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Abstract

Each purchase decision is most likely to be a risky decision. Woodside and DeLozier (1976) proposed that consumer purchase-related behaviors correspond to the perceived level of risk in the purchase. Therefore, understanding consumer's perceived purchase risk is paramount for marketers -especially marketers of high risk products. This study intends to develop a valid and reliable instrument in measuring consumer's perceived purchase risk using the concept of perceived risk by Peter and Ryan (1976). This study does not intend to infer conclusions regarding the population of respondents used in the research, but only conclusions regarding the sample of items used in the instrument.
The instrument was validated using two purchase context, smartphone and netbook purchase. An item is considered valid only if it tested valid in both contexts. Confirmatory factor analysis was used as the primary method of analysis to test the nomological validity of the instrument. Correlations between instruments were also tested to analyze convergent and concurrent validity of the instrument. This study employs LISREL for WINDOWS 8.51 Full Version (Jőreskog and Sőrbom, 2001) as software used for the analysis.
The result of this study is that all instrument used in the study have good nomological validity. However, some item were found to be not valid in at least one purchase context, thus was excluded from the measurement model. The newly developed instrument has better convergent validity, even though with slightly weaker concurrent validity than existing instrument.

Keywords: Validation, Perceived Purchase Risk, Technological Goods

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Background

Generally in a planned purchase decision, rational buyers would only buy a certain product if the total benefit to be received from the purchase is greater than the total cost of the purchase. While for cases where there is more than one choice of products that offers the same functionality, the buyer would tend to choose the product with the greatest benefit/cost ratio (Perreault, Cannon and McCarthy, 2008).

However, in most cases the actual benefits of a product can only be known after the product is purchased and consumed. Meanwhile, the seller can promise a variety of benefits to prospective buyers that increase expectations but in reality might not be realized by the product. Therefore, in most purchase decision -especially for initial purchase decisions- consumers will generally face a certain degree of uncertainty

whether the benefits to be received from the purchase will at least be equal to the benefit expected.

Simonson (1992) and Anderson (2003) concluded that when faced with purchasing situations perceived as uncertain or high-risk, potential buyers tends to delay or cancel their purchase to wait for other alternatives that are perceived to have lower risk. Simonson (1992) adds that consumers who experience greater anticipated regret will tend to choose a safe decision to purchase products that are already known and can be justified. One way for buyers justify a purchase is by looking at the brands or product prices as an indicator of quality or just buy the products sold in stores that have a high image quality (Tan, 1999).

Weber and Milliman (1997) concluded that a stable personality trait exists which influences how much risk a prospective buyer is willing to take. This personality trait determines the threshold of risk acceptable to the prospective buyer. If the perceived Purchase Risk by the prospective buyer is greater than the risk he is willing to bear, then he will not make the purchase. Conversely, if the Purchase Risk perceived by the prospective buyer is still within the limit he is willing to bear, then he would be willing to make the purchase. Thus it can be concluded that the consumer purchase decision is dependent to a certain level by how much risk (uncertainty) the consumer perceived (Weber and Milliman, 1997; Chuang and Lin, 2007).

Therefore, it is important for a marketer who wants to increase sales of its products to gain better understanding on how potential buyers perceive the uncertainty or the risk of purchasing the products being sold. With this understanding, a marketer can develop communication strategies that reduce the perceived purchase risk of prospective buyers, thereby reducing the likelihood of a prospective buyer to postpone or cancel the purchase.

Literature Review

The construct of perceived risk has several fundamental differences with the construct of consumer satisfaction, which have been more commonly used in market surveys and included in purchase decision-making models. Although both can be regarded as a factor influencing consumer purchasing decisions, the construct of consumer satisfaction is the result of cognitive and affective evaluation of the consumers towards their past experience of a certain purchase (Dube-Rioux, 1990). On the other hand, the construct of risk perception is basically a consumer expectation of a future purchase not yet experienced (Ha, 2002). Therefore, the construct of perceived risk can be used to predict purchase decisions for consumers who have never purchased a product (initial purchase) as well as consumers with prior experience of purchasing the product (repeat purchase), while customer satisfaction can not be used to predict the initial purchase of potential buyer. Thus, the construct of risk perception would be very beneficial for manufacturers who want to launch a new product and need information on the potential purchase of a target market that has never had the experience of buying a similar product.

Existing measurement instruments for Perceived Purchase Risk are generally composed of a number of questions that directly ask the overall perceived risk perception prospective buyers, although there has been some instruments that measures more than one dimension of risk perception (Jacoby and Kaplan, 1972). However, these measurements tend to be done with the limited theoretical assessment process and only measures perceptions as a unidimensional construct (Dowling, 1985; Tan, 1999, Corbitt, 2003; Tiangsoongnern, 2007). Meanwhile, only few recent studies uses multidimensional approach by doing the operational definition of constructs based on the findings of Jacoby and Kaplan (1972) to identify the dimensions of Perceived Purchase Risk (Chang and Chen, 2008; Kim, Kim and Hwang, 2009).

