ADOLESCENTS' ACCEPTANCE OF INTERNET TECHNOLOGY AND INNOVATIVENESS ON E-COMMERCE BEHAVIOR

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Abstract— In the era of rapid development of the Internet and technologies, buying behavior of adolescents exhibited in the consumer market is growing in a dramatic manner. The adolescent consumers feature brand switching as well as acceptance of innovative products and information. This study aimed at exploring the effect of consumer innovativeness on buying behavior. The technology acceptance model was used as the basic structure while consumer innovativeness as a moderate variable in order to analyze adolescents' online buying behavior (inclusive of planned and unplanned). In this study, an online questionnaire survey was conducted on 2,419 adolescents and further verified by regression analysis. The results showed that the technology acceptance model was legitimately adequate to explain online buying behavior. Adolescents who were innovative consumers were categorized to rational buyers. For attracting people with innovativeness, it is compulsory for operators of online shopping to be creative enough in designing an online shopping platform so as to effectively strengthen consumers' understanding of commodities Index.

Keyword— Adolescent, Buying Behavior ,Consumer Innovativeness, Online Buying, Technology Acceptance Model.

I. INTRODUCTION

The prosperous and flourishing development of the Internet has led modern people to experience a new lifestyle. Take Taiwan as an example, the Industry Intelligence Survey by the Institute for Information Industry (2009) [1] showed that it was the first time in 2009 the population constantly accessing to the Internet exceeded 16 million. In 2015, There were 17 million regular users Over the age of 12, For 18 to 30 year- old people the access rate was 100% - this was the bulk of the Internet population(TWNIC) [2].The prevalence of Internet applications reached from 46% in 2009 to 83.7% in 2015(TWNIC) [2]. Due to the convenience and popularity of the Internet, it is empowered to create enormous market and economic potential. The overall rate of online hopping participation in Taiwan in 2009 increased by 30.4% compared to 2008. The value reached 311.6 billion NT dollars (Institute for Information Industry, 2009).After 2010, Taiwan's E-Commerce market with an annual growth rate 150%, The value reached 358.3 billion NT dollars (MIC) [3]. Therefore, the business opportunities created from online market could not be overlooked.

"Otaku" derived from a Japanese term for another's house or family refers to a fan of mainstream culture or even a person who particularly specializes in his or her profession. This group of people presents stronger demands in information technology and electronic products. Therefore, they are the newly rising market economy, namely, "Otaku Economy". "Otaku Economy" refers to a new economic trend which has been indirectly formed due to the prevalence of the Internet through which men and women staying at home can buy things merely with several clicks. The effect of otaku economy has turned online buying into the mainstream of modern consumption (Steinberg, 2004; Wikipedia, 2015). [4] [5] the rise of Internet communities further boosts online buying. The power of word-of-mouth bestowed by Internet communities establishes both cyber friends' trust and willingness to visit the recommended websites for shopping. In recent years, cyber friends have united together for buying a certain commodity. The 68.6% of Internet users collected and compared product information online before purchases (Research, Development and Evaluation Commission, 2009). [6] Additionally, the survey titled "World Index of Consumer Purchasing Priorities" of MasterCard 2010 [7] indicated that 86% of the survey respondents were planned buyers. They made comparisons and surveys before online buying. On the other hand, 64% of survey respondents explained that impulsive purchases were caused by lower prices and better discounts than those offered by other distribution channels. Based on the above mentioned facts, the convenience of online information and transparent prices has changed buying behavior. This study was mainly motivated by further discussion of adolescents' online buying behavior.

In the past, the technology acceptance model (TAM) was widely applied to the discussions of the theoretic model of information technology acceptance (Johnson, 2005). [8] First, this study aimed at the adolescents who had experienced online buying so as to find out the effect of perceived usefulness and perceived ease of use on adolescents' online buying behavior. The Internet users with higher innovativeness exhibited better chances to choose online buying. Second, in this study, consumer innovativeness served as a moderate variable which aided to explore if consumer innovativeness would cause moderate effect on adolescents' technology acceptance (perceived usefulness and perceived ease of use) and online buying behavior (Citrin, Sprott, Silverman and Jr Stem, 2000). [9] It is expected that

management implications can be proposed based on the results from the empirical analysis in this study, which can be referred to while drawing up promotional and marketing strategies for online buying platforms in the future.

