which means the hypothesis 5a and 5b are partially supported.



5.4 Summary of hypothesis

Table 9 below shows the summary of all hypotheses. H1 to H4 and H6 are supported. H5a and H5b are partially supported as proved there is partial mediation.

Table 9: Summary of hypothesis testing results		
Hypothesis	Results	Supported / Rejected
H1:	$\beta=0.313, p=0.000^{***}, R^2=0.094$	Supported
H2a:	$\beta=0.503, p=0.000^{***}, R^2=0.249$	Supported
H2b:	$\beta=0.541, p=0.000^{***}, R^2=0.289$	Supported
H3:	$\beta=0.585, p=0.000^{***}, R^2=0.339$	Supported
H4:	$\beta=0.599, p=0.000^{***}, R^2=0.356$	Supported
H5a:	$\beta=0.234, p=0.000^{***}, R^2=0.296$	Partially Supported
H5b:	$\beta=0.147, p=0.000^{***}, R^2=0.313$	Partially Supported
H6:	$\beta=0.686, p=0.000^{***}, R^2=0.468$	Supported

5.5 Influence of demographic and online shopping pattern on customer participation, purchase intention and referral

One-way ANOVA was used for testing difference between all variables (Customer participation, credibility, delight, perceived usefulness, purchase intention and referral) and the demographic characteristics (Gender, age, education level, internet usage, online shopping experience (times in recent one year), spending on online shopping in recent year and monthly income). If the significance level is less than 0.05, there are significant difference from each demographic characteristics.

As result shown in the table 9 below, none of demographic characteristics and online shopping pattern is factors in influencing the credibility, delight and perceived usefulness. Regarding the age of respondents and their online shopping pattern effects, customer participation, purchase intention and referral are affected as one-way ANOVA results show below in table 9.

Table 9: One-way ANOVA Analysis of the influence of general demographic characteristics and online shopping pattern

	Customer Participation	Credibility	Delight	Perceived Usefulness	Purchase Intention	Referral
Gender	0.316	0.244	0.523	0.468	0.939	0.109
Age	0.022*	0.112	0.070	0.247	0.002**	0.011*
Education	0.152	0.391	0.193	0.496	0.503	0.618
Income	0.041*	0.204	0.118	0.748	0.043*	0.019*
Internet usage	0.051	0.217	0.059	0.182	0.206	0.150
Experience	0.683	0.257	0.377	0.303	0.027*	0.033*
Spending	0.184	0.061	0.673	0.627	0.002**	0.001***

* p < 0.05 ; ** p < 0.01; *** p < 0.001

Shown in Table 10, by comparing the effect of age on customer participation, respondents in age 26-30 have the highest mean score in customer participation generally, while those aged 31-35 has the lowest mean score. Those aged 46-50 has the highest mean score in purchase intention, which is much higher than other age groups comparatively. The respondents in the oldest age group (above 50) have the lowest mean score in referral behavior.

By the effect of income level, respondents with \$5,000-99,999 monthly income have the highest customer participation compare to others. They also have the highest mean score in the purchase intention and referral behavior.

For the one who have less experience or lowest spending on online shopping have a lower purchase intention and referral.

Table 10: One-way ANOVA Analysis of the influence of demographic characteristics and online shopping pattern

Factors	N	CP	PI	RE
<u>AGE</u>				
16-20	47	3.2713	4.1312	4.1915
21-25	149	3.5453	4.5772	4.6532
26-30	7	5.1071	5.1667	5.3810
31-35	4	3.1250	5.0000	4.8333
36-40	6	3.4583	4.5833	4.6667
41-45	5	3.8500	4.8000	5.0667
46-50	4	3.7500	5.7083	5.8333
Above50	6	3.7083	4.4722	3.8333
Sig.	-	0.022*	0.002**	0.011*
<u>INCOME LEVEL</u>				
\$0-1,999	47	3.3298	4.2482	4.2979
\$2,000-4,999	103	3.5583	4.5405	4.5210
\$5,000-9,999	24	3.2708	4.6319	4.6667
\$10,000-49,999	50	3.7450	4.6567	4.8600
\$50,000-99,999	2	5.7500	5.5833	6.3333
Above\$100,000	2	3.6250	5.5000	5.8333
Sig.	-	0.041*	0.043*	0.019*