Jacoby and Kaplan (1976) identified at least six dimensions of consumers' perceived purchase risk. Their finding has been confirmed by the findings of other researchers, thus obtained the following six dimensions of risk (Jacoby and Kaplan, 1976; Laroche et al., 2004; Chang and Chen, 2008; Kim, Kim and Hwang, 2009):

1) *Performance Risk*: Consumer perceptions of risks that the functional attributes of the product can not satisfy their needs.
2) *Financial Risk*: Consumer perceptions of risks that the purchase of the product will cause financial losses.
3) *Physical Risk*: Consumer perceptions of risks that the product purchased can injure their physical wellbeing.
4) *Convenience Risk*: Consumer perceptions of risks that the product purchased takes a lot of time and effort to repair and adjust before it can be used.
5) *Social Risk*: Consumer perceptions of risks that the product purchased may adversely affect the views of others towards them.
6) *Psychological Risk*: Consumer perceptions of risks that the product purchased will interfere with their view of themselves.

Each dimension of Perceived Purchase Risk may have different significance for different products or purchase context. For example, the perception of physical risk is more dominant than the social and financial risk in the purchase of *over the counter* medicinal products, while social risk perception is more dominant than physical and financial risks in the purchase of fashion products (Jacoby and Kaplan, 1976).

In certain purchase situation, some risk dimensions may not be needed to be measured. This is because each dimension is product-specific and independent among each other (Laroche et al, 2004). Focused Group Discussions conducted to explore the purchase decision in the context of laptops, netbooks and smartphones purchase discovered that prospective buyers does not place much importance in the dimension of physical risk as the products are perceived to have less impact on physical safety

(Fuziah et al., 2010; Pratama et al., 2010). Meanwhile, the dimensions of Psychological and Social Risk can be combined into a single dimension as the Psycho-Social Risk dimension (Gewald et al, 2006). Thus, four dimensions identified above are included in this research as sub-factors for the construct of Perceived Purchase Risk.

Various measurement approaches have been used by in previous researches, thus selecting the measurement approach used in the study is also an important decision. Peter and Ryan (1976) developed the concept of expected utility of Bernoulli (1938) to formulate the concept of risk. He defines risk as a function of multiplying the probability of occurrence of an event with undesirable consequences to the expected magnitude of the undesirable consequence, thus obtained the following equation:

$$PR = \Sigma (PL_i * EC_i) \qquad (1)$$

PR = Perceived Risk

PL = Probability of Loss

EC = Expected Consequence

i = Risk Dimension

Based on the above formula, a prospective buyer will perceive that there is a substantial risk only if: (1) there is a great likelihood that losses will occur, and (2) the consequences of these losses are perceived important by prospective buyers. Conversely, if at least one component is perceived as insubstantial, then the Purchase Risk will also be perceived by the potential buyers as insubstantial.

This formulation of risk concept can be considered as more comprehensive in explaining the perception and behavior of buyers than the concept of risk perception that only considered the perceived probability of loss without taking into account the level of the subjective importance of the consequences of a loss. Therefore, measurement approach of risk perception using two components of risk -probability perceptions and expectations of the consequences- should be more valid in measuring risk perceptions and explain the behavior of potential buyers. However, no research

using this approach to measure perceptions of risk have been observed. Therefore, this research is interested in developing the measurement of Perceived Purchase Risk based on the approach by Peter and Ryan (1976) and comparing it with measurements based on the approach that has been used previously.

Newly developed instruments should be tested first for its validity before it can be used in practical applications such as market surveys. The validation test consists of construct, convergent and concurrent validity (Anastasi and Urbina, 1997; Domino and Domino, 2006). Meanwhile, the purchase contexts selected for the validation is the purchase context of technological items or gadgets, such as: laptops, netbooks, and smartphones. The purchase context selection is based the characteristic of the product category in which technological products have a lot of product variety, with new products introduced regularly and rapidly, and usually is quite expensive. Thus, purchase decision for technological items, such as netbooks and smartphones, can be considered as risky decisions in which Perceived Purchase Risk may play a significant role in the purchase decision.

In order to develop valid measurement for Perceived Purchase Risk for all contexts of products and purchases, it is necessary to test the validity of the instrument in more than one the contexts of different products. Therefore, two product contexts were selected for the validation, which are Netbook and Smartphones. Thus, the in order to be considered valid, the items would have to be valid in both product contexts. Accordingly, based on the literature reviews above, the following measurement model of Perceived Purchase Risk was obtained:

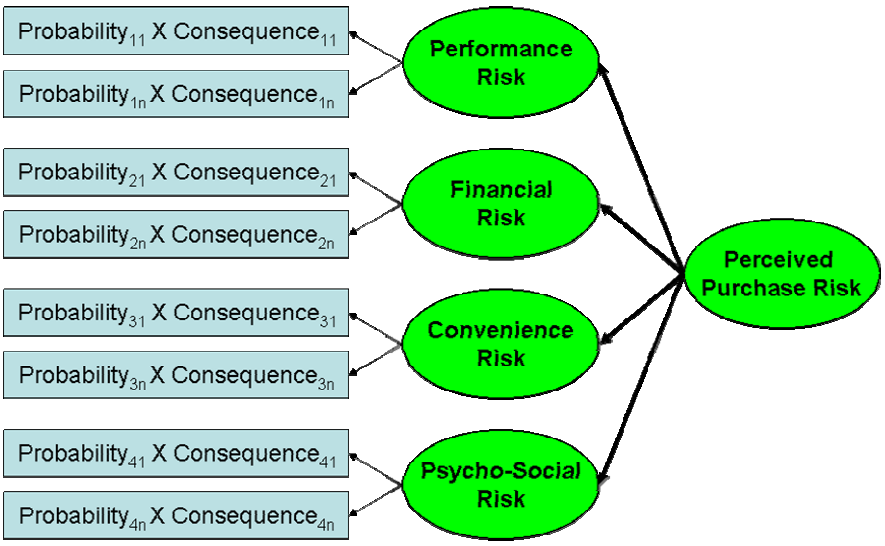

Figure 1: Measurement Model for Multidimensional Perceived Purchase Risk

Research Method

The validity of an instrument can be seen by more than one approach. The first approach to validity is the content validity, which sees the validity of an instrument as whether the instrument covered sufficient dimensions of the construct to be measured. Two components of content validity are the representativeness and relevance of the measurement instrument's contents.

The second approach to validity is the construct validity, in which the validity of an instrument in seen as whether the results obtained from the tested instrument corresponds with the pattern of a particular theory about the construct intended to be measured (Domino and Domino, 2006). One method commonly used in analyzing this type of validity is by using a statistical method called confirmatory factor analysis. This method tests whether the data obtained from measurements can support the model developed from the theory of the construct to be measured (Chadha, 2009).

The third approach is the convergent validity, in which the validity of an instrument is seen as the correlation between the measurement results of an instrument with other instrument that measures the same construct and has passed

the validity test (Chadha, 2009). The assumption underlying the validity of this is that if an instrument truly measures a certain construct, then the measurement results should be consistent with the results of tested instruments that measure the same construct.

While the fourth approach of validity is the criterion validity, which sees the validity of an instrument as the correlation between its result to the measurement result of other instruments which measure different constructs, but in theory corresponds to the construct intended to be measured (Anastasi and Urbina, 1997). If the result of the corresponding instruments is obtained simultaneously, then the validity is called concurrent validity.

Data collection process yields 159 respondents for Smartphone purchase and 141 respondents for Netbook purchase. Data was collected from undergraduate students, with an age range between 19 and 23 and monthly expenditures between Rp.500.000 and Rp.1.000.000. Gender proportion between respondents of Smartphone is 36% male and 64% female, while proportion for Netbook is 44% males and 56% females. Ownership proportion between respondents of Smartphone is 58% owners and 42% non-owners, while proportion for Netbook is 73% owners and 27% non-owners.

Purchase Intention was selected as validation construct for testing concurrent validity of Unidimensional and Multidimensional Perceived Purchase Risk instrument. Selection is based on the results of previous studies which concluded that significant relationship exists between risk perceptions and purchasing decisions (Weber and Milliman, 1997; Chuang and Lin, 2007; Simonson, 1992; Anderson, 2003).

Purchase Intention is defined as the propensity of consumers to buy a particular item. In the context of a planned purchase, purchase intention is the result of consumer evaluation of the elements of consideration, whether is favorable and

unfavorable towards the purchase. The following is a summary of the operational definition of the measurement variables used in this study:

Table 1: Operational Definition of Research Variables

Construct	Sub-factor	Operational Definition	Items
Unidimensional Perceived Purchase Risk (7 item)	n.a.	Consumer perceptions of the probability of occurrences of events that can harm them as a result of purchasing a particular product.	$X_1 – X_7$
Multidimensional Perceived Purchase Risk (27 item)	Performance Risk	Consumer perception of risks that the functional attributes of the product can not satisfy their needs.	$X_8 – X_{14}$
	Financial Risk	Consumer perception of risks that the purchase of the product will cause financial losses.	X_{15}-X_{20}
	Convenience Risk	Consumer perception of risks that the product purchased takes a lot of time and effort to repair and adjust before it can be used.	X_{21}-X_{26}
	Psychosocial Risk	Consumer perceptions of risks that the product purchased can interfere with their own view of themselves or negatively affect how others viewed them.	X_{27}-X_{34}
Purchase Intention (5 item)	n.a.	The propensity of consumers to buy a certain product.	X_{35}-X_{39}

Note: item contents is shown in the Appendix

Confirmatory factor analysis (CFA) was used in this study to test the hypotheses and answering the research questions. This CFA is a multivariate statistical method that aims to deductively test the existence of certain structures or

intercorrelated patterns between variables in a set of data, based on certain hypotheses set prior to the testing. The hypothesis tested might be obtained from existing models and theories. 'LISREL 8:51 for WINDOWS Full Version' (Jőreskog and Sőrbom, 2001) software was used to run the confirmatory factor analysis.

