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## Consumer Innovativeness Model of Indonesian Young People in Adopting Electronic Products

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# Consumer Innovativeness Model of Indonesian Young People in Adopting Electronic Products

*Reza Ashari Nasution and Novika Candra Astuti\**

It is important for marketers to understand how innovators respond to the introduction of new products. This paper investigates consumer innovativeness (CI) from meta-analysis study as suggested by Nasution and Garnida [2011] and examines the simultaneous impacts of CI on new product adoption. Nasution and Garnida [2010] proposed three different perspectives in conceptualizing the CI model. First, the generalist stream that represents a generalized personality trait that engenders consumers to adopt new product. Second, the particularist stream that focuses on product adoption behavior within a specific domain of interest. Third, the integrator perspective that proposes to integrate these two streams by putting domain-specific innovativeness as a mediating factor in relationship between general trait innovativeness and new product adoption. A structural equation model is used to test hypotheses using empirical data from 607 respondents in electronic products adoption. The result shows that the integrator perspective provides the best model in representing the empirical data. The finding of the integrator perspective reveals that domain specific CI mediates the relationship between general trait innovativeness and new product adoption. Specifically, subjective knowledge and hedonic-idea shopping enhances the actuality of new products. The findings provide an explanation to the less than consistent relationship between consumer innovativeness and new product adoption. However, a single research context of electronic products and student sample may become one of the limitations and future studies need to replicate the perspective of CI in different research contexts for greater generalizability and the use of non-student sample. The findings have implications for the innovation adoption theory, for managers involved in the introduction of new products, and for future research on innovation adoption.

**Keywords:** Consumer Innovativeness, innovation, electronic, adoption

Terkait dengan pengenalan produk baru, penting bagi para pemasar untuk memahami bagaimana inovator meresponnya. Penelitian ini menyelidiki konsumen *innovativeness* (CI) menggunakan pendekatan meta-analisis seperti yang disarankan oleh Nasution dan Garnida [2011] dan menganalisis dampak simultan CI pada adopsi produk baru. Nasution dan Garnida [2010] mengusulkan tiga perspektif berbeda dalam pembuatan konsep Model CI. Pertama, aliran generalis yang mewakili ciri kepribadian umum yang mendorong konsumen untuk mengadopsi produk baru. Aliran kedua partikularis berfokus pada perilaku adopsi produk dalam satu wilayah ketertarikan tertentu. Aliran ketiga, perspektif integrator yang mengintegrasikan dua aliran tersebut diatas yang berlandaskan wilayah *innovativeness* tertentu sebagai faktor mediasi yang menghubungkan antara ciri *innovativeness* umum dan adopsi produk baru. Model persamaan struktural digunakan untuk menguji hipotesis menggunakan data empiris dari 607 responden dalam adopsi produk elektronik. Hasilnya menunjukkan bahwa perspektif integrator merupakan model terbaik dalam mewakili data empiris. Dari temuan perspektif integrator terungkap bahwa domain CI yang spesifik memediasi hubungan antara ciri umum *innovativeness* dan adopsi produk baru. Secara khusus, pengetahuan subjektif dan idea hedonis belanja telah meningkatkan aktualisasi dari produk baru. Temuan-temuan tersebut menjelaskan kurang konsistennya hubungan antara *innovativeness* dari konsumen dengan adopsi produk baru. Namun, konteks tunggal penelitian ini yang mengambil sample tentang produk-produk elektronik dan mahasiswa mengandung keterbatasan. Oleh karena itu, untuk mendapatkan kesimpulan yang lebih umum, dibutuhkan penelitian lain dimasa depan yang mereplikasi penggunaan perspektif CI dalam konteks penelitian yang berbeda serta sampel bukan mahasiswa. Temuan-temuan dari penelitian berimplikasi pada teori adopsi inovatif, pada manajer yang terlibat pada pengenalan produk baru dan untuk penelitian adopsi inovasi ke depan.

**Kata kunci:** konsumen *innovativeness*, inovasi, elektronik, adopsi

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## Introduction

Research on consumer innovativeness has encompassed several terms of measurement factors, e.g. [Baumgartner and Steenkamp 1996], [Goldsmith, 1990], [Goldsmith and Hofacker 1991]; [Midgley and Dowling 1993], [Roehrich 2004], [Venkrataman 1991]; its relationship with new product adoption or other behavioral constructs, e.g. [Foxall 1998], [Goldsmith and Flynn 1995], [Hirschman 1980], [Manning, et al. 1995], [Midgley and Dowling 1993]; and its relationship with antecedents constructs, including personal and demographic characteristics, e.g. [Im, et al. 2003], [Midgley and Dowling 1993], [Steenkamp, et al. 1999], [Venkrataman 1991]. As a consequence, the concept of consumer innovativeness remains weak or inconsistent results and give complexity as one could be dispute in evidence about those issues. Findings in previous studies could be become complicated for researchers and practitioners to understand the concept of consumer innovativeness.