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<u>EXPERIENCE</u>				
1-5 times	103	-	4.3625	4.3754
6-10 times	72	-	4.6435	4.7546
Above 10 times	53	-	4.7138	4.7925
Sig.	-	-	0.027*	0.033*
<u>SPENDING</u>				
\$1-500	59	-	4.1780	4.1299
\$501-1,000	70	-	4.5690	4.6381
\$1,001-5,000	85	-	4.6961	4.7647
Above\$5,000	14	-	4.8571	5.2619
Sig.	-	-	0.002**	0.001***

6. Discussion and Implication

6.1 Customer participation and credibility

As verified in hypothesis 1 by the result of regression, customer participation and credibility is positive related. When customers have a higher level of participation in the online product recommendation, more effort is paid in interaction with the RAs, doubts on the recommendations of expert computer algorithms reduced and the recommendation credibility is higher. They would define the RAs as factual and reliable. This matches with the saying of Wathen & Burkell (2002).

6.2 Credibility and delight

Proved in hypothesis 2a, credibility is positively related to delight. When customers go to an online shopping platform with higher recommendation credibility, they will be more delighted because of the trustfulness of RAs. When customers are more delight, they would have a more positive post-evaluation towards the platform, so it can build customer loyalty.

6.3 Credibility and perceived usefulness

Posited in hypothesis 2b, higher recommendation credibility leads to higher perceived usefulness from customers. This is because higher credibility of the information raises the support from customers toward the content received. This shared the same viewpoint with Pornpitakpan (2004). Credibility of the online shopping platform would facilitate the information search and favourite the perception towards the information.

6.4 Delight and purchase intention

Verified in hypothesis 4, positive relationship between delight and purchase intention is examined. When customer has a more delight experience in using the online product recommendation, he/she will have more intention in purchasing such items. The purchase

intention is the subsequent behavioral intention in the conative aspect that drove by the positive attitude towards the online shopping platform.

6.5 Perceived usefulness and purchase intention

As the result of testing supported the hypothesis 4, customers with higher perceived usefulness are more likely to purchase the items. This is because customers with higher perceived usefulness, they will involve more information in their consideration.

If they found certain RAs more useful, share the same values and fit their favorites, they will have a higher intention to purchase. Since the process of consideration is simplified with the aid of online product recommendation and enhance the effectiveness in searching items feel interested, as they favorite the responses from certain platform. To certain extent, customers even rely the RAs to make the purchase decision.

6.6 Mediating effect of credibility

Another main objective of this research is to investigate the mediating effect of recommendation credibility on the relationship between level of customer participation and customer experience on emotional and cognitive aspect, which is delight and perceived usefulness.

Multi-regression method that suggested by Baron & Kenny (1986) is used in examining such hypothesis. The result proved that credibility acts as the partial mediator in between customer participation and customer experience. This indicates with recommendation credibility, customers are more willing in trusting the RAs and feel more delight in the shopping process and also easier to get the information. However, as credibility is just a partial mediator, there is room for other factors contributing the relationship between customer participation and customer experience (delight and perceived usefulness). Level of involvement was measured in this study to indicate the customer participation, but this may not the only dimension of customer participation. Thus, not enough to support credibility act as the full mediator.

6.7 Purchase intention and referral

Regression result of hypothesis 6 proved the positive relationship between purchase intention and referral. When the customers have a higher intention, they are more likely to refer that online shopping platform to others. By the cause of the reliability and trustworthiness of the platform, formed by their past positive experience with it, they are more willing to take voluntary actions in showing their satisfaction with the platform, which is spreading word-of-mouth. They would recommend and say positive comment of the platform to their friends and relatives.

