Adoption of E-Commerce in Manila

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Abstract: E-commerce connotes to the buying and selling of goods and services via Internet. Due to the number of netizens growing, improved access to broadband, rapid revolution and extensive use of smartphones, spread of social media, E-commerce has paved its way in the global markets. Several opportunities of E-commerce for countries as producers encompass access to new, untapped markets; while opportunities for users comprise of access to goods and services at lower prices, knowledge, technology and more competition. The recognition given to E-commerce all over the world is flourishing intensively despite of some concerns such as lack of trust in E-commerce. However, the study held concerning the acceptance of E-commerce has been inadequate. Therefore, the study aims to examine the factors that affect the adoption of E-commerce in Manila. The outcome of the research will be beneficial to the firms to concentrate on the determinants that will induce the acceptance of E-commerce in Manila.

A survey was conducted among 200 E-commerce users from Manila and 170 responses (85%) were received. Ease of understanding, personalization, reliability and usability were adapted to capture the acceptance factors of E-commerce. Each question was measured by five-point Likert scale. The study used the factor analysis to test the items of adoption factors and intention to use E-commerce. It used the multiple regression analysis to test the relationship.

The results of the study showed that determinants such as ease of understanding, personalization and reliability positively affected the intent to use E-commerce. Thus, supported the hypotheses developed from the model and prior studies. An understanding of the factors found in the study permits the firms to concentrate their resources and improve necessary strategies to motivate internet users to switch to E-commerce and to increase their market share in the future.

Key Words: E-commerce; online quality; online adoption

1. INTRODUCTION

1.1 Background of the Study

Due to the number of Internet users growing, improved access to broadband, rapid revolution and extensive use of smartphones, spread of social media, E-commerce has paved its way in the global markets. E-commerce is growing fast. Net sales of Amazon from 2001-2012 increase from $2.5 billion to $61 billion, 43% of sales was outside North America. Industrialized economies control the

market, but developing economies are anticipated to catch up. Clothes and electronics are on the top list of products that are sold online. (Fredriksson, 2013).

Several opportunities of E-commerce for countries as producers encompass access to new, untapped markets, overcome distance, work together with governments and contribution in value chains (Business to Business); while opportunities for users comprise of access to goods and services at lower prices, knowledge, technology and more competition (Fredriksson, 2013).

Engaging in E-commerce is particularly demanding due to several concerns such as shipping and delivery costs (Fredriksson, 2013), security, data protection (Fredriksson, 2013; Fleenor and Raven, 2002), culture and infrastructure (Si, 2013; Fleenor and Raven, 2002). These concerns are essential to be considered as these may have an impact on the acceptance of E-commerce. For an online business to be successful in both local and global markets, it needs to gauge and deal with the said concerns.

The recognition given to E-commerce all over the world is flourishing intensively. However, the study held concerning the acceptance of E-commerce has been inadequate. Therefore, the study aims to examine the factors that affect the adoption of E-commerce in Manila. The outcome of the research will be beneficial to the firms to concentrate on the determinants that will induce the acceptance of E-commerce in Manila.

1.2 Review of Literature

Organization for Economic Cooperation and Development (OECD) as cited in Fredriksson (2013) defines E-commerce as "the sale or purchase of goods and services over the Internet." According to Fredriksson (2013), E-commerce includes the offline payment and delivery of the goods or services. However, orders made through telephone, fax or normal mail are not included.

With widespread usage of smartphones and rapid spread of social media such as Facebook, Twitter and Instagram, digital technology in emerging countries has been continuously flourishing. During this exhilarating setting, E-commerce still continues to be a promising opportunity, and is only starting to boom (Fredriksson, 2013; Si, 2013; Fleenor and Raven, 2002). Reasons behind slow E-commerce adoption are culture, infrastructure, shipping and delivery costs, security and data protection.