Nasution and Garnida [2010] recognized three different perspectives in conceptualizing the consumer innovativeness model. The first one is generalist which perceives consumer innovativeness as a generalized personality trait that engenders consumers to adopt new products which are applicable across different product categories. The second one is particularist which sees consumer innovativeness as category-specific predisposition, which is not transferrable to other categories. The third one is integrator which combines the two previous perspectives by taking the general characteristic of individual in the innovation adoption and category-specific factors that will moderate the role of general innovativeness in the adoption process as integrator. A meta-analysis study was also conducted by Nasution and Garnida [2011], which obtained results in an integrated consumer innovativeness model. This meta analysis study reveals that antecedent constructs that characterize general trait innovativeness are seeking behaviour, product evaluation, price sensitivity, product knowledge, and hedonic; outcome constructs are time of adoption, trial behaviour, and spending behavior; and domain specific innovativeness as mediator

between antecedents and outcomes.

We refined the result of the meta analysis study conducted by Nasution and Garnida [2011] by revisiting key literature on general trait innovativeness, domain-specific innovativeness, new product adoption behavior and their relationship. It was found that only variety seeking, hedonic-idea shopping, subjective knowledge as the general trait innovativeness. Time of adoption and spending behavior are constructs used to measure actual behavior of new product. Domain-specific innovativeness is used as a mediator between the general trait innovativeness and new product adoption behavior.

Then, we generated three alternative models that describe relationship between those constructs. We further empirically tested and validated those alternative models. We selected consumer electronic product category as a research context – electronic products intended for everyday use by consumers. Researchers and practitioners should pay greater attention to young consumers because of their enormous buying power. The current study focuses on college-aged or “generation Y” consumers because they tend to be high-tech. Therefore, it is important to capture phenomena of consumer innovativeness of Indonesian young people in adopting electronic products category.

## Literature Review

In this study we discuss about general trait innovativeness, domain-specific innovativeness and new product adoption behavior.

### General trait innovativeness

The general trait perspective focuses on identifying innovative consumers based on their ‘innate innovativeness’ [Hirschman 1980] or ‘innovative predisposition’ [Midgley and Dowling 1993], which is similarly defined as a generalized unobservable predisposition toward innovations application across product classes. General innovativeness views consumer innovativeness based on personal trait, which refers to any characteristic belongs to a person that differentiate him or her from another person in a relatively permanent and consistent

way [Hilgard, et al. 1975]. The concept of innovativeness represents a highly abstract and generalized personality trait [Im, et al. 2003], thus it is free from the context or domain in which consumers are located [McCarthy, et al. 1999]. It is the nature of innovativeness trait that engenders consumers to adopt new product, rather than other variables such as situational effects or communicated experience of others [Midgley and Dowling 1978].

In the innovation adoption literature, characteristics of the (potential) adopter and perceived characteristics of the innovation are found to be major drivers of innovation adoption [Gatignon and Robertson 1985; Meuter, Bitner, Ostrom, and Brom 2005; Rogers 2003; Tornatzky and Klein 1982]. The number of different variables used to capture adopter characteristics is particularly large, as a lot of research has been devoted to finding traits of consumers that are likely to adopt innovation. Adopter characteristics capture the personal traits that describe the (potential) adopter of an innovation, which can be divided into socio-demographic and psychographics. A wide range of socio-graphic characteristics have been used in research, e.g. [Gatignon and Robertson 1985], [Rogers 2003], [Tornatzky and Klein 1982]. Many studies particularly focus on consumers' age, level of education and income. Adopter psychographics including innovativeness, hedonic motivation, subjective-knowledge, variety seeking is among the variables used to explain adoption. General trait innovativeness refers to the attributes consumers use to adopt an innovation.

### **Domain-Specific Innovativeness**

Even though innovativeness was originally assumed to remain constant over a person's lifetime, the particularist views that innovativeness is socially influenced [Hirschman 1980], therefore, it would seem more plausible that it is not a constant [Hynes and Lo 2006]. For instance, a person may show a high degree of innovativeness in one product category (e.g. computer) but he or she may show little interest in other product category (e.g. clothing) [Hynes and Lo 2006].

Domain-specific is the dimension of consumer innovativeness that reflects the tendency

to learn about and adopt innovations within a specific domain of interest and taps a deeper construct of innovativeness more specific to an area of interest [Citrin, et al. 2000]. Domain-specific innovativeness captures the individual's predisposition toward the product class and refers to the tendency to acquire new products or related information within a specific domain [Goldsmith and Hofacker 1991] and explains the human behavior within a person's specific interest domain [Midgley and Dowling 1993], e.g. in product categories, countries [Sczmign and Carrigan 2000].