The first step of validation analysis is to see whether the measurement model is acceptable. This is proven when there are significant differences between the correlations matrix obtained from the data and the correlations matrix based on the model specification. If there is no significant difference, then it can be concluded that the measurement model is acceptable or the model is fit. The difference is tested using the statistical significance of chi-square with alpha 5%. If the p-value of the chi-square statistics is above 00:05, then it can be concluded that the measurement model is acceptable.

The second step is to see whether there are items that are not valid in measuring the construct being measured. An item can be considered valid only if it has factor loading with t-values greater than +1.96 or lesser than -1.96. However, since all items used in the questionnaire are favorable items, the range of t-values accepted are limited only to t-value above 1.96. Items that are found to be not valid will be excluded from the measurement model to obtain the measurement set that is completely valid. Researchers also see and compare the quality of items from each construct by calculating the reliability and extent of crossloading for each item.

The third step is testing the concurrent and convergent validity of the instrument by looking at the correlations between constructs and between instruments of the same construct. The instrument is considered to have good convergent validity if it has significant correlation to the measurements of other instrument that measures the same construct. While the instrument is considered to have good concurrent validity if it has significant correlation to the measurements of other instruments that

measure constructs that theoretically are correlated to the constructs measured by instruments like the first.

Each step of the validity analysis will also compare the validity of items between Smartphone and Netbook purchase context. The purpose of this comparison is to determine whether the validity of each item is consistent across both product contexts. Items will only be considered valid for general use in the context of technological goods purchase if it consistently qualifies in both purchase contexts.

Result and Discussion

The initial test for the Unidimensional Perceived Purchase Risk construct did not yield measurement models with a good fit. Model testing for Netbook purchase yields chi-square value of 64.12, while Smartphone purchase yields chi-square value of 126.96 with degree of freedom (df) for both contexts is 14. Testing the significance of chi-square value yields *p*-value of under 0.05, which means that the model was rejected because significant differences exists between the correlation matrix obtained from the data with the correlation matrix specified from the model.

The initial testing also yields t-values for each item factor loading as well as modification index, a set of recommendations for additional specification for error covariances between item errors. Modifications were performed by removing non-valid items and adding several error covariances according to the modification index. Since the objective is to obtain items valid in both purchase context, two items –PRD and PRE– were eliminated from both contexts because they were considered non valid in the Netbook purchase context. Item loadings and t-values from the initial model testing are shown in Table 2, while item contents are shown in the Appendix.

Testing the modified measurement model yields chi-square value of 5.80 with degree of freedom of 4 for Netbook purchase and chi-square value of 14.57 with degree of freedom of 10 for Smartphone purchase. Thus, the model yields p-values of

0.214 and 0.148 for the context of Netbook and Smartphone purchases respectively. Therefore, the modified measurement model for both contexts was accepted.

Table 2: Item Validity for Unidimensional Perceived Purchase Risk Construct

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
PRA	0.68	0.53	9.01	Significant	0.68	0.54	8.24	Significant
PRB	0.60	0.64	7.64	Significant	0.72	0.48	8.97	Significant
PRC	0.61	0.62	7.90	Significant	0.78	0.39	9.99	Significant
PRD	0.59	0.65	7.49	Significant	0.28	0.92	1.60	Not Significant
PRE	0.61	0.63	7.77	Significant	0.22	0.95	1.01	Not Significant
PRF	0.64	0.59	8.33	Significant	0.56	0.69	6.59	Significant
PRG	0.85	0.32	12.00	Significant	0.78	0.39	9.87	Significant

Source: Data Processing

The second measurement instrument tested was the construct validity of the Multidimensional Perceived Purchase Risk, which divided Perceived Purchase Risk into four risk dimensions. The test was conducted by using 2nd order Confirmatory Factor Analysis in order to test the construct's multidimensionality as well as the construct validity of the measurement.

The initial test for the Multidimensional Perceived Purchase Risk construct did not yield measurement models with a good fit. Model testing generated chi-square value of 612.63 for Netbook purchase and 733.19 for Smartphone purchase, with degree of freedom for both contexts are 320. Testing the significance of chi-square value yields *p*-value of under 0.05, which means that the model was rejected.

Modifications were performed by removing non-valid items and adding several error covariances according to the modification index. Testing both modified measurement models yields chi-square value of 113.78 with degree of freedom of 94 for Netbook purchase and chi-square value of 180.21 with degree of freedom of 157 for Smartphone purchase. Thus, the test obtained p-values of 0.08 and 0.09 for the context

of Netbook and Smartphone purchases, respectively. Since both measurement model yields p-values greater than 0.05, therefore the modified measurement model for both contexts was accepted.