II. LITERATURE REVIEW

A. Buying Behavior of Adolescents

The UN defines adolescence at 15 to 24 while who defines it at 10 to 20. The age of adolescents is extended to 30 in Singapore and defined at 18 to 40 by Junior Chamber International. The adolescence served as the second transitional decade (Lerner, 2002). [10] During such a period, individual's physical, psychological and social traits transit from a child to an adult. By considering various definitions of adolescence and peer influence on buying behavior, the age of adolescents is defined at 16 to 30 in this study.

The survey of adolescents' perceived value for money in Asia Pacific Region conducted indicated that 85% of expenditures made by the adolescents in Taiwan came from the pocket money offered by their parents. The adolescents having parents as the only source of money accounted for a high of 64% (Citibank, 2006). [11] The above figures showed that most adolescents could enjoy a comfortable life without doing any part-time job. Therefore, the adolescents are the main group being surveyed in this study.

The calculations made by sex showed that the average annual expenditures of online buying were NTD 13,510 by male and NTD 8,631 by female respectively (Institute for Information Industry , 2009). [12] The results indicated that males spent more than females on online buying because males preferred buying 3C and computer related products sold at higher unit prices than those of cosmetics and clothing favored by females. Consequently, this fact gave rise to a gap between the average annual expenditures of online buying.

B. Technology Acceptance Model

The evolution of theories in relating to technology acceptance has been advancing like an organism year by year. The occurrence of external variables constantly leads to a change to the original TAM (Technology Acceptance Model).

Among the theories proposed in the past, the Technology Acceptance Model (TAM) was the most favored by scholars. The structure of TAM was the simplest compared with other new structures and it could be widely applied to the studies in various fields. Mostly, the results of a variety of studies proved that this model could explicitly predict the behavior of use presented by the technology users (Luarn and Lin, 2004). [15] In TAM, perceived usefulness and perceived ease of use served as two crucial basic elements which created impact on individuals' intention and use. Perceived usefulness refers to an individual's belief in a certain technological system which enhances efficiency and productivity at work. Perceived ease of use refers to an individual's belief in the degree of not making any efforts while using a certain technological system (Davis, Bagozzi and Warshaw, 1989). [14]

Perceived ease of use presents positive correlation with behavioral attitude and is affected by external variables. An individual shows a positive attitude toward a technology system when he or she perceives that such technology system is easy to use, which further contributes to his or her willingness to use it. Perceived usefulness shows positive correlation with behavioral attitude and is affected by external variables and perceived ease of use. An individual holds a positive attitude toward a technology system when he or she perceives that such system is useful (Davis, Bagozzi and Warshaw, 1989). [14] Concurrently, the performance and efficiency at work may be improved accordingly when the said system is easy to use, which further contributes to higher willingness of using that technology system. Additionally, behavioral intention, which brings impact on substantial behavior of use, is affected by perceived usefulness and behavioral attitude.

TAM has been widely applied to technologies, services and environment. Numerous studies have proved that TAM is highly effective (Teo, 2009). [16] Hence, simplified TAM was adopted to verify the hypotheses in this study. In response to the background concentrating on online buying in the study, the variable of "use in practice" was corrected to "buying in practice". In other words, the corrected variable was adopted to determine the degree to which an individual browsed or used online buying in practice because of being attracted by an online buying platform.

C. Buying Behavior

In this study, buying behavior was divided into planned and unplanned buying behavior. Under unplanned buying, it was further constructed with impulsive purchases and compulsive purchases on a basis of buyers' traits for the purpose of intensifying the insufficient research on variables for buying behavior with the application of TAM.