### **Innovative behavior: New product adoption behavior**

Innovative behavior is best presented by a process of multiple stages through which an individual passes, from first awareness to continued use of the innovation [Rogers 2003]. Previous research has focused on new product adoption behavior as innovative behavior i.e., "actualized innovativeness," or the acquisition of new ideas and products [Hirschman 1980; Midgley and Dowling 1978]. New product adoption behavior is the extent to which consumers are relatively early in adopting new products than other members of their societies [Rogers 2003]. There are two ways to operationalize innovative behavior using this behavioral perspective. First, is by measuring the relative time of adoption of a specific new product compared with the adoption times of other consumers [Rogers and Shoemaker 1971]. This approach, which uses a single product, has been criticized as susceptible to recall biases [Midgley and Dowling 1978]. Second, one may use a cross-sectional ownership method in which respondents indicate which new products from a preset list they have bought [Goldsmith, Freiden, and Eastman 1995]. It extends beyond a single product and refers to more general adoption behavior. This approach suffers less from recall bias. Another measurement to investigate actual behaviour is spending behavior. A consistent finding in studies of innovative behavior is that innovators are likely to own more products or spend more in a category than non-innovators [Gatignon and Robertson 1985]. Our study uses self-report of both the relative time of adoption (i.e., num-

ber of years since adoption) relative spending behavior ( i.e., amount of money spent to buy products). We followed formula as suggested by Im et al [2007] to measure relative time of adoption and we modified their formula to measure relative spending behavior.

## Hypothesis development

After revisiting key literature review we found that variety seeking, subjective knowledge, and hedonic-idea shopping as general trait innovativeness constructs that engenders consumers to adopt new product. We next investigate three different perspective of consumer innovativeness model by capturing the relationship between general trait innovativeness and new product adoption behavior (Figure 1); the relationship between domain-specific innovativeness and new product adoption behavior (Figure 2); and domain-specific innovativeness as mediator between general trait innovativeness and new product adoption behavior (Figure 3).

Variety-seeking tendency is rooted in need for a change in an attempt to resolve the boredom associated with a brand and a product [Van, et al., 1996]. As Rogers [1979] argued, "... a tendency to avoid variety may coexist with the tendency to seek variety". Consumers might fluctuate between inertia behavior (brand loyal) and variety-seeking (brand switching) behavior. Consumers try to increase stimulation in such situations by seeking something different or new relative to their previous choice [McAlister and Pessemier, 1982; Menon & Kahn, 1995; Van et al., 1996]. The concept of an optimal stimulation level (OSL) is central to theories postulated to explain variety-seeking tendencies in consumers (Steenkamp & Baumgartner, 1992. Raju [1980] illustrated that high-OSL individuals are characterized as having a higher degree of exploratory tendencies (i.e., exploring the environment) driven by variety seeking, curiosity, and risk taking). The Steenkamp and Baumgartner [1992] comprehensive review of OSL literature and empirical study confirmed the relationship between OSL and consumer behaviors driven by variety seeking, intrinsic curiosity, and risk taking. OSL was positively correlated with exploratory tendency

factors of innovativeness (i.e., brand switching for change or novelty, eagerness to know about or try new products or services, and selecting products that involve perceived risk). One important outcome of the variety seeking drive in the context of consumer choice would be the desire for new or novel products manifested by purchase exploration (i. e., switching/innovating). Thus, we hypothesize that:

*H1a*: General trait innovativeness, variety seeking will be positively associated with new product adoption behavior (time of adoption).

*H1b*: General trait innovativeness, variety seeking will be positively associated with new product adoption behavior (spending behavior).

Blackwell, Miniard, and Engel [2001] define knowledge as "the information stored within memory". Consistent with that perspective, Park et al. [1994] view knowledge assessment as a judgment process in which consumers scan memory for cues in order to help them evaluate their product-related experiences. Research of consumer knowledge: (a) objective knowledge, that is, factual knowledge (for example, that which can be measures by an impartial third party); and (b) subjective knowledge, that is, perceptions of knowledge, representing what the consumer thinks she/he knows [Brucks 1985; Park, et al. 1994]. We have restricted our analysis to focus solely on the subjective dimension of knowledge, for several reasons. First, subjective knowledge can be measured on a standardized scale [Brucks 1985]. Second, although Park and Lessig [1981] admit that both subjective and objective knowledge measures validity, they submit that subjective measures may better capture consumer strategies and heuristics because these measures are based on perceptions, that is, what the consumer thinks he or she knows. Thus, measures of subjective knowledge can indicate self-confidence levels in addition to knowledge levels [Brucks 1985].

Moreover, Raju et al. [1993] found that subjective knowledge was a better predictor of purchasing behavior than was objective knowledge. Knowledgeable consumers have distinct purchasing behaviors. Knowledgeable consum-



ers tend to use more internal information than non-knowledgeable consumers during the purchasing decision making process. Consumers with high levels of subjective knowledge of a product will perceive a high level of familiarity and have a high level of confidence which is higher than their actual knowledge would produce. The adoption speed and success of innovation depend on the adopter's characteristics as well as the characteristics of innovation [Gatignon and Robertson 1985; Moore and Benbasat 1991; Premkumar, Ramamurthy and Nilakanta 1994; Roger 2003; Tornatzky and Klein, 1982]. Consumer knowledge has been considered to be one of the more critical factors influencing the new technology adoption process [Gatignon and Robertson 1985; Mahajan, Muller and Bass 1995; Moreau, Markman, and Lehmann 2001; Sheth 1981]. People with more knowledge about technology are more likely to adopt technology. Hence, we hypothesize that:

*H2a:* General trait innovativeness, subjective knowledge will be positively associated with new product adoption behavior (time of adoption).

