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Attitudinal Explanation on Virtual Shopping Intention

Ritzky Karina M.R. Brahmana* and Rayenda Khresna Brahmana

Faculty of Economy, Universitas Kristen Petra, Siwalankerto, Surabaya, Indonesia, 60236

Faculty of Economics and Business, Universiti Malaysia Sarawak, Kota Samarahan,
Sarawak, Malaysia, 94300

Abstract. *Virtual stores provide great efficiency in the retail value chain, and their existence has tremendously paved the way for electronic commerce. Understanding the intention of consumers to shop online in attitudinal perspective will provide important contribution to the area of e-commerce. This research proposes Task Technology Fit, Perceived Ease of Use (PEoU), and Perceived Usefulness (PU) as the factors that drive consumers' intention. The results from our survey study of 310 online consumers in Indonesia indicate that TTF affects PEoU and PU significantly. Our hierarchical model also reports that PEoU is the mediating effect on the relationship between TTF and Intention. The resulting model explains a large portion of the factors that lead a user's behavioural intention to use a virtual shop.*

Keywords : *Attitudinal, Task Technology Fit, Perceived Ease of Use, Perceived Usefulness, Retail, Virtual Shopping Intention*

1. Introduction

1.1. Virtual Shopping Issues

Internet-based industry is the world's fastest growing industry with an extensive enhancement in terms of products and services. Based on World Bank facts book 2013, the worldwide internet population was 2.4 billion in 2012. It is 566.4% increase compared to the internet user in 2000. The present scenario depicts that in past 10 years, Asia scores the highest penetration growth (800%) after Africa (3,606%). Internet World Stats (2007) shows also that globally Asia scores the highest global online percentage (34%), followed by Europe (29.2%) and

North America (24.9%). Considering, the internet usage in Asia-Pacific region alone, Indonesia gives an interesting figure. Table 1 shows Indonesia still maintains its high growth of internet penetration. It had two digit growth in 2012, which is much higher than other countries. This is tally with the eTForecast (2004) which projected that enormous growth of internet users in near future could be expected from populous countries such as China, India, Brazil and Indonesia. The penetration of internet is followed by the growth of internet shopping where it was estimated to grow from \$172 billion in 2005 to \$329 billion in 2010 (see Johnson 2005).

Corresponding author. Email: kikybrahmana@gmail.com

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Another interesting phenomenon from Indonesia is that even though Indonesia was ranked 10th as the biggest GDP (2014) in the world and has consumption driven economy, it still has low penetration of internet use per 100 people (see Table 1). According to survey of A.C Nielsen, Indonesia is one of the countries with highest demand of smartphone, and the

growth rate of smartphone user is up to 23%. In fact, marketresearch.com portrays Indonesia as a land of opportunity for telecommunication industry as their cost of service (including Internet data packets), is decreasing most sharply in the ASEAN region even in the midst of economic recession.

Table 1 . World Bank Internet user data

	2009		2010		2011		2012	
	User Per 100	Growth	User Per 100	Growth	User Per 100	Growth	User Per 100	Growth
China	28.9	11%	34.3	7%	38.3	5%	42.3	4%
Indonesia	7.9	6%	10.9	14%	12.3	5%	15.4	10%
Malaysia	55.9	0%	56.3	0%	61	3%	65.8	3%
UK	83.6	3%	85	1%	86.8	1%	87	0%
USA	71	-2%	74	2%	77.9	2%	81	2%

Source: World Bank

This phenomenon creates another opportunity, which is online shopping. Online stores are the party that offers services in virtual goods sales. Characteristics of online stores usually come in a form of a website with transaction functions like a real store, such as storefront, shopping cart, until the payment process. Examples of famous online shops in Indonesia are Bhinneka.com, blibli.com, Tokopedia.com, Tokobagus.com, or from abroad such as Amazon.com and Ebay.com

Internet shopping adoption has initiated the research in recent years, apart from attracting consumers either from a consumer oriented or technology oriented view (e.g. Jarvenpaa and Todd 1997). Reinforcement of these views focuses on consumer's beliefs of internet purchases integrating with the technical specifications of these internet purchases (i.e. Zhou *et al.*, 2007). Consumer research is critical to the success of any market. However, there might be differential adoption patterns among the consumers,

due to a completely new and innovative place (internet) of purchase (see Wang *et al.*, 1998).