1) Planned Purchases

Planned purchases as profound considerations for buying any type of commodity before a consumer approached to a shop. Hence, the consumer had given thought to all commodity options before making the best decision (Lee and Kacen, 2008). [17] Planned purchases referred to a consumer's purchases completely based on a shopping list made before visiting a shop. The epistemic search strategy was chosen for making purchase decisions. To sum up, planned purchases were reasoned buying behavior. Consumers digested commodity information well in

advance and achieved intentional buying behavior by considerations and plans (Huang, 2008). [18]

2) **Unplanned Purchases**

a) Impulsive Purchase

The impulsive purchases were those not recorded before consumers stepped into the shop. Such buying behavior occurred after the desire for buying, which arose spontaneously without many reflective thoughts (Cobb and Hoyer, 1986). [19] In short, impulsive purchases were buying behavior without planning in advance. Consumers were driven by their inner desire followed by impulsive purchases rendering psychological satisfaction. The 38.7% of commodities bought by consumers in shops were impulsive purchases (Bellenger, Robertson and Hirschman, 1978). [20] Most consumers were easily attracted by advertising slogans on the street or portals. As a result, they often regretted for purchasing a bunch of unnecessary commodities. The reason for people who were unable to learn the lesson on buying products was originated from accidental and random purchases which enabled individuals to be relaxed and have unexpected fun.

b) Compulsive Purchases

Compulsive purchases illustrated an unconscious and immediate buying orientation. Consumers, who were out of control, made long-term abnormal purchases and expenditures (Rook and Fisher, 1995). [22] They repeatedly made purchases and overlooked negative consequences (Edwards, 1994). [23] In other words, compulsive purchases were chronic and addicted morbid consumption behavior. Consumers lost control over repeated purchases for releasing stress and reducing anxiety. Such consumers did not pay attention to any negative effect caused to them or others.

D. **Consumer Innovativeness**

Consumer innovativeness concentrated on personality traits of consumers. Innovativeness was determined by the time when consumers used a certain innovative product. The above theory overemphasized explicit behavior. It acted as an important start of studies combining innovativeness and consumer behavior (Midgley and Dowling, 1978; Hirshman, 1980). [24] [25] The individual was able to be independent from the experiences in communicating with others, accept new ideas and innovative policies, and continuously maintain consumer innovativeness (Midgley and Dowling, 1978). [24]Such personality traits empowered consumers to accept new changes and contact new things (Cotte and Wood, 2004). [26]

Consumer innovativeness could be regarded as a personality trait (Midgley and Dowling, 1978). [24] With such trait, an individual, compared with others, showed higher willingness to accept and use new technologies in addition to possessing curiosity about new things. Online buying was a newly rising consumption approach created by the revolution of general distribution channels. Taking consumer innovativeness into consideration would be beneficial to exploring if adolescents presented higher intention of online buying because of possessing higher consumer innovativeness.

Regarding scales, Domain Specific Innovativeness Scale (DSI) is the only scale which has been developed against one single domain. It also applied it to online buying, which obtained excellent validity. Based on the above, DSI scale was adopted in this study to measure adolescents' innovativeness over online buying (Blake, Neuendorf and Valdiserri, 2003). [27]

III. METHODOLOGY

A. Research Structure

In this study, the simplified version of TAM (Davis, Bagozzi and Warshaw, 1989) [14] was adopted as the theoretic foundation which was constructed of perceived usefulness, perceived ease of use and the variable "buying in practice". Apart from the above, consumer innovativeness acted as a moderate variable included in the structure so as to find out its moderating effect on the structure. First, the two variables (perceived usefulness and perceived ease of use) showed their correlation with buying in practice. Next, for intensifying the deficient study of TAM applied to buying behavior, the original TAM was extended to include planned and unplanned purchases followed by dividing unplanned purchases into impulsive and compulsive purchases.