The 2nd order Confirmatory Factor Analysis for the Multidimensional Perceived Purchase Risk construct yields validity index for dimensions as well as indicators. The secondary hypotheses tested from the construct of Multidimensional Perceived Purchase Risk is whether the validity of the four dimensions proposed in the model and the validity of each item of measurement is consistent in both product context. Based on this analysis, all four dimensions in the Multidimensional Perceived Purchase Risks are considered valid for both purchase contexts. Loading factors and t-values for each dimension are shown below in Table 3.

Table 3: Dimension Validity for Multidimensional Perceived Purchase Risk Construct

Dimension	SMARTPHONE			NETBOOK		
	SLF	T-VAL	SIG	SLF	T-VAL	SIG
Performance Risk	0.61	5.47	Significant	0.62	4.66	Significant
Financial Risk	0.76	4.42	Significant	0.70	4.30	Significant
Convenience Risk	0.71	5.66	Significant	0.87	2.87	Significant
Psychosocial Risk	0.62	4.77	Significant	0.63	4.90	Significant

Source: Data Processing

One indicator for Performance Risk dimension, PR4, was found to be not significant for both purchase contexts while three other items, PR5, PR6 and PR7, were invalidated in the Netbook purchase context. Thus, all four items must be excluded from the final measurement model. The standardized loading factor, standard error and t-values for Performance Risk measurements are shown in Table 4 while the content for each item are shown in the Appendix.

Table 4: Item Validity for Performance Risk Dimension

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
PR1	0.71	0.49	8.76	Significant	0.78	0.39	7.42	Significant
PR2	0.78	0.39	9.67	Significant	0.70	0.51	7.06	Significant
PR3	0.78	0.39	9.59	Significant	0.56	0.69	5.86	Significant
PR4	0.22	0.95	1.19	Not Significant	0.25	0.94	1.36	Not Significant
PR5	0.53	0.72	6.39	Significant	0.29	0.91	1.89	Not Significant
PR6	0.59	0.65	7.12	Significant	0.28	0.92	1.73	Not Significant
PR7	0.59	0.65	7.18	Significant	0.19	0.96	1.01	Not Significant

Source: Data Processing

Three indicators for Financial Risk dimension, FR1, FR2 and FR6, were invalidated in both purchase contexts. Thus, all three items must be excluded from the final measurement model. The standardized loading factor, standard error and t-values for Financial Risk measurements are shown in Table 5 while the content for each item are shown in the Appendix.

Table 5: Item Validity for Financial Risk Dimension

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
FR1	0.25	0.94	1.75	Not Significant	0.14	0.98	1.01	Not Significant
FR2	0.12	0.99	0.98	Not Significant	0.20	0.96	1.60	Not Significant
FR3	0.69	0.52	6.42	Significant	0.72	0.48	6.54	Significant
FR4	0.95	0.10	6.51	Significant	0.64	0.59	6.04	Significant
FR5	0.58	0.66	5.74	Significant	0.78	0.39	6.75	Significant
FR6	-0.15	0.98	-1.02	Not Significant	-0.18	0.97	-1.06	Not Significant

Source: Data Processing

One indicator for Convenience Risk dimension, CR6, was found to be not significant for both purchase contexts while one other item, CR5, was invalidated in the Netbook purchase context. Thus, both items must be excluded from the final measurement model. The standardized loading factor, standard error and t-values for

Convenience Risk measurements are shown in Table 6 while the content for each item are shown in the Appendix.

Table 6: Item Validity for Convenience Risk Dimension

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
CR1	0.86	0.26	8.65	Significant	0.78	0.39	3.57	Significant
CR2	0.82	0.33	9.77	Significant	0.82	0.33	3.76	Significant
CR3	0.78	0.39	9.22	Significant	0.88	0.23	3.81	Significant
CR4	0.90	0.19	10.09	Significant	0.95	0.10	3.69	Significant
CR5	0.92	0.15	10.14	Significant	0.15	0.98	0.48	Not Significant
CR6	-0.35	0.88	-4.03	Not Significant	-0.21	0.96	-1.43	Not Significant

Source: Data Processing

Two indicators for Psychosocial Risk dimension, SR1 and SR2, were found to be not significant for both purchase contexts. Thus, both items must be excluded from the final measurement model. The standardized loading factor, standard error and t-values for Psychosocial Risk measurements are shown in Table 7 while the content for each item are shown in the Appendix.