*H2b:* General trait innovativeness, subjective knowledge will be positively associated with new product adoption behavior (spending behavior).

Roehrich [1994] defines his hedonic innovativeness dimension as the drive to adopt innovations for hedonic reasons, such as to enjoy the newness of the product. Focused on hedonistic shopping motivations, Arnold and Reynolds [2003] developed an 18-item scale and identified six dimensions of hedonic motivation shopping: "Adventure shopping" referred to experiencing a variety of sights, sounds and smells while shopping; "Gratification shopping" involved shopping to relax and to offer a special pleasure to oneself; "Role shopping" revealed the satisfaction of shopping for others; "Value shopping" involved looking for discounts, low prices and sales; "Social shopping" was associated with the satisfaction of socializing; and finally, "Idea shopping" was related with the searching for trends and innovations. In this study we only focus on hedonic-idea shopping which influences innovative behavior.

Hence, we hypothesize that:

*H3a:* General trait innovativeness, hedonic-idea shopping will be positively associated with new product adoption behavior (time of adoption).

*H3b:* General trait innovativeness, hedonic-idea shopping will be positively associated with new product adoption behavior (spending behavior).

As the first attempt, Goldsmith and Hofacker [1991] launch the idea of domain-specific innovativeness (i.e., innovativeness within a specific product domain of interest). Domain-specific measures of innovativeness have yielded useful predictions as far as the adoption of innovations by consumers is concerned [Foxall and Bhate 1991; Goldsmith and Newell 1997]. Citrin, et al.[1982] found that domain-specific innovativeness is a more accurate predictor of consumer adoption behavior than a more open ended characteristic. Hence, we hypothesize that:

*H4a:* Domain-specific innovativeness will be positively associated with new product adoption behavior (time of adoption).

*H4b:* Domain-specific innovativeness will be positively associated with new product adoption behavior (spending behavior).

The integrator perspective proposes an intermediary level of product category specific innovativeness between abstract personality trait and actual innovative behavior. The extant literature suggests that domain-specific innovativeness may mediate the relationship between general innovativeness and innovative behavior [Goldsmith, et al. 1995; Midgley and Dowling 1978]. Domain-specific innovativeness is probably a consequence of the interaction between general trait innovativeness and strong interest in product category [Goerlich 1996]. Hirunyawipada and Paswan [2006] found that domain-specific innovativeness plays an important role in hierarchical perspective of consumer innovativeness, by becoming mediating factors in the relationship between general trait innovativeness and new product adoption. Thus, we propose that:

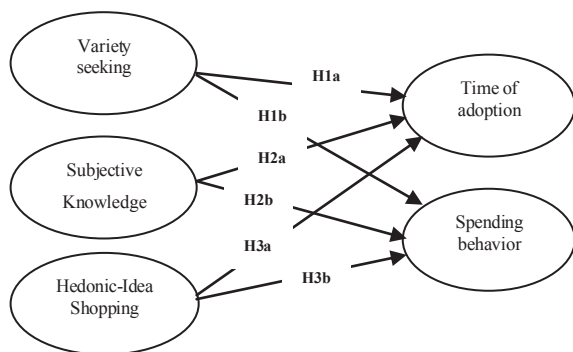


Figure 1. Generalist model

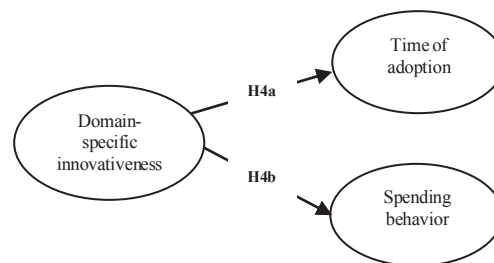


Figure 2. Particularist model

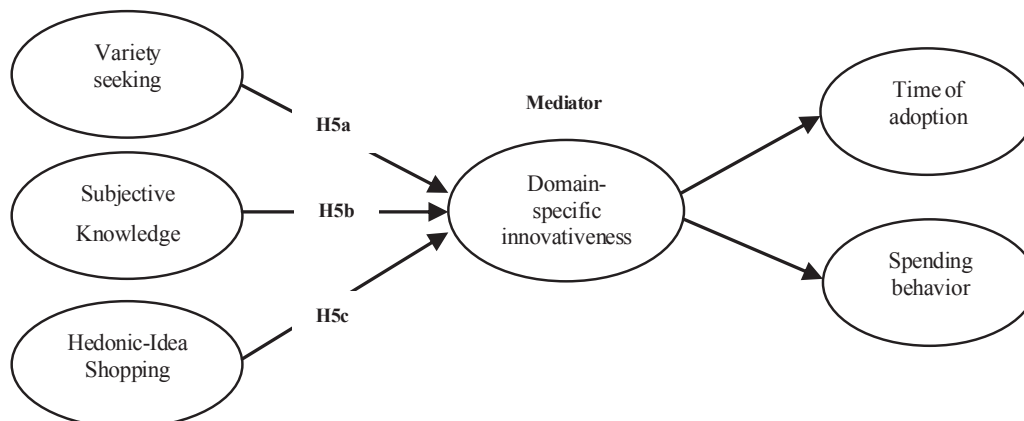


Figure 3. Integrator model

*H5a:* Domain-specific innovativeness will mediate the relationship between variety seeking and new product adoption behavior (time of adoption and spending behavior).

*H5b:* Domain-specific innovativeness will mediate the relationship between subjective knowledge and new product adoption behavior (time of adoption and spending behavior).

*H5c:* Domain-specific innovativeness will mediate the relationship between hedonic-idea shopping and new product adoption behavior (time of adoption and spending behavior).

## Methods

### Research setting, sample, and procedure

This research refers to quantitative approach. The type of survey used in this study is self-administered questionnaires. Population in this study is undergraduate students in the Bandung Institute of Technology. The sampling frame in this study is faculties in the Bandung Institute

of Technology. The unit elements in this study are undergraduate students in six-faculties in the Bandung Institute of Technology who have interest and experience with four electronic products (handphone, laptop, digital camera, and tablet). We selected those products because they are fast product life cycles and more personal owned by college-aged students.

Before distributing questionnaire in large sample, we conducted a pre-test to 40 respondents in an attempt to know their understanding about questionnaires items. The minimum sample size for a particular Structural Equation Modelling (SEM) is when the number of factors is larger than six, some of which have fewer than three measured items as indicators, and multiple low communalities are present, sample size requirements may exceed 500 [Hair, et al. 2006]. We used two-stage cluster sampling to ensure representation from all major academic area within the university. Cluster sampling produces imprecise samples in which distinct, heterogeneous clusters are difficult to form.

The final questionnaires were administered to 657 respondents. Of the total returned questionnaires, 50 responses were found incomplete,

resulting in 607 final usable questionnaires. The participants were male 49.8 percent and female 50.2 percent with a mean age of 18.85 years old (minimum age was 16 and maximum age was 24 years old). 19.6 percent were from School of Electrical Engineering and Informatics department, 18.6 percent were from School of Pharmacy department, 18.1 percent were from Faculty of Civil and Environmental Engineering, 17.1 percent from Faculty of Earth Science and Technology, 15.2 percent from School of Business and Management and 11.4 percent from Faculty of Art and Design. Almost 44.8 percent of respondents had an annual income between \$1,200 and \$2,400. Respondents who had an annual income less than \$1,200 are 44.5 percent, between \$2,400 and \$3,600 are 7.4 percent, and more than \$3,600 are 3.3 percent. Almost 98.8 percent respondents owned handphone which support camera and able to access internet; laptop was owned by 92.3 percent respondents; camera digital was owned by 36.2 percent, and tablet was only owned by 6.9 percent respondents. The length of time respondents having handphone, laptop, and camera digital between 1 and 2 years is 38.3 percent, 32.8 percent, and 34.9 percent. Almost 50 percent respondents owned tablet less than 1 year. 41.3 percent respondents spent money in the range of \$100-\$200 for handphone; 31.7 percent respondents spent money in the range of \$300-\$500 for laptop; 46.6 percent spent money in the range of \$200-\$500 for camera digital and 47.6 percent respondents spent money more than \$600 for tablet. We differentiated number of samples for different models because of data cleaning after eliminated outliers with mahalanobis D<sup>2</sup>measure. The final sample size comprised 571 (for the generalist model), 575 (for the particularist model), and 568 (for the integrator model).

## Measures

We obtained instruments of questionnaires from collecting literature review of seeking behavior, hedonic, price sensitivity, product knowledge, and domain-specific innovativeness. We divided seeking behavior into information seeking and variety seeking. Because of lack of literature review about product evaluation as general trait and to make accurate judgments

about the key constructs to be included in the empirical study, it was necessary to conduct a focus group discussion (FGD). There were nine undergraduate students in the FGD. The process was recorded and then transcribed. The purpose of the FGD was to ask about opinions of evaluation process for the products, to confirm about the measurement of items related to consumer innovativeness, and also to ask the participants to list private electronic products they have and mention the price of each product.

The survey instrument was originally developed in English and then double-blind-translated into local language (Indonesia) for respondents who were not fluent in English. To achieve comparability, the issue of equivalence of meaning was carefully noticed during translation. The initial 73 measurement items from the literature review of consumer innovativeness were drawn. We next asked an expert from a psychology department to verify the face validity of the questions. The expert proposed to eliminate seven items. After conducting a pre-test, we revisited key literature review and examined relationship between those constructs. We further tested and refined these measurement scales before administering the survey on the total sample. The result of refinement, we eliminated four variables (information seeking, product evaluation, price sensitivity, global innovativeness) and also eliminated 13 items of hedonic.