B. Hypotheses

Perceived usefulness and perceived ease of use created positive effect on the degree of intention of using e-commerce (Klopping and McKinney, 2004). [28]Perceived usefulness directly influenced use in practice. The study suggested that perceived ease of use presented positive effect on buying in practice (Hsu and Lu, 2004). [29] A study focusing on online buying, this empirically proved the correlation between the variables in the original TAM. The results were consistent with each other. Significantly, perceived usefulness and perceived ease of use were the key factors affecting consumers in online buying (Vijayasarathy, 2004). [30]The results showed that perceived usefulness and perceived ease of use illustrated positive effect on planned purchases through user satisfaction (Kuan, Vathanophas and Bock, 2003). [31]The online buying offered an environment which was easy to use, including easy search engines and price comparisons, which naturally facilitated the occurrence of impulsive purchases. When it came to usefulness, consumers could buy all necessary items at one time and they even additionally purchased unplanned items for saving freight (Zhang, Prybutok and Koh, 2006).

[32]Therefore, the hypotheses H1~H3 were proposed (Table I):

TABLE I. THE HYPOTHESES H1~H3

H1	Perceived ease of use shows significant effect on perceived usefulness to adolescents who use online buying.
H2	Perceived usefulness and perceived ease of use show significant effect on planned purchases made by adolescents who use online buying.
H3	Perceived usefulness and perceived ease of use show significant effect on unplanned purchases.
H3.1	Perceived usefulness shows significant effect on unplanned purchases.
H3.2	Perceived ease of use show significant effect on unplanned purchases.

Online buying is a newly developed shopping method. Previous studies pointed out that individuals with higher innovation acceptance were willing to try even when they face more sophisticated new technologies. The Internet users with higher consumer innovativeness were more likely to use online buying, compared with those with lower consumer innovativeness (Citrin, Sprott, Silverman, and Jr Stem, 2000). [9] Individuals with lower innovativeness were more susceptible to perceived usefulness than those with higher innovativeness (Yi, Wu, and Tung, 2006). [33] Therefore, hypotheses H4 ~ H7 were proposed accordingly (Table II).

TABLE II. THE HYPOTHESES H4~H7

H4	Consumer innovativeness shows significant moderated effect on perceived usefulness and planned purchases.
H5	Consumer innovativeness shows significant moderated effect on perceived usefulness and unplanned purchases.
H6	Consumer innovativeness shows significant moderated effect on perceived ease of use and planned purchases.
H7	Consumer innovativeness shows significant moderated effect on perceived ease of use and unplanned purchases.

C. Operational Definitions of Variables and Questionnaire Design

In accordance with literature review and the research structure elaborated in this study, the operational definitions of variables under each construct and the corresponding measurements proposed in previous literature are shown in Table IV. Likert Scale (6 levels) was adopted for scoring. Each measuring question was scored from "totally disagree" to "totally agree" and marked 1, 2, 3, 4, 5 and 6.

TABLE III. HYPOTHESES

Variable	Operational Definition	Source of measuring questions
Consumer innovativeness	Higher willingness of using online buying exhibited in an individual compared with others.	*Goldsmith and Hofacker（1991）
Perceived usefulness	The degree of usefulness enhanced perceived by individuals after use of online buying	**Davis et al.（1989）
Perceived ease of use	The degree of ease of operations and use via online buying perceived by individuals	
Planned purchases	Careful considerations to commodities being purchased before use of online buying	***Bearden et al.（1989）
Impulsive purchases	Possible degree to which an individual immediately purchases a commodity for fulfilling inner desire while using online buying	****Sneath et al.（2009）
Compulsive purchases	Possible degree to which an individual repeatedly purchases certain commodities for releasing stress and anxiety while using online buying	

D. Sampling Design and Information Collection

This study targeted at adolescents at 16~30 with online buying experiences. For widely accessing to users of online buying, online questionnaire and stratified sampling were adopted. Stratified sampling was conducted based on the total numbers of population in different regions (north, central, south and east regions and off-shore islands) in Taiwan (Directorate-General of Budget, Accounting and Statistics, 2009) [34]followed by estimating regional population ratio and calculating the minimum numbers of samples being collected in those regions for this study.