Discussing the association between the e-shopping and consumption has to start from the motive of buying. Motive on buying is all the consumer needs to be driven for do shopping just for the sake of satisfying their needs and wants (Grewal and Levy, 2010). For instance, Akinyele (2010) addresses that the needs satisfaction can influence an individual to be more commit and effective. It is in line with Maslow (1954) hierarchy whereas motive is a hierarchy needs to be fulfilled accordingly to their physiological, safety, love, esteem, and self-actualization. Based on those needs, many people have different intention while they are going to decide where to buy the product. This intention is moved by attitudinal motivation.

In the perspective of technology management, this attitudinal motivation can be the perceived of usefulness and or perceived of ease of use. That relationship

is commonly explained by Technological Acceptance Model of Davies (1989), The advance of information technology has changed the interaction of human to human. It becomes one of the most important inventions of the decades. For example is the used of IT on education area. Onasanya et al., (2010) shows how technology can change the attitude of lecturer in Nigeria higher institution. Farahbakhsh et al. (2007) documents the role of health information system on the performance of organization. In medical science, the information technology might also be the prevention for obesity elevated blood pressure (see Shehu et al., 2010).

There are many on-line shops or virtual shops that have been created. This is the result of people conduct their consumption process virtually nowadays. It would be very interesting to investigate whether the attitudinal motives of consumers in technology use is driven by their perception on the usefulness. To make it more robust, we introduce the task technology fit whereas it can picture the “usefulness” of virtual shop when it fits the task a user is engaged in. In line with Berthon, Pitt & Watson (1996), Yeh and Yan (2010), Lee et al. (2011), and Montinaro and Sciascia (2011), suggestion, we address the following question: what are the attitudinal factors on determining the consumers’ intention to use virtual shop?

2. Literature Study

This research defines virtual shopping as the use of online stores by consumers for purchasing transactional event. We adopt Technology Acceptance Model (TAM) to explain the behavioural intention of consumers to shop on internet. Davis (1989) has shown that TAM can explain the usage of information technology in attitudinal approach. He applied the theory of Ajzen and Fishbein (1980) about reasoned action to show that beliefs influence attitudes which lead to

intentions, and therefore generate behaviors. Davis thus conceived that TAM’s belief–attitude–intention–behavior relationship predicts user acceptance of IT.

TAM originally proposes two determinants of persons’ attitude toward shopping online. First determinant is Perceived Usefulness (PU) which refers to the degree to which a person believes shopping online will accomplish shopping task more quickly (Davis, 1993); and another one is Perceived Ease of Use (PEoU) which refers to the extent to which a person believes that shopping online will be Free of efforts (Davis, 1993). We also introduce an antecedent of consumers’ intention as our contribution which is Task Technology Fit (TTF).

Davis (1993) defines Perceived Usefulness (PU) as degree to which a person believes that a particular information system would enhance his or her job performance, i.e., by reducing the time to accomplish a task or providing timely information. Within TAM, PU is a major factor, in determining system usage. Meanwhile, Davis (1993) defines Perceived Ease of Use (PEoU) as degree to which a person believes that using a particular system would be free of effort.

Several research papers have shown the importance of PU on behavioural intention. For instance, Shih (2004) finds the role of perceived usefulness in intention to use enterprise resource planning system leading organization benefits in using technology. He remarks the same conclusion for perceived ease of use. Other research in technology management finds the similar results. For instance, there are research on TAM by using experimental approach such as Mathieson (1991), and Hendrickson and Collins (1996). Several survey studies, such as Morris and Dillon (1997), and Thompson (1998), also remark the same conclusion where PU and PEoU

contribute positively and statistically significant to intention to use.