Culture is one of the causes of slow E-commerce adoption. It includes language, shopping habits and use of credit. Language is a hindrance to E-commerce, since most websites are written in English, but many users cannot understand English. The usage of local languages in websites is valuable for non-English speaking users in order to increase the acceptance of E-commerce. Shopping in malls has been a part of the culture of Southeast Asians. It is a hindrance to slow E-commerce acceptance, because most people would rather see the goods first before buying to ensure that these products fit their own respective tastes and preferences such as color and texture. Usage of credit cards is widely used for online purchases. Other forms of payment like electronic fund transfer, debit card and cash on delivery are available, too. However, as stated by Si (2013) and Fleenor and Raven (2002), "credit card penetration in Southeast Asian nations is low and people still mostly rely on cash for transaction."

Infrastructure is also a concern. Insufficient infrastructure such as access to internet services and transportation continue to be a hindrance to E-commerce in emerging countries (Si, 2013; Fleenor and Raven, 2002).

Costly shipping, delivery fee, security and data protection are other concerns. Consumers have a hard time trusting on-line transactions because of certain issues like brand recognition, e-payment solutions and delivery. In order to address these issues, digital signatures and other authentication procedures should be offered by E-commerce producers to assure the protection of privacy and personal data. Information campaign is important to increase the adoption of E-commerce. (Fredriksson, 2013; Fleenor and Raven, 2002)

To be successful in practicing E-commerce, strategies should be implemented. Fredriksson (2013) recommended "strategies on key policy areas such as infrastructures and access, human resources, e-payment solutions and legal issues; tailor national ICT strategies, include all stakeholders; supportive public intervention with private sector initiative and benchmark against and learn from other countries to achieve E-commerce success."

2. FRAMEWORK

The study adapted the updated DeLone and McLean (D&M) model of IS success (DeLone and McLean, 2003; Sharkey, Scott and Acton, 2006) to test the factors that have a considerable effect on the adoption of E-commerce in Manila. Figure 1 illustrates the four independent variables, ease of understanding, personalization, reliability and usability. The dependent variable is the intention to adopt E-commerce.

Ease of understanding includes 3 items such as understandability, learnability and user-friendliness of system. Personalization includes 3 items such as pleasant interface, navigability and timeliness. Reliability includes 4 items such as accuracy, fault tolerance, recoverability and security. Usability includes 4 items such as operability, suitability, functionality and compatibility. Intention to use E-commerce includes 4 items namely: (1) Assuming that I have access to E-commerce, I intend to use it, (2) I intend to use E-commerce if the cost and time is reasonable for me, (3) I believe I will use E-commerce in the future, (4) I intend to increase my use of the E-commerce in the future.
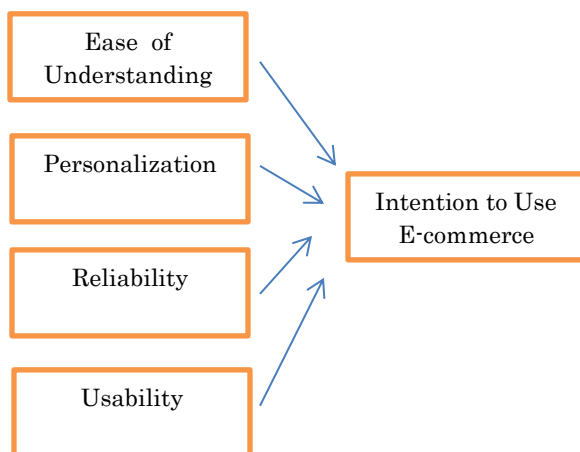

Fig. 1. Research Framework

Source: DeLone and McLean (2003)

In the context of the above framework, the following hypotheses are suggested.

HYPOTHESIS

H1: Ease of understanding has a positive effect on adoption of E-commerce
H2: Personalization has a positive effect on adoption of E-commerce
H3: Reliability has a positive effect on adoption of E-commerce
H4: Usability has a positive effect on adoption of E-commerce

3. METHODOLOGY

A survey was conducted among 200 E-commerce users in Manila and 170 responses (85%) were received.

A total of 14 items were adapted to capture the four adoption factors such as ease of understanding, personalization, reliability and usability. The intention to use E-commerce adapted 4 items. Each question was measured by five-point Likert scale namely: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree.