12 students were invited to carry out a pretest for revising the questionnaire before distribution. Unclear questions or statements in the questionnaire were reviewed. The statistical analysis indicated that Cronbach's α values reached good reliability. Formal online questionnaires were distributed from November 25, 2009 to January 6, 2010. A total of 3,176 copies were collected with 757 invalid ones. There were 2,419 valid copies accordingly. The response rate shown from the valid copies reached 76%. The numbers of questionnaire collected in respective regions reached the minimum numbers of copies collectable expected in the study. The numbers of valid copies collected were 1,085 in North region, 453 in Central region, 615 in South region, 208 in East region and 58 in off-shore islands respectively.

IV. DATA ANALYSIS

A. Basic Data Analysis

1,594 (65.9%) out of 2,419 effective questionnaires were responded by females that accounted at a higher ratio than males. The respondents were mostly at 19 to 25 (74.9%). The respondents with university degree accounted for 1,828 (75.6%) while 1,509 (62.4%) respondents were students by occupation. 528 (21.8%) respondents could manage their monthly pocket money at NTD 4,001~7,000. 353 respondents (38.8%) who were not students received a monthly income of NTD 15,000 ~ 30,000.

Cross analysis was further made to find out the differences. The results showed that the average monthly expenditure on online buying made by males was higher than females. The average monthly expenditure on online buying made by adolescents of 26~30 years old was higher than those who were 16~18 and 19~25. The adolescents who were 16~18 spent the least money on online buying. As to commodities purchased, males preferred 3C and audio-video products while females were into

cosmetics, clothing and ornaments. The adolescents of 26~30 focused on 3C products and books more while those of 16~18 enjoyed purchasing cosmetics and clothing.

B. Reliability and Validity Analysis

In this study, SPSS 18.0 was applied for making an analysis. The Cronbach's α values corresponding to each measuring construct ranged from 0.786 to 0.858, which was of high reliability. The overall questionnaire reliability was a high of 0.882 which showed that the questionnaire was highly stable and consistent. The scale showing different aspects below was referred to the ones earlier developed by some scholars. Therefore, the questionnaire was carefully designed with good validity.

C. Hypothesis Testing

The software, SPSS 18.0, was also applied for hypothesis testing. First, the related analysis developed by Pearson was made. The correlation between constructs was obtained by the two-tailed test. Then, the analysis developed by Spearman was adopted on account of the sequences of questions on buying in practice and scales by aspects. Next, appropriate test methods, including simple regression analysis and optimal scaling, were used to verify the differences between constructs on a basis of the variations of construct scales found between those correlated items. The verification of moderating effect referred to the degree of interactions between the variables considered by the hierarchical regression analysis. Provided that the moderating effect existed, consumer innovativeness was divided into high and low levels determined by the means for a follow-up comparison.

1) Interactions between perceived usefulness and perceived ease of use

After the analysis, perceived usefulness and perceived ease of use were significantly and positively correlated. Therefore, the regression analysis was carried out. The results: Standardized coefficient β is 0.543***, R^2=0.737.There was significantly positive correlation between constructs. It proved that H1 was true.

2) The Effect of Perceived Usefulness and Perceived Ease of Use on Buying Behavior

The analysis presented that perceived usefulness and perceived ease of use were positively correlated with planned purchases while they were not correlated with unplanned purchases. Consequently, the regression analysis was carried out only for finding out the effect of perceived usefulness and perceived ease of use on planned purchases. The results: perceived usefulness on planned purchases its standardized coefficient β is 0.350***, R^2=0.123, and perceived ease of use on planned purchases its standardized coefficient β is 0.258***, R^2=0.067(Note;*** denotes P<0.001) which indicated positive and significant effect. Therefore, H2 was true.