Table 7: Item Validity for Psychosocial Risk Dimension

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
SR1	-0.24	0.94	-2.65	Not Significant	-0.35	0.88	-2.95	Not Significant
SR2	0.11	0.99	1.82	Not Significant	0.16	0.97	1.91	Not Significant
SR3	0.88	0.23	10.15	Significant	0.89	0.21	10.20	Significant
SR4	0.86	0.26	10.17	Significant	0.91	0.17	10.48	Significant
SR5	0.86	0.26	10.16	Significant	0.90	0.19	10.43	Significant
SR6	0.90	0.19	10.31	Significant	0.75	0.44	8.64	Significant
SR7	0.80	0.36	9.44	Significant	0.77	0.41	8.87	Significant
SR8	0.69	0.52	8.27	Significant	0.64	0.59	7.38	Significant

Source: Data Processing

The third measurement model tested was the Purchase Intention construct. The initial model test did not produce good fit. Model testing generated chi-square value of 33.46 for Netbook purchase and 19.84 for Smartphone purchase, while degree of freedom obtained for both contexts is 5. Testing the significance of chi-square value yields *p*-value of under 0.05, which means that the model was rejected.

Modifications were conducted by removing non-valid items and adding several error covariances according to the modification index. Testing both modified measurement models yields chi-square value of 6.32 with degree of freedom of 3 for Netbook purchase and chi-square value of 5.04 with degree of freedom of 4 for Smartphone purchase. Thus, the test obtained p-values of 0.096 and 0.283 for the context of Netbook and Smartphone purchases, respectively. Since both measurement model yields p-values greater than 0.05, therefore the modified measurement model for both contexts was accepted. None of the indicators for Purchase Intention have t-values lower than 1.96 in either contexts, thus all indicators for Purchase Intention were confirmed to be valid. The standardized loading factor, standard error and t-values for Purchase Intention measurements are shown in Table 8 while the content for each item are shown in the Appendix.

Table 8: Item Validity for Purchase Intention

ITEM	SMARTPHONE				NETBOOK			
	SLF	SE	T-VAL	SIG	SLF	SE	T-VAL	SIG
PI1	0.82	0.28	12.11	Significant	0.83	0.3	11.76	Significant
PI2	0.81	0.34	11.85	Significant	0.88	0.23	12.26	Significant
PI3	0.83	0.3	12.44	Significant	0.84	0.29	11.46	Significant
PI4	0.74	0.45	10.47	Significant	0.67	0.55	8.70	Significant
PI5	0.85	0.28	12.71	Significant	0.77	0.41	10.49	Significant

Source: Data Processing

The last two measurement validity examined is the convergent and concurrent validity of the instrument. Convergent validity was measured by examining the correlation between scores from the newly developed instrument with scores from existing instrument that measures the same construct, while concurrent validity was measured by looking at the correlation between scores from the newly developed instrument with scores from existing instrument that measured a theoretically-related construct.

The correlations between the measurements scores was obtained from the standardized path coefficient between two constructs when processed in pairs while correlation significance was obtained from the t-value of the path between each pair (Hair et al., 2009). Result from correlating both Unidimensional and Multidimensional Perceived Purchase Risk measurement scores indicated that both measurement have significant positive correlation for both purchase contexts (r=0.75, t=5.50 for Smartphone; r=0.74, t=5.63 for Netbook). This means that the newly developed measurement instrument has good convergent validity.

Result from correlating Multidimensional Perceived Purchase Risk with Purchase Intention measurement scores indicate that both measurement have significant negative correlation for both purchase contexts (r=-0.28, t=-2.83 for Smartphone; r=-0.19, t=-2.02 for Netbook). In contrast, result from correlating Unidimensional Perceived Purchase Risk with Purchase Intention measurement scores indicate that both measurement have stronger significant negative correlation for both purchase contexts (r=-0.33, t=-3.53 for Smartphone; r=-0.40, t=-4.12 for Netbook).

Both construct have significant negative correlations, which is consistent with existing theories that greater perceived risk increases the likelihood of a prospective buyer to postpone or cancel the purchase (Simonson, 1992; Anderson, 2003). This means that the newly developed measurement instrument also has good concurrent validity. However, it seems that the existing Unidimensional measurement still has

greater concurrent validity than the newly developed measurement. Then again, this shortcoming is offset by more detailed information provided by the newly developed instrument. The complete score correlations results for both purchase contexts are shown in Table 9 below.

Table 9: Standardized Correlation Coefficient

Correlations		SMARTPHONE			NETBOOK		
		UPPR	MPPR	PI	UPPR	MPPR	PI
UPPR	r	1.00			1.00		
	t-value	n.a			n.a		
MPPR	r	0.75	1.00		0.74	1.00	
	t-value	5.50	n.a		5.63	n.a	
PI	r	-0.33	-0.28	1.00	-0.40	-0.19	1.00
	t-value	-3.53	-2.83	n.a	-4.12	-2.02	n.a

Source: Data Processing

Notes:
UPPR: Unidimensional Perceived Purchase Risk
MPPR: Multidimensional Perceived Purchase Risk
PI: Purchase Intention

Conclusions

There are four conclusions drawn from the result of this study. *First*, each measurement model for all constructs was tested significant in both the purchase contexts. Therefore, it can be concluded that all the instruments have good construct validity. Recapitulation of the fitness measurement for all three instruments on both purchase contexts are shown in table 10 below.