The final measure consisted of variety seeking (VS), subjective knowledge (SK), hedonic-idea shopping (HE), domain-specific innovativeness (DSI), relative time of adoption (RTA), and relative of spending behaviour (RSB). The variety seeking scale developed by Raju [1980], the subjective knowledge constructs are measured with items adapted from Park, et al. [1994] and Oliver and Bearden [1983], and hedonic-idea shopping items are adapted from Arnold and Reynolds [2003]. To measure domain-specific innovativeness we used the instrument developed by Goldsmith and Hofacker [1991]. With the exception of subjective knowledge with nine-point Likert scale, all items were measured with five-point Likert scales. Finally, new product adoption behavior was measured from an adapted version of Im, et al. [2007].



Table 1. Fit indices

Model fit indices		Generalist model	Particularist model	Integrator model
1)	$\chi^2$	173.126	194.611	225.352
2)	degree of freedom	37	5	71
3)	P-value	0.000	0.000	0.000
4)	NFI	0.931	0.572	0.930
5)	CFI	0.944	0.574	0.951
6)	GFI	0.949	0.887	0.946
7)	AGFI	0.908	0.661	0.920
8)	RMSEA	0.079	0.249	0.062

Table 2. Measurement model results

Construct		Indicators	$\lambda > 0.5$	$t > 1.96$	CR	AVE (%)
<b>VS (Variety Seeking)</b>	VS5 (I enjoy exploring several different alternatives or brands when shopping)		0.57	8.39	0.61	44%
	VS6 (To not always buy the same brands, I shop among a few different brands)		0.75	9.13		
<b>SK (Product Knowledge)</b>	SK1 (Compared to my friend and acquaintance, my knowledge of this items)		0.86	23.75	0.83	56%
	SK2 (In general my knowledge of this items)		0.85	23.54		
	SK3 (Would you consider yourself informed or uninformed about this items)		0.7	17.98		
	SK5 (In general, would you consider yourself familiar or unfamiliar with this items)		0.55	13.32		
	SK6 (In general, would you consider yourself knowledgeable about this items)		0.55	13.32		
<b>HE (Hedonic)</b>	HE1 (I go shopping to keep up with the trends)		0.93	27.26	0.87	70%
	HE2 (I go shopping to keep up with the fashion)		0.94	27.59		
	HE3 (I go shopping to see what new products are available)		0.6	15.21		
<b>Domain Specific Innovativeness (DSI)</b>	DSI2 (If I heard that a new consumer electronic product is available in the store, I would be interested enough in buying it)		0.51	-	0.62	36%
	DSI4 (In general, I am the first in my circle of friends to know the brands of the latest consumer electronic products)		0.72	8.46		
	DSI6 (Compared to my friends I own a lot of consumer electronic products)		0.54	8.01		
<b>Time of Adoption (TA)</b>	RTA (Relative time of adoption)		1	0	1.00	100%
<b>Spending behavior (SB)</b>	RSB (Relative spending behavior)		1	0	1.00	100%

## Data analysis

We followed the two-step procedure recommended by Anderson and Gerbing [1998] to establish measurement and structural model. The Confirmatory Factor Analysis (CFA) was used to analyse the convergent validity and discriminant validity of all items of construct using maximum likelihood estimation in Lisrel 8.70 in the analysis.

## Result and Discussion

Table 1 shows overall fit indices for each of models after eliminating items load less than 0.5. We can see that the integrator perspective model reveals the best model fit with data. The integrator model is able to generate general trait

innovativeness, domain-specific innovativeness, and new product adoption behavior in a model.

Here, we explain about the integrator model. According to the CFA results of integrator, the chi-square test was statistically significant,  $\chi^2(71) = 225.352$ ,  $p < 0.05$ , suggesting a lack of satisfactory model fit (i.e. the hypothesized model was incongruent by researchers because this statistical test is known to be sensitive to the sample size [Bearden, et al. 1982]. We further assessed the model fit through variety of model indexes, GFI=0.946 (>0.9); CFI = 0.951 (>0.9); NFI=0.930 (>0.9); AGFI=0.920 (>0.9); RMSEA = 0.062 (<0.08). Thus, it is concluded that the CFA model fits the data reasonably well based on latter fit indices considered in this study.