7. Recommendation

Major managerial implications will focus on the importance of improving customer experience when using the RAs in online product recommendation services, in order to create word-of-mouth behavior and thus expanding the customer base of the online purchasing platform.

Firstly, the level of customer participation is found to have positive relationship with credibility. With a higher involvement or interaction with RAs, customers tend to believe the content screened or suggested by the computer algorithms, and thus creating trust towards the websites. More importantly, the credibility of RAs also represents the credibility of the whole purchasing websites, in other words, the source credibility also implies the recommendation credibility. Therefore, we suggest online purchasing platform to encourage more customer participation and interaction between the websites and customers to encourage the rise of credibility. To increase the participation, we propose that the online purchasing platform to design a pop-up box or homepage using RAs to ask for customers' preferences and interests before they start browsing the products. It can make sure that customers will use RAs and be participated in the recommendation process. Moreover, it increases the purchase intention of customers due to the customization of product alternatives showing to them.

Secondly, credibility is proved to have at least partial mediating effect between the relationship of customer participation and customer experience in cognitive and emotional aspects. In order to improve credibility of the website, it is of great importance to provide customers with prompt and accurate responses with regarding to their concern. Therefore, apart from the use of RAs, the online purchasing platform can also set up instant message near RAs, to increase the credibility by welcoming enquiry from customers. This can reduce the doubt of customers and further improve the credibility of the website, thus creating linkage between customer participation and customer experiences.

Thirdly, purchase intention is shown as positively linked to referrals. With the improvement on customer experiences, both delights and perceived usefulness, customers will be more likely to generate purchase intention and shop at that website. If the shopping experience is

satisfactory or beyond customers' expectations, customers usually refer the websites to their friends and relatives who also need the same kind of service. Word-of-mouth behavior is the most powerful advertising agent since personal suggestions are always deemed to be more convincing than impersonal recommendations. Thereby, we suggest those online purchasing platform to provide some convenience links of social media and mobile communication applications to encourage the sharing of websites. By that, the online purchasing platform can enjoy the benefits of broadening the customer base and network.

8. Limitation and future study

Firstly, the generalization of this research may not be good enough as the sample size is small. Due to the time limit and cost budget, scale of research is limited. Furthermore, 228 samples size only indicated as just fair in the general guide of sample size (Tabachnick and Fidell, 1996). In future study, the sample size should be further increased especially the research is targeting whole population in Hong Kong instead of limited in Hong Kong student population.

Secondly, the distribution of the each demographic characteristic is not even. Due to non-probability sampling, samples share similar characteristics with the researcher, most of the samples ages at 21-25 (65.4%) with tertiary education level (93.0%), which affects the generalization of this study as well.

Thirdly, no culture difference was examined in this research, as target population is Hong Kong people. However, online shopping is across country boundaries and online product recommendation is a recent hit topic that is worth to study. Future study should take the culture as consideration.

Fourthly, purchase intention does not equal to purchase behavior. It is just a conative dimension instead of real behavior. Therefore, longitude study is suggested and warranted to measure the actual behavior of customers.

Last but not least, in the measurement of customer participation should be more comprehensive. As level of involvement may not be the only dimension, by adding up all dimensions, mediating effect of credibility will be more representable.

9. Conclusion

This study has developed a research analytical model about the role of customer experience in the customer participation of online product recommendation services and word-of-mouth referral behavior. The mediating role of credibility between the relationship of customer participation and customer experience in cognitive and emotion aspects is also examined.

Customer participation enhances the credibility of recommendations provided by the online purchasing platform. Credibility positively affects experiences on emotional, cognitive perspectives. Both delight and perceived usefulness can act as determinants of purchase intention. Besides, the effect of customer participation on customers' experience depends partly on the credibility level of service providers. Lastly, word-of-mouth referrals are regarded as the performance outcome of customer participation, indicating the satisfaction level of customers who are engaged in the online recommendation services.

We hope that this conceptual framework can shed some lights for marketing practitioners to improve customer experiences in using the RAs. Despite the limitations, we hope to add value to the existing services marketing literature and provide insights for further research in this area.