The contribution in this research is the role of Task Technology Fit or TTF as antecedent. It is the matching of the capabilities of the technology to the demands of task, that is, the ability of IT to support a task (Goodhue and Thompson, 1995; Lo, 2010). Goodhue (1995) develops and tests a model that determined TTF based on task needs and found TTF as important factor in technology use. It was viewed as the extent to which technology functionally matched task requirements and individual abilities. It was assumed that users can successfully evaluate TTF and that a higher fit would eventually result in better performance. From Goodhue (1995) model, we modify that TTF is a relevant concept to predict information success, fit to determine an appropriate interplay between tasks, technology, and individual characteristic. Following Zigurs and Buckland (1998), we hypothesize that particular technology with a particular kind of tasks will influence the PU and PEOU of consumers. Goodhue (1995) shows that TTF was a better indicator of the value of an information system other evaluation system. Further, He performed an empirical study and found that TTF can explain the user perceived on task of technology.

3. Methodology

3.1. Data

This paper is survey-based research where the questionnaire is built by adopting and adapting similar previous research. The items in the questionnaire were validated first before using it in testing the research model and its hypothesis. It is noteworthy that the questionnaire was pre-tested by using 20 postgraduate students who had

experiences in doing online shopping. Then, 310 questionnaires were distributed and voluntarily filled (out of 1000 disseminated questionnaires) in 5 big cities of Indonesia (Jakarta, Surabaya, Medan, Denpasar, and Bandung). The data were collected over period of March 2011 until August 2011.

Table 2 reports that the respondents were dominated by young-age group where 38% of respondents are aged between 18-23 years old, 33% respondents are between 24-29 years old, 21% respondents are between 30-34 years old, and 8% is categorized as others (more than 34 years old). The number of respondents who owned credit card (45.7%) is relatively less than the number of respondents who do not own credit card (54.3%), yet there is no huge difference between the groups. This might because the study consisting respondents from different level of ages. As most of them are on early young age, they might use their younger sibling or parent's credit card as the media for transaction.

Our respondent activities profile also supports our survey reliability. When we asked "how many online shopping places you visit in a month?" It is dominated by 1-2 Sites (40.3%) and 3-5 sites (39.3%). When we asked "How much time you use for online shopping a week?" we documented 17.4%, 26.7%, 26.5%, 22.9%, and 6.5% of respondents spent 0-5minutes, 6-15minutes, 16-30minutes, 31-60minutes, and more than 1hour respectively. Lastly, the frequency of using online shopping shows that 52.3% of respondent used it 2-4times a year for shopping. Additionally, we further asked the kind of products that respondents usually buy. Interestingly, airline (38%), and hotel (23%) are the common products purchased online.

Table 2. Demography of Respondents

Dimension	Frequency	Dimension	Frequency
Age Demography		Credit Card Ownership	
18-23 Years Old	38%	Having credit card	45.7%
24-29 Years Old	33%	Do not have credit card	54.3%
30-34 Years Old	21%		
>34 Years Old	8%		
Number of used online shop		Time to spend for online shop transaction	
1-2 sites	40.3%	0-5minutes	17.4%
3-5 sites	39.3%	6-15minutes	26.7%
>5 sites	20.4%	16-30minutes	26.5%
		31-60minutes	22.9%
		More than 1 hour	6.5%
Purchased Products in Online shop			
Airline	38%		
Hotel	23%		
Clothing	22%		
Accessories	12%		
Gadgets	9%		
Other	12%		

3.2. Questionnaire design, reliability test, and validity test

The questionnaire was designed based on previous works on Technological Acceptance Model (TAM). There are 20 items in the questionnaire, and the reliability of each items were tested under cronbach alpha. The dimensions on this paper are Task Technology Fit (TTF), Perceived Usefulness (PU), Perceived Ease of Use (PEoU), and Intention to Use. All items were constructed by adopting-and-adapting previous research on a 5-Point Likert scale. We conducted a pilot test first because previous studies investigated western context, meanwhile our study is on eastern. We validate the items by running the Factor Analysis. The detail of questionnaire development is described in Table3.

The questionnaire was translated in two ways. First, we translated into Bahasa

Indonesia. After that, we translated it again to English to match it. We found minor differences during this two-ways translation, and ignored it as the meaning of the question remains the same. For confirmation, we consulted it again to two Professors (one from Psychology, and another from Economics).