3) Perceived Usefulness v.s. Unplanned Purchases

Perceived usefulness, showing low significance, was positively correlated with unplanned purchases and compulsive purchases while perceived ease of use was negatively correlated with planned purchases with low significance. On account of insignificant correlation between the above three variables, H3.1 was proved partially true. Perceived usefulness on unplanned purchases 0.002*, It is on impulsive purchases -0.004,and it's on compulsive purchases 0.007*.(* denotes P<0.005)

4) Perceived Ease of Use v.s. Unplanned Purchases

Perceived ease of use had negative correlation of low significance with unplanned purchases, impulsive purchases and compulsive purchases so H3.2 was not true.

5) Effect of Consumer Innovativeness on Buying Behavior

a) Effect of Consumer Innovativeness on Perceived Usefulness and Buying Behavior

The analysis verified that consumer innovativeness interacted with perceived usefulness, planned purchases and compulsive purchases at a significant level while it did not present moderating effect on impulsive purchases. The results were shown in Table IV. By taking compulsive purchases into consideration, negative moderating effect occurred to the adolescents of high consumer innovativeness. Therefore, H4 and H5 were partially true.

TABLE IV. TEST OF MODERATING EFFECT BY CONSTRUCTS

Independent variable	Perceived usefulness					
Dependen variable	Planned purchases		Impulsive purchases		Compulsive purchases	
Variable	Standardized coefficient β	VIF	Standardized coefficient β	VIF	Standardized coefficient β	VIF
Consumer innovative-ness	-0.031	1.089	0.190***	1.089	0.316***	1.089
Perceived usefulness	0.360***	1.080	-0.056**	1.080	-0.078***	1.080
Consumer innovativeness x perceived usefulness	0.048*	1.013	-0.031	1.013	-0.055**	1.013
R^2	0.126		0.033		0.092	
Note: ** denotes P<0.05 and *** denotes P<0.001.						

b) Effect of Consumer Innovativeness on Perceived Ease of Use and Buying Behavior

The analysis suggested that consumer innovativeness interacted with planned purchases and compulsive purchases at a significant level but it did not show moderating effect on impulsive purchases. The results obtained were shown in TableV. It was found from the follow-up comparisons that high consumer innovativeness created more moderating effect on planned purchases than low consumer innovativeness; and only high consumer innovativeness created negative moderating effect on compulsive purchases. Therefore, H6 and H7 were partially true.

TABLE V. TEST OF MODERATING EFFECT BY CONSTRUCTS

Independent variable	Perceived Ease of Use					
Dependent variable	Planned purchases		Impulsive purchases		Compulsive purchases	
Variable	Standardized coefficient β	VIF	Standardized coefficient β	VIF	Standardized coefficient β	VIF
Consumer innovative-ness	0.021	1.150	0.206***	1.150	0.338***	1.150
Perceived usefulness	0.022***	1.159	-0.094***	1.159	-0.127***	1.159
Consumer innovative-ness x perceived usefulness	0.023***	1.016	0.002	1.016	-0.068***	1.016
R^2	0.072		0.038		0.101	
Note: *** denotes P<0.001.						

CONCLUSIONS AND SUGGESTIONS

For discussing the effect of consumer innovativeness on adolescents' online buying by certain factors and buying behavior, the simplified model of TAM originally proposed by (Ajzen, 1985) [13] was applied as the basic structure in this study. Previous studies mostly concentrated on the factors influencing buying behavior while few focused on discussions of comprehensive buying behavior (inclusive of planned and unplanned) and targeted at adolescents. Universal systems and the Office system were commonly used to integrating literature elaborating TAM research in the past. In recent years, the studies on Blog have been carried out (Hsu and Lu, 2004). [31] In this study, discussions were made to examine the effect of the use of online buying platform on buying behavior. In addition, consumer innovativeness of adolescents was included as a moderate variable.