Table 10: Recapitulation for Goodness of Fit Measurements

Fitness Measure	SMARTPHONE			NETBOOK			
	UPPR	MPPR	PI	UPPR	MPPR	UPPR	Target Value
χ^2 (df)	14.57 (10)	180.21 (157)	5.04 (4)	5.80 (4)	113.78 (94)	6.32 (3)	n.a
p-value	0.148	0.098	0.283	0.214	0.080	0.096	≥0.05
RMSEA	0.054	0.031	0.041	0.057	0.039	0.089	≤0.08

Source: Data Processing

Second, some items in both the Unidimensional and Multidimensional Perceived Purchase Risk measurement were invalidated in one or both purchase context. Invalidated items can not be used in the measurement and must be removed from the instrument. Only significant items can be included in the measurement for future use.

Third, the newly developed Multidimensional Perceived Purchase Risk measurement has good convergent and concurrent validity. Thus, the measurement can be considered to be ready for practical use within the purchase context of technological gadgets such as Smartphones and Netbooks. The instrument can be utilized by manufacturers and marketers of technology products in market surveys to map psychographic consumer segments of potential markets. This instrument can be used to measure the risk perceptions of consumers towards the purchase of existing products on the market and also new products about to be launched by the manufacturers.

Fourth, although the newly developed Multidimensional Perceived Purchase Risk instrument has weaker concurrent validity than the Unidimensional Perceived Purchase Risk instrument developed by Corbitt et al. (2003), the new instrument provide more comprehensive information. Apart from the level of risk perceived by the consumer purchases, the new instrument may also provide more detailed information to identify aspects which are considered high risk by a segment of consumers targeted by the marketer.

Identifying risk factor as perceived as high risk by consumer is important since the likelihood of a prospective purchaser to seek additional information will be higher when faced with purchasing decisions perceived to have a higher risk (Cox, 1967; Capon and Burke, 1977; Locander and Hermann, 1979; Lutz and Reilly, 1973). Information sought by prospective buyers will be the information that may alleviate the risk they perceive. Meanwhile, the likelihood of a prospective buyer to postpone or

cancel the purchase will be even greater if he can not find the information he sought. Therefore, marketers can use the information obtained from this instrument to develop the best communication strategies to reduce the perceived purchase risk by prospective buyers.

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Appendix: List of Items

Note: S: Smartphone; N: Netbook

CODE	ITEM	VALID	
	MULTIDIMENSIONAL PERCEIVED PURCHASE RISK MEASUREMENT	**S**	**N**
PR1	The offered product might not provide the performance that I require *Produk yang ditawarkan mungkin tidak dapat memberikan performa yang saya butuhkan*	Yes	Yes
PR2	The operating speed of this product might rapidly decreases *Kecepatan operasi produk ini mungkin akan berkurang dengan cepat*	Yes	Yes
PR3	This product might not support applications that I may need *Produk ini mungkin tidak dapat mendukung aplikasi yang akan saya butuhkan*	Yes	Yes
PR4	The offered product might not have a stable / consistent performance *Performa produk yang ditawarkan mungkin tidak stabil/konsisten*	No	No
PR5	The offered product might not deliver the benefits promised by the seller *Produk ini mungkin tidak dapat memberikan manfaat yang sudah dijanjikan penjual*	Yes	No
PR6	The technology offered by the product might be rapidly out of date *Teknologi yang ditawarkan produk ini bisa cepat ketinggalan jaman*	Yes	No
PR7	The feature of the product might not support my job mobility (size, weight or battery capacity) *Fitur produk ini bisa jadi tidak mendukung mobilitas kerja saya (ukuran, berat atau umur batere)*	Yes	No
FR1	The price for this product might not worth the benefits I receive *Harga produk ini tidak sebanding dengan manfaat yang saya dapatkan*	No	No
FR2	The product offered might be bought with a cheaper price elsewhere *Produk yang ditawarkan ini dapat saya beli ditempat lain dengan harga yang lebih murah*	No	No
FR3	Might be other additional costs to be incurred before I can use this product properly (installation, upgrades, etc.) *Ada biaya tambahan lain yang harus dikeluarkan sebelum produk ini dapat saya gunakan (instalasi, upgrade, dsb)*	Yes	Yes
FR4	This product might require great maintenance costs in order to stay durable *Produk ini membutuhkan biaya perawatan yang besar agar tidak cepat rusak*	Yes	Yes
FR5	If it breaks, the cost of repair that I would have to pay for this product would be greater than other products *Jika rusak, saya harus membayar biaya reparasi yang lebih besar untuk produk dibanding produk yang lain*	Yes	Yes
FR6	The offered product might be easily damaged, so I would have to buy a new product *Produk ini cepat rusak sehingga saya harus membeli produk yang baru*	No	No