A survey instrument was developed for testing the hypotheses in this study. In order to ensure the content validity of the scale used, the items for each construct from prior researches were adapted. Therefore 18 survey items for the 5 constructs in the questionnaire were adapted from DeLone and McLean (2003), Sharkey, Scott and Acton (2006) and Stefani and Xenos (2001). Cronbach's alpha is used to measure internal consistency (reliability) that accepts a reliability coefficient of at least 0.70.

Furthermore, the study used the factor analysis to test the items of adoption factors and intention to use E-commerce. It used the multiple regression analysis to test the relationship.

4. RESULTS AND DISCUSSION

4.1 Profile of the Respondents

The sample represented the profile of the E-

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commerce users in Manila based on gender, age, civil status and education. The male to female distribution was 49% and 51%. Majority of the respondents were between 20 and 39 years old (65%). In terms of civil status, more than half of the respondents were single (52%). 48% of them were married. In terms of education, majority of the respondents were college graduates (59%). 27% of them were in college level while 14% of them had master's degree.

4.2 Factor Analysis and Scale Reliability

4.2.1 Ease of Understanding. The Kaiser-Meyer-Olkin (KMO) test was used to measure sampling adequacy of the factor analysis. The value was 0.708 which indicated a high degree of sampling adequacy. Note that a KMO value of 0.6 or higher is considered "acceptable". The Bartlett's Test of Sphericity was used to determine that the original correlation matrix is an identity matrix. If the correlation coefficient value is less than 0.001, then the R-matrix is an identity matrix and the factor analysis is appropriate. Bartlett's sphericity test was significant at 1% (sig = 0.000) and thus supported the factor analysis. Based on the criteria that factor loadings for items should be greater than 0.5, retain the 3 items (EU1, EU2 and EU3). The Cronbach's alpha was used to test the internal consistency. The value was 0.822 that indicated an acceptable level of reliability. Note that a reliability coefficient of 0.70 or higher is considered "acceptable".

Table 1. Results for Ease of Understanding

Item	Communalities (>0.5)	Conbach's alpha (>0.7)
EU1	0.700	0.822
EU2	0.785	
EU3	0.729	

4.2.2 Personalization. The KMO value was 0.674 which indicated a high degree of sampling adequacy. The Bartlett's Test of Sphericity was significant at 1% (sig = 0.000) which supported the factor analysis. Based on the criteria that factor loadings for items should be greater than 0.5, retain the 3 items (P1, P2 and P3). The Cronbach's alpha coefficient was 0.807 that indicated an acceptable

level of reliability, higher than the recommended value of 0.7.

Table 2. Results for Personalization

Item	Communalities (>0.5)	Conbach's alpha (>0.7)
P1	0.745	0.807
P2	0.804	
P3	0.622	

4.2.3 Reliability. The KMO value was 0.781 which indicated a high degree of sampling adequacy. The Bartlett's Test of Sphericity was significant at 1% (sig = 0.000) which supported the factor analysis. Based on the criteria that factor loadings for items should be greater than 0.5, retain the 4 items (R1, R2, R3 and R4). The Cronbach's alpha coefficient was 0.813 that indicated an acceptable level of reliability, higher than the recommended value of 0.7.

Table 3. Results for Reliability

Item	Communalities (>0.5)	Conbach's alpha (>0.7)
R1	0.634	0.813
R2	0.727	
R3	0.683	
R4	0.525	

4.2.4 Usability. The KMO value was 0.782 which indicated a high degree of sampling adequacy. The Bartlett's Test of Sphericity was significant at 1% (sig = 0.000) which supported the factor analysis. Based on the criteria that factor loadings for items should be greater than 0.5, retain the 4 items (U1, U2, U3 and U4). The Cronbach's alpha coefficient was 0.818 that indicated an acceptable level of reliability, higher than the recommended value of 0.7.