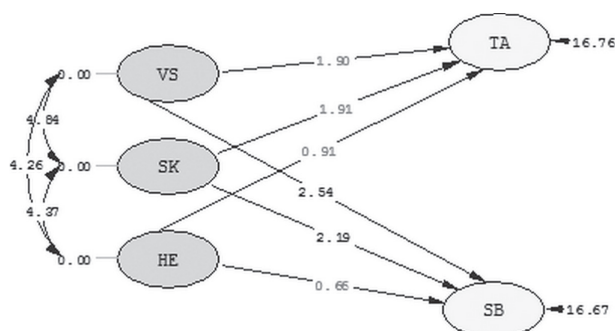


Figure 5. Structural model of Generalist

Table 2 displays standardized loading above 0.5 and all lambda coefficients for the observed variables are significant ( $t > 1.96$ ). We eliminated six items of variety seeking, one item of subjective knowledge, and three items of domain-specific innovativeness that have standardized loading less than 0.5. The values obtained in the composite reliability coefficient are above 0.6. The values of the extracted variance analyses (EVA) are above 50 percent, except variety seeking (44 percent), and domain-specific innovativeness (36 percent). In addition, the model fits relatively well. The reliability estimates between 0.6 and 0.7 is acceptable provided that other indicators of a model's construct validity are good to demonstrate the internal consistency of the measurement model [Hair et. al., 2006: 778]. The average variance extracts (AVEs) ranged from 29 to 61 percent, which meet minimum requirement [Chin 1998]. Therefore, all the items are retained at this point and adequate evidence of convergent validity is provided.

Discriminant validity among the constructs was also assessed by examining whether the square correlation between two constructs was lower than the average variance extracted for each construct [Fornell and Larcker 1981]. Results revealed that these conditions were met, and therefore the constructs investigated in the study were distinct from each other, confirming discriminant validity.

### Structural model

After the measurement model was confirmed, structural equation modelling was then performed to test the hypothesized relationships. The model fit statistics revealed a  $\chi^2$  of 168.792 with degree of freedom of 51 at  $p < 0.05$ ,  $\chi^2/\text{df}$  of 3.3, GFI of 0.927; CFI of 0.957;

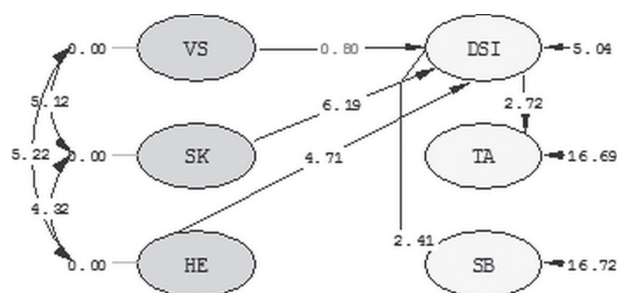


Figure 6. Structural model of Integrator

NFI of 0.941; AGFI of 0.927; RMSEA of 0.064, suggesting that the hypothesized structural relationships fit the data well. Subjective knowledge and hedonic-idea shopping explained 30.36 percent of variance in domain-specific innovativeness and domain-specific innovativeness explained 1.93 percent of variance in time of adoption and 1.45 percent of variance in spending behavior.

### Hypothesis testing

Each hypothesized relationship was examined based on path significance. We can see from figure 5 and figure 6 that show the direction path and magnitude of the paths of the structural model of generalist and integrator perspective model. The focus of the assessment of the structural path is in the significance of the path can be measured by critical ratios, or statistics, which is greater than 1.96 [Chin, 1998] at  $p < 0.05$ . The result of path coefficients and t-statistics is illustrated in Table 3.

### Conclusion

Through this study, we successfully test empirically and compare three perspectives of consumer innovativeness in electronics product category by modifying model as suggested by Nasution and Garnida [2010; 2011]. First, the result shows that the generalist perspective model provides support only two hypotheses. Variable variety seeking influences time of adoption but it does not influence spending behavior. Subjective knowledge influences spending behavior but does not influence time of adoption. Hedonic-idea shopping does not influence both time of adoption and spending behavior. Because this perspective does not support all hypotheses, we

Table 3 Hypothesis testing

Path	Hypothesis	Path Weight	Critical Ratio	Result
Variety seeking → time of adoption	H1a	0.10	1.90	Not Supported
Variety seeking → spending behavior	H1b	0.14	2.54	Supported
Subjective knowledge → time of adoption	H2a	0.09	1.91	Not Supported
Subjective knowledge → spending behaviour	H2b	0.10	2.19	Supported
Hedonic-idea shopping → time of adoption	H3a	0.04	0.91	Not Supported
Hedonic-idea shopping → spending behaviour	H3b	0.03	0.66	Not Supported
DSI → Time of adoption	H4a	Model does not fit to the data		Not Supported
DSI → Spending behaviour	H4b			Not Supported
Variety seeking → DSI → New product adoption behavior (TA;SB)	H5a	0.05→(0.14; 0.12)	0.80→(2,72; 2.41)	Not Supported
Subjective knowledge → DSI → New product adoption behaviour (TA;SB)	H5b	0.41→(0.14; 0.12)	6.19→(2,72; 2.41)	Supported
Hedonic-idea shopping → DSI → New product adoption behaviour (TA;SB)	H5c	0.27→(0.14; 0.12)	4.71→(2,72; 2.41)	Supported

conclude that the generalist perspective model is less able to describe phenomena of consumer innovativeness in adopting electronic products. Second, the particularist perspective model is not able to represent the empirical data. Therefore, this perspective also could not explain the phenomena of consumer innovativeness in adopting electronic products. Third, the integrator perspective provides the best model fit represent empirical data than the other perspectives. Therefore, the integrator perspective can be used to capture the phenomena of innovativeness among young consumers in adopting electronic products.