CODE	ITEM	VALID	
	MULTIDIMENSIONAL PERCEIVED PURCHASE RISK MEASUREMENT	**S**	**N**
CR1	Buying this product might cause me to expend valuable time to take care of matters related to this product. *Membeli produk ini dapat membuat saya menghabiskan waktu yang berharga untuk mengurus hal-hal yang terkait produk ini.*	Yes	Yes
CR2	Buying this product might cause interference to my daily routine *Membeli produk ini dapat menyebabkan terjadinya gangguan pada rutinitas harian yang saya miliki*	Yes	Yes
CR3	Buying this product might interfere with the work plan I've arranged for myself. *Membeli produk ini dapat mengganggu rencana kerja yang sudah saya susun.*	Yes	Yes
CR4	Buying this product might lead to problems that hinders my work or class *Membeli produk ini dapat menyebabkan terjadinya masalah yang menghambat pekerjaan atau perkuliahan saya*	Yes	Yes
CR5	Buying this product might create problems that inconveniences me *Membeli produk ini dapat menciptakan masalah yang dapat merepotkan diri saya*	Yes	No
CR6	This product might require a lot of services and treatments that inconveniences me *Produk ini akan membutuhkan banyak servis dan perawatan yang akan merepotkan saya*	No	No
SR1	Buying this product might harm my personal image in the eyes of my friends *Membeli produk ini dapat menciderai image saya dimata teman-teman saya*	No	No
SR2	Buying this product might make me feel anxious *Membeli produk ini dapat membuat saya merasa cemas*	No	No
SR3	My friends would consider this product a cheap/inferior product *Teman-teman saya akan menganggap produk ini produk murahan*	Yes	Yes
SR4	My friends would consider this product a mass-products (not exclusive) *Teman-teman saya akan menganggap produk ini produk pasaran (tidak eksklusif)*	Yes	Yes
SR5	My friends would consider this product outdated *Teman-teman saya akan menganggap produk ini ketinggalan jaman*	Yes	Yes
SR6	My friends will see me as incompetent if I buy this product *Teman-teman saya akan menganggap saya tidak kompeten jika saya membeli produk ini*	Yes	Yes
SR7	I would feel embarrassed to be seen using this product in public places *Saya akan merasa minder jika menggunakan produk ini di tempat umum*	Yes	Yes
SR8	The shape and color of this product does not fit with my self image *Bentuk dan warna produk ini tidak sesuai dengan image diri saya*	Yes	Yes

CODE	ITEM	VALID	
	SATU FAKTOR PERCEIVED RISK MEASUREMENT	**S**	**N**
PRA	I believe that buying the product offered has a big risk because the benefits promised by the seller might not necessarily be in accordance with the reality. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena belum tentu manfaat yang dijanjikan oleh penjual sesuai dengan kenyataan.*	Yes	Yes
PRB	I believe that buying the product offered has a big risk because there is a possibility that the product offered might be of low quality. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena ada kemungkinan bahwa produk yang ditawarkan ternyata memiliki kualitas rendah.*	Yes	Yes
PRC	I believe that buying the product offered has a big risk because it can make me experience financial losses. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena dapat membuat saya mengalami kerugian finansial.*	Yes	Yes
PRD	I believe that buying the product offered has a big risk because it can reduce my reputation in the eyes of others. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena dapat mengurangi reputasi saya dimata orang lain.*	Yes	No
PRE	I believe that buying the product offered has a big risk because it could be incompatible with the concept of self that I have. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena bisa jadi tidak sesuai dengan konsep diri yang saya miliki.*	Yes	No
PRF	I believe that buying the product offered has a big risk because it can spend precious time that I have. *Saya meyakini bahwa membeli produk yang ditawarkan diatas memiliki resiko yang besar karena dapat menghabiskan waktu berharga yang saya miliki.*	Yes	Yes
PRG	Overall, I feel that buying the product offered involves a big risk. *Secara keseluruhan, saya merasa pembelian produk yang ditawarkan diatas memiliki resiko yang besar.*	Yes	Yes

CODE	ITEM	VALID	
	PURCHASE INTENTION	**S**	**N**
PI1	I have the intention to buy the product offered *Saya memiliki niat untuk membeli produk yang ditawarkan.*	Yes	Yes
PI2	I have expectations in the future to buy the product offered *Saya memiliki ekspektasi di masa depan untuk membeli produk yang ditawarkan.*	Yes	Yes
PI3	There is a possibility for me in the near future to buy the product offered *Ada kemungkinan bagi saya dalam waktu dekat untuk membeli produk yang ditawarkan.*	Yes	Yes
PI4	There is a possibility for me to recommend the product offered to my friends and family. *Ada kemungkinan bagi saya untuk merekomendasikan produk yang ditawarkan kepada teman dan keluarga saya.*	Yes	Yes
PI5	If I want to buy this type of product, then I would look for the product described in the offering. *Jika saya ingin membeli produk, maka saya akan mencari produk yang dijelaskan dalam penawaran.*	Yes	Yes