Table 4. Results for Usability

Item	Communalities (>0.5)	Conbach's alpha (>0.7)
U1	0.637	0.818

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U2	0.756
U3	0.687
U4	0.516

4.2.5 Intention to Use. The KMO value was 0.735 which indicated a high degree of sampling adequacy. The Bartlett's Test of Sphericity was significant at 1% (sig = 0.000) which supported the factor analysis. Based on the criteria that factor loadings for items should be greater than 0.5, retain the 3 items (IU1, IU2 and IU3). The Cronbach's alpha coefficient was 0.762 that indicated an acceptable level of reliability, higher than the recommended value of 0.7.

Table 5. Results for Intention to Use

Item	Communalities (>0.5)	Conbach's alpha (>0.7)
IU1	0.746	0.762
IU2	0.762	
IU3	0.798	
IU4	0.148	

4.3 Multiple Regression Analysis

Using the outcome from the factor analysis, the items for independent variables (ease of understanding, personalization, reliability and usability) and dependent variable (intention to use E-commerce) were aggregated in which factor loadings exceeded 0.50 were selected. Aggregation of the data allows combining all items under one heading. After the data were aggregated, the multiple regression was done to reveal which factors affect intention to use E-commerce.

The results of multiple regression equation showed that the model was adequate (F-statistic = 43.914) and significant at 1% level (sig = 0.000). This indicated that the overall model was a reasonable fit. Ease of understanding, personalization and reliability had positive significant effect on intention to use E-commerce (R Square = 0.516). Both independent variables ease of understanding (sig = 0.005 and personalization (sig = 0.002) were significant at 1% level. Reliability was significant at

10% level (sig = 0.066). On the other hand, Usability was insignificant (sig = 0.992). Therefore, hypotheses H1 (Ease of understanding has a positive effect on adoption of E-commerce, H2 (Personalization has a positive effect on adoption of E-commerce and H3 (Reliability has a positive effect on adoption of E-commerce) were supported.

4.4 Discussion

This study provided support for the proposed research model. The hypotheses were developed and tested by using the reliability test, factor analysis and multiple regression. The results fully validated the developed hypothesized relationships, the significant effect of ease of understanding, personalization and reliability on intention to use E-commerce.

Ease of understanding is found to be a significant factor to predict the intention to use the E-commerce. The result is consistent with the results of DeLone and McLean (2003) and Sharkey, Scott and Acton (2006). Understanding the internet environment and providing more user-friendly online systems encourage consumers' adoption of E-commerce. The usage of local languages in websites is valuable for non-English speaking users in order to increase the acceptance of E-commerce.

Personalization is found to be a significant factor to affect the intention to use E-commerce. The result is consistent with the researches of DeLone and McLean (2003) and Sharkey, Scott and Acton (2006) that evaluated personalization as the major factor that influenced the adoption of E-commerce. This implies that improving the personalization feature and increasing the awareness of online users will increase the usage of E-commerce.

Reliability is found to be a significant factor to predict the intention to use the E-commerce. The result is consistent with the results of DeLone and McLean (2003) and Sharkey, Scott and Acton (2006). Information campaign and adding security features such as digital signatures and other authentication procedures are important to increase the adoption of E-commerce.

Usability is found to be an insignificant factor to affect the intention to use E-commerce. The result is consistent with the results Sharkey, Scott and Acton (2006). Increasing the reliability features at the expense of usability may be preferred.

5. CONCLUSIONS

This study examined the factors of consumer acceptance of E-commerce in Manila, Philippines. The results showed that the ease of understanding, personalization and reliability are good indicators to predict consumer intention to accept E-commerce. The research framework applied the updated DeLone and McLean (D&M) model of IS success. The results supported the hypotheses developed from the model and prior studies.

An understanding of the factors in the study permits the E-commerce producers to concentrate their resources and improve necessary strategies to motivate internet users to switch to E-commerce and to increase their market share in the future. These producers need to adapt to fast-paced changes in technology to attract new E-commerce users. Introducing the most advanced data encryption algorithm and the certificate VeriSign for website identity and authenticity verification ensure the security and privacy of E-commerce users.

Future research is still considered necessary. A research can be made on other factors that influence the acceptance of E-commerce such as functionality, efficiency, completeness, relevance and security. Other technological adoption models can be applied such as Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB).

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