This conclusion has limitation, only three indicators of *Goldmith and Hofacker's DSI* scale which are reliable to measure domain-specific innovativeness. From SEM, it is revealed that Domain-specific innovativeness explains only 1.93 percent variance in time of adoption and 1.45 percent in spending behaviour, implying that domain-specific innovativeness may not be a good predictor of new product adoption behavior in the adoption of consumer electronic products. Researcher argues that it is caused by different level of product representation in the two constructs. Domain-specific innovativeness is at the category level, meanwhile the new product adoption behavior is at the product level.

At the theoretical level, this study has demonstrated the development of theoretical model into the relationship between consumer innovativeness and innovation adoption. This study may provide to consistent findings in prior study literature [Cacioppo and Richard 1982] – general trait innovativeness as personality trait

is not successfully enough to predict new product adoption behavior because consumer innovation may be more on the domain or product specific, and less on the individual personality characteristic. However, the results of this study explain that general trait innovativeness remains important for predictive purpose. This present study finds that domain-specific innovativeness is unable consistently to predict the innovation adoption directly without using general trait innovativeness. However, the predictability of the personality trait (general trait innovativeness) can be heightened by incorporating domain-specific innovativeness. This finding related with previous study by Hirunyawipada and Paswan [2006] that domain-specific innovativeness plays an important role in hierarchical perspective of consumer innovativeness, by becoming the mediating factors in the relationship between general trait innovativeness and new product adoption.

This research also supports prior study [Rijsoever and Donders, 2009], the use of time of adoption as a measure for actualized innovativeness provides more information than only measure the ownership of an electronic product. It also allows the products that are not innovative at the present to be still included in the measure, thus providing an image actualized innovativeness throughout a longer period of time. A condition for using time of adoption as a measure is that all respondents should have equal chances in the past to easily adopt new product. The use of spending behavior as a measurement for actualized innovativeness also provides real information how early adopters and late adopters behave in spending money

for buying electronic product than only measure their reaction to price levels. This empirical report related with Gatignon and Robertson [1985] study that innovators are likely to spend more in a category than non-innovators.

The findings of this study provide several managerial contributions for the adoption of electronic products among young consumers. Consumers are influenced by different elements of innovativeness. To market new products successfully, marketers should realize the impact of general trait innovativeness and domain-specific innovativeness on innovation adoption. The findings of this study suggest that subjective knowledge, hedonic-idea shopping, and domain-specific innovativeness make up the best potential combination of determinants to innovation adoption. This finding has interesting implication for segmentation decisions. This also indicates that marketers need to appropriately manage the marketing-mix so that subjective knowledge, hedonic-idea shopping, and domain-specific innovativeness are targeted. This study provides evidence that the higher the domain-specific innovativeness consumers have the faster when they adopt electronic products and also spend more money than those with lower domain-specific innovativeness.

Measuring subjective knowledge can indicate self-confidence levels and a better predictor of purchasing behavior [Bruck 1985; Raju 1980]. Focusing on how to increase consumers' subjective knowledge could help increase opportunities for consumers to adopt more new products. Hedonic-idea shopping motivation is related with the satisfaction of person's desires and it is an expression of experiential consumption. When hedonistic values are preferred by individuals, they will positively influence the acceptance of new products whose consumption gives excitement and pleasure to the adopter. They tend to quickly adopt new products, to show interest in those products, to have more

extensive exposure to this kind of information, to be better able to communicate information about new products. Therefore, individuals who have high level of hedonistic value give positive reaction toward new products in the launching stage.

Thus, there is a need for marketers to focus on subjective knowledge, hedonic-idea shopping, domain-specific innovativeness related to electronics products category when targeting young consumers. The more marketers know about early adopters, the better able they will be to reach and communicate with them with the intention of informing and persuading them to buy new products through skilfully designed marketing strategies.

Like any research effort, some limitations of the current study should be noted. The generalizability of the results may be limited because the current study uses a student sample. Future research needs to be replicated this model with non-student sample. The study is conducted in a single context – consumer electronic products. Future study should consider more diversified product domains. We suggest that future research use measurement of innovations characteristics in the technology acceptance model [TAM; Davis 1989] to relate between domain-specific innovativeness and new electronic products adoption (*general trait innovativeness-domain specific innovativeness-innovation characteristics-new product adoption behavior*) to expand the external validity of the findings. We also recommend changing domain-specific innovativeness scale with personal innovativeness in the domain of IT (PIIT) which proposed by Rogers's work [1996 2003] and Agarwal and Prasad [1998], defined as "willingness of individual to try out any new information technology". Therefore, future research should be conducted to pinpoint the reason for this issue and seek a correction.

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