A. Results and Practical Suggestions

As to the moderating effect, "consumer innovativeness" strengthened the effect of "perceived usefulness" and "perceived ease of use" on "planned purchases". Meanwhile, "those of high consumer innovativeness" brought greater effect than "those of low consumer innovativeness". Such result indicated that consumers of higher innovativeness showed higher willingness to use new technologies and rational purchases. However, "those of high consumer innovativeness" mitigated the effect of "perceived usefulness" on "compulsive purchases". Based on the above fact, rational buyers were with consumer innovativeness. Provided that the online shopping operators aimed at attracting people of innovativeness to visit their websites, innovative design for an online buying platform was essential. Such innovative design should feature the effectiveness which could enhance consumers' understanding of commodities.

The hypotheses developed on a basis of the theory of TAM are totally true. Therefore, it is appropriate to apply TAM to explore the factors influencing adolescents in online buying. "Perceived usefulness" and "perceived ease of use" create impact on the factors which dominate consumers to accept using online buying. Consequently, from the perspective of "usefulness", it is suggested that the operators intensify their interactive shopping systems and add WebPages for making recommendations for the purpose of solving the dilemma encountered by consumers who cannot find targeted products and who are uncertain about the brand to choose. In that case, the efficiency of buying is improved by saving shopping time and energy for consumers. In regard to "ease of use", it is suggested that the operators should design user-friendly operational interfaces for consumers so as to reduce the times of clicking a mouse starting from search to checkout. Moreover, dynamic instructions for related operations should be available so that the first-time users can immediately operate online buying systems with ease

From the aspect of the effect of the two perception-related variables on buying behavior, "perceived usefulness" and "perceived ease of use" show positive effect on "planned purchases". Therefore, it is essential to increase effectiveness and reduce complexity.

As to consumer personality traits, "consumer personality traits" show significant differences versus "buying behavior". During the stage of considerations before formal purchases, male consumers of 16~18 with lower disposable income care more about opinions and comments made by others. They give thoughtful considerations to commodities desired. It is suggested that the operators can invite celebrities to speak for their products, design a discussion area for opinions or feedback and provide tools for price comparisons so as to attract those consumers' attention. On the other hand, during the shopping stage, females consumers of 16~18 and 19~25 with higher disposable income

show a higher chance for unplanned purchases attributed to enjoying shopping and personal emotions. It is suggested that the operators should regularly hold hourly promotions and offer login bonus for attracting online buyers to repeatedly and intensively visit a shopping website and boost their loyalty, which helps to create more opportunities of spreading promotional information and facilitate consumers' impulsive purchases unconsciously

There are differences existing in online buying by sex and age. It is suggested that the operators provide shopping area and commodity information particularly for those groups. For example, the information on 3C products can be provided more than cosmetics and clothing in Men's Area while the information on clothing can be more in Women's Area. By doing so, the information will be delivered more effectively. Finally, the adolescents of 16~18 are with lower average expenditure, which renders a good reason for operators to offer preferential promotions toward the group of younger people.

B. Limitations and Suggestions for Future Studies

Limitations inevitably exist even though the methodology, establishment of research structure, data collection and analysis were carried out in a cautious and objective manner in this study. Such limitations caused deviations of the results.

(1)Only online questionnaires were used because of limited budget and time. Unfortunately, the groups accessing to such information were limited, which further led to the results insufficient to cover the overall matrix. The objects targeted by this study were limited to those who have visited online buying websites and successfully purchased products. Hence, the groups who have never used or are not interested in using online buying websites were not covered.

(2)This study applied TAM as the structure, yet there are many other variables which were not taken into considerations.

Therefore, not all of the aspects having effect on users' acceptance of online buying have been presented.

C. Areas for Future Research

The results obtained in this study were not complete attributed to the limitations and variables not being considered. Therefore, the points worth discussing in depth are raised as follows for reference in the future.

(1)The researchers doing follow-up studies may apply other representative models similar to TAM such as TAM 2 and UTAUT to study the same thesis and compare the results of their studies with those shown in this study so as to find out related strengths and weaknesses

(2)The researchers doing follow-up studies may include interviews in order to find out the reasons why the interviewees choose certain online buying websites.

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