The items reliability, which is the accuracy or precision of a measuring instrument that is the extent to which the respondent can answer the same or approximately the same questions the same way each time, is conducted by using Cronbach alpha. We follow Nunnaly and Bernstein (1998) threshold value, where value of 0.7 and above is considered to be reliable. Table4, Table5, Table6 surmise our Cronbach's alpha values are higher than 0.7 indicating that the items on the constructs are reliable enough to be used on the survey.

Table 3. Questionnaire Development

Construct	Role	Items	Notes
Perceived Ease of Use	IV	4	Adopt and Adapt from Teo (2001), Moon&Kim (2001), Tan&Chou (2008)
Perceived Usefulness	IV	4	Adopt and Adapt from Koufaris (2002), Tan&Chou (2008)
Task Technology Fit	Antecedent	8	Adopt and Adapt from Dishaw and Strong (1999)
Intention	DV	4	Adopt and Adapt from Davis et al. (1989)

Note: IV denotes independent variable, DV denotes dependent variable

We further conduct factor analysis to achieve data reduction or retain the nature and character of the original items, and to delete those items which had lower factor loadings (see Hair et al, 2006 for the detail). The criteria is the loading has to be

higher than 0.50. Table4, Table5, Table6 document that the Task Technology Fit, Perceived Usefulness, Perceived of Ease of Use, and Intention behaviour pass the validity test, respectively.

Table 4. Factor Analysis result of Task Technology Fit

	Component
Task Technology Fit	
I found the functionalities of online shopping sites were very adequate	.857
I found the functionalities of online shopping sites were very appropriate	.834
I found the functionalities of online shopping sites were very useful	.801
I found the functionalities of online shopping sites were very compatible with the task	.685
I found the functionalities of online shopping sites were very helpful	.773
I found the functionalities of online shopping sites were very sufficient	.610
I found the functionalities of online shopping sites made the task very easy	.758
In general, the functionalities of online shopping sites were best fit the task	.743
Cronbach Alpha	.922
<i>Note: Adopt and Adapt from Dishaw and Strong (1999)</i>	

Table 5. Factor Analysis results of Independent Variables (PU and PEOU)

X1: Perceived Usefulness	Component
Using online shop sites enable me to look for products quickly	.714
Using online shop sites improved my consumption choice	.662
Using online shop Sites to look for products was very effective	.644
Using online shop site made it easier for me to look for products	.697
Cronbach Alpha	.885
<i>Note: Adopt and Adapt from Koufaris (2002), Tan&Chou (2008)</i>	
X2: Perceived Easy of Use	Component
Learning to online shop sites was easy for me	.760
I found it easy to do what I want to do in online shop Sites	.720
My interaction with online shop sites was clear and understandable	.575
My interaction with online shop sites was clear and understandable	.565
Cronbach Alpha	.885
<i>Note: Adopt & Adapt from Teo (2001), Moon&Kim (2001), Tan&Chou (2008)</i>	

Table 6. Factor Analysis Result of Intention to Use

Intention to Use	Component
The Likelihood that I would use online shop site for purchasing is high	.857
I am willing to use online shop site for buying products	.834
In the near future, I would consider using online shop sites for buying products	.801
I regularly use online shop site for buying products	.743
Cronbach Alpha	.901
<i>Note: Adopt and Adapt from Davis et al. (1989)</i>	

3.3. Descriptive Statistics

There are two important remarks from Table 7. First, the Pearson correlation shows there is no inter-correlation variables among the independent variables as the correlation between PU and PEOU is low (0.311) and not statistically significant. The Pearson correlation also indicates a strong relationship between the TTF and PU (where the correlation is 0.422 and statistically significant), TTF and PEOU (where the correlation is 0.532 and statistically significant), and TTF and Intention (where the correlation is 0.421

and statistically significant). The correlation between the IVs (PU and PEOU) and DV (intention) also indicates a strong connection. The correlation between PU and Intention is 0.477 and statistically significant, and correlation between PEOU and Intention is 0.321 and statistically significant. The Mean of the variables does not disperse far from its median value of 3, and the standard deviation is relatively low. This indicates the data lays on a good normal distribution.

Table 7. Descriptive Statistic Results

Variable	Pearson Correlation				Mean	Std. Dev
	1	2	3	4		
Task Technology Fit/TTF (1)	1	0.422***	0.532***	0.421***	3.4497	.61398
Perceived Usefulness/PU (2)		1	0.311	0.477***	3.6703	.72844
Perceived Ease of Use/PEoU (3)			1	0.321**	3.3415	.81637
Intention to Use/Intention(4)				1	3.1538	.75293

4. Results

The results of the test of hierarchal model are presented in Figure1. We follow Barry and Kenny (1986) about the mediation effect. Hence, we have three-step model in this research to investigate the role of attitudinal belief on intention of online shopping. The first step estimation is the relationship between TTF and PU. It

examines how TTF can influence the PU directly. The second is TTF effects on PEoU. It investigates the role of TTF on the user-friendly attributes of the virtual shop. Lastly, there is the investigation on the factors of intention from TTF, PU, and PEoU. This three-step model build one hierarchical model which suggested by Barry and Kenny (1986).

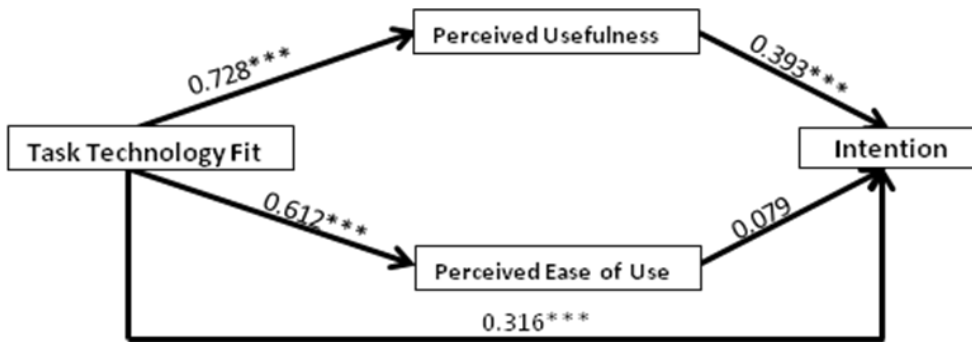


Figure 1. Hierarchical Model Result

Our first-step investigation reports that TTF has significant association to PU in 1% level. The beta value is 0.728 signifies there is 72.8% contribution of TTF on single unit of PU. In short, TTF has played important role on PU. Further, the estimation model itself is robust enough as the R² is 37.4.0%; and adjusted R² is almost the same (37.2%). It means that TTF alone already can explain more than half of variation in PU. The second estimation model shows that TTF also has significant influence on PEoU in 1% level. Depicted on Figure1, TTF beta value is

0.612 indicating 61.2% contribution on single unit of PEoU. The model has R² of 0.361 meaning TTF can explain 36.1% variation in PEoU. It is slightly lower than model 1 R² but still considered high. The third model is by investigating the relationship between TTF and intention. The R² is considerably high where it is 0.401 meaning TTF can explain 40.1% variation in intention. TTF contributes 0.361 to intention to use and it is statistically significant at 1% level.

The last estimation model is by taking PU, and PEOU altogether as regressors. This step has to be done to confirm our hierarchical model. The results of model 4 are F-test is significant in 1% level, and the R^2 is 0.530. The R^2 improves up to 20% indicating those 3 factors are the loading factor for the intention model. In terms of significance of result, we found only 2 variables (TTF and PU) have significant relationship to intention to online shopping. Meanwhile, we reject the hypothesis of the relationship between PEOU and Intention. In a nutshell, we conclude that our hierarchical model found PU is the mediating effect on the relationship between TTF and Intention. Moreover, PEOU does not have any mediating effect on the relationship between TTF and Intention. Intention to online shopping was driven by the usefulness of website not a user-friendly website.

5. Discussion and Implication

Our research found the significantly positive association between Task Technology Fit (TTF) and Perceived Usefulness (PU). It indicates that TTF can increase the PU of consumers during online shopping, which is consistent to Goodhue and Thompson (1995). This result reminds us to the result of Dishaw and Strong (1999) where TTF actually is an extended version of TAM model.

This result tells us that the experience on the virtual shop, optimization of virtual shop functionality, and the utilization of virtual shop features, might boost the perceived of usefulness of the consumers'. By stressing on the improvement of these TTF, consumers' would increase their perception on the usefulness of the virtual shop.

However, the PU did not have any significant relationship to the intention to shop online. It is a contrary result with other previous result in TAM studies. The quality, productivity, and performance of

virtual store did not have any affects on the intention of consumer. They did not look after how useful the website is. The usefulness of the site had not taken into the perception account of consumers; an interesting finding that need to explore more.

Meanwhile, the association between TTF and PEOU shows the visualization, tools functionality, and tools experience can enhance the PEOU of consumers. It is consistent to Mathieson and Keil (1998), and Lee et al (2011). By providing these TTF features, consumers should feel friendlier to use the online shopping as alternative of traditional purchase. Moreover, the internet-literacy in Indonesia is not that high. TTF feature would help them to understand the features in virtual shop easily. In short, when a system of internet is easily to use and do not bring any problems for consumer when they want to shop online, consumers will tend to shop via online.

In terms of ease of use, e-retailers have to stress on the features and layout of the site. Virtual shop has to become easily to understand, clear, and easily to master during using it. Equally important, e-retailers should explore the opportunities to offer more excitement on the site. The current practice among virtual in Indonesia is to offer rigid and conventional layout of website (some of the just upgrade the blog to a online shop), which is a very standard design. Respondent indicated the importance of fun experience during browsing the website. Adopting social network on e-recruitments might be useful to meet this demand. Having the experience of user-friendly virtual shop can impact on the repurchase intention of consumers' which is thing that e-retailers want. Note that this user-friendly of online shopping will give more intention to purchase products through internet.

This paper reported there is only 1 mediating effect on the model, which is the Perceived Ease of Use (PEoU) effect. Meanwhile, Perceived Usefulness (PU) has been found without any mediating effect; an evidence of the importance of PEoU on the intention to shop online.

This research has impact on the e-marketers and e-retailers, since it enables them to assess the features that specifically attract consumers to shop on the internet. Understanding intention to shop online is very important for those entities due to make adequate strategic, technological, and marketable decision. Moreover, those 2 entities can pay attention on their website improvement to increase consumer attraction. In simple example, our research shows that consumers' intention to shop online is influence by perceived ease of use. E-marketers and e-retailers should emphasize on improving their virtual shop in the user-friendly perspective. Moreover, our study shows that Task Technology Fit is another important feature in intention to online shop. TTF can give strong evaluation tools to e-retailers whether the services of virtual shop are meeting user needs.

6. Conclusion

The usage of online shopping has become popular in Indonesia due to the impressive increase of online users. Even though so, a research of the determinants of consumers' intention to shop online is left behind. In virtual shop context, Perceived Ease of Use is the most important aspect. It gives highest magnitudes on the association, especially on the mediation effect. Therefore, virtual shop should notice that their sites need to provide user-friendly website. Furthermore, the role of Task-Technology fit is also important on the intention. Giving the features of TTF would increase the level of user-friendly a virtual store. As PEoU is a mediator, it also enhances the intention to shop inline. Our hierarchical

model suggests it is important to pay closer to this area.

This research enriches the literature of technology acceptance model by introducing Task Technology fit constructs as another driver. In terms of industrial practice, it gives an insight about what the drivers to catch consumer's intention in terms of usefulness are. From consumer's perspective, virtual shops will give benefits such as broader options for product, convenience (Janal, 1997; Jarvernpaa & Todd, 1997) competitive pricing and information richness (Peterson, Balasubramanian & Bronnenberg, 1997).

Moreover, Bettman, Luce & Payne (1998) stated that consumer prefer to choose virtual shop than conventional shop because in virtual shop, the consumer can find the any product's information easily and can process it in one click for any selection that they want. This is in line with our findings. Note that giving a better service will enhance the intention of consumer and satisfaction (Carlson and O'Cass, 2010; Turk and Avcilar, 2010). By our findings it will deliver a better strategy for virtual shop to enhance more on their user-friendly features and its task-technology fit. Future research can examine the role of personality as the antecedents of the PU or PEoU, and also the psychological factors in the interaction of human behaviour in using internet as their shopping behaviour.

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