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Consumer Perceived Risk in the Korean Mobile Phone Market*

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Abstract

Purpose – This study aims to illustrate the relationship between demographic factors and perceived risk types, supposing that Korean customers tend to postpone buying or hesitate to purchase the new version of hand sets, because of an early buying risk.

Research design, data, and methodology - In addition to existing perceived risk types, the authors introduced an early buying risk. In order to measure each variable, also, the study has employed a five-point Liker-scale. To increase research reliability and validity, the research adopted an exploratory factor analysis, a confirmatory factor analysis, and one-way ANOVA.

Results - First, there were statistically significant differences between financial risk and the group. Second, there weren't any statistically significant differences between the group means among the four perceived risk types (Performance Risk, Social Risk, Psychological Risk, and Physical Risk) and 4 factors (Gender, Age, Job, and Education). Lastly, job is apparently differentiated from others (Gender, Age, and Education).

Conclusions – The authors found that customers regarded an early buying risk as one of the important perceived risk types, when purchasing a hand set.

Keywords: Customer Behavior, Perceived Risk, Early Buying Risk, Mobile Phone, Smart Phone.

JEL Classifications: D21, L68, M11, M31.

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1. Introduction

Because of the increasing number of new models in the South Korean appliance market, customers are more likely to delay buying the products such as TV, mobile phone, camera, computer, and the forth, which they want (Asia Economy Daily, 2013). As evidence, it should be noted that the speed of launching the new versions in the smart-phone market has become faster and faster than ever before, according to Hankookilbo (2012). In a word, the competition of electronic manufacturers tends to discourage Korean customers to purchase existing product models. Furthermore, the expectation that hand set makers will release a new version soon negatively influences the buying decision process of customers in the Korean mobile phone market in particular.

It should be, therefore, mentioned that the new model launch with a shorter cycle in Korea affect customer buying decision process. In the same vein, even though customers have enough financial ability to pay, they have a tendency to postpone purchasing a new hand set model, because of the customer belief that a better new model will be launched soon. Probably, customers might think the later the better when making a buying decision. As mentioned earlier, this trend has become apparent more and more in Korea.

Associated with customer buying decisions over the past half centuryin terms of perceived risks, there are a large number of articles (e.g. Bauer, 1960; Cunningham, 1967; Bettman, 1973; Taylor, 1974; Grewal et al., 1994; Mieres et al., 2006). Since retailer brands appeared, moreover, many researchers have paid considerable attention to identifying the differences between customers purchasing national brand and ones buying retailer brands (e.g. Bettman, 1974; Shimp and Bearden, 1982; Dick et al., 1995; Richardson et al., 1996). Based on existing literature, it is evident that there are a few perceived risks when customers make buying decisions, regardless of product or service categories.

There has, nevertheless, been little attention to exploring the different characteristics of the customers who purchase a cell phone, although Brooker (1984) examined the customers buying food products, Asembri (1986) clothing, Mitchell and Greatorex (1993) service industry, and Mitchel and Greatorex (1988) and Bruwer et al. (2013) wine, including banking services (Ho and

Victor, 1994) and apparel catalogue shopping (Jasper and Quellette, 1994).

This study, thus, aims to illustrate the relationship between demographic factors and perceived risk types, supposing that Korean customers tend to postpone buying or hesitate to purchase the new version of hand sets, because of an early buying risk. The paper begins with a literature review, and then the research techniques are proposed with hypotheses derived from literature review process. The next section sets out research findings resulted from data analysis. Finally, the conclusions, research limitations, and future research directions are suggested.

2. Literature review and hypothesis development

Before starting to investigate what kind of perceived risk influences the customers who want to purchase the products of high technology, it is necessary to define the term, "perceived risk". Since Bauer (1960) firstly brought the perceived risk concept, this research topic has attracted many researchers' attention (e.g. Jacoby and Kaplan, 1972; Kaplan et al., 1974; Asembri, 1986; Mitchell and Greatorex, 1993; Mitchel and Greatorex, 1988; Bruwer et al., 2013). Nevertheless, there is no doubt that the perceived risk has been defined as the concept of uncertainty that customers feel when they cannot have confidence in their buying decisions (e.g. Bergadaa et al., 2005; Schiffman et al., 2011), although Knight (1921) stressed that risk was different from uncertainty. On the other hand, Cunningham (1967) argued that its definition is closely related to uncertainty and consequences. Depending on several factors like product-related elements (Dowling, 1999), furthermore, the types of perceived risk differ. In the same vein, the previous research suggested that customers tend to show different types of perceived risks, depending on different shopping atmosphere (e.g. Cox and Rich, 1964). As empirical evidence, some researchers argued that purchasing by telephone or mail is might be riskier than buying in off-line shops (Spence et al., 1970).

It is, thus, worth mentioning the risk types perceived by customers in detail, based on the previous research results, irrespective of product categories. In summary, the previous findings are concerned about six perceived risk types: (1) financial risk (Jacoby and Kaplan, 1972; Kaplan et al., 1974), (2) performance risk (Jacoby and Kaplan, 1972; Kaplan et al., 1974), (3) social risk (Jacoby and Kaplan, 1972; Kaplan et al., 1974), (4) psychological risk (Jacoby and Kaplan, 1972; Kaplan et al., 1974), (5) physical risk (Jacoby and Kaplan, 1972; Kaplan et al., 1974), (6) time risk (Roselius, 1971), as noted by Schiffman et al. (2011). In addition, the authors suggest the next risk type, that is, the early buying risk which customers might believe that their buying decisions are too earlier because better products or versions will come out soon. Because of lack of literature related to the early buying risk, the researchers made an effort to conceptualize it. Even though Bergadaa, Coraux and Gueroui (2005) expected that customers might face another kind of risk, when purchasing the product categories requiring high technology, there has not been an empirical study to explore the customer characteristics of domestic appliances, including mobile phones.

It should, moreover, be kept in mind that different perceived risk types exist across different product attributes, whilst customers tend to accept them differently, depending on individual characteristics (Dowling and Staelin, 1994). Likewise, it would be difficult to define the risk types perceived by customers, owing to different consumption culture, different product characteristics and so on. What is evident is that perceived risks as a critical determinant of a customer's willingness to purchase a product or service affect customer decision-making process, as noted by Grewal et al. (1994).

2.1. Financial risk

From a customer's point of view, a monetary issue is regarded as one of the most important perceived risk types, as noted by the previous research conducted by Bruwer et al. (2013). When purchasing wine product categories, they found that customers perceived financial risk as the highest perceived risk, as opposed to Mitchell and Greatorex (1988) who highlighted that the importance of financial risk was in the third place amongst the following four risk types: functional, social, financial, and physical risk type. Financial risk is seen as the possible monetary loss which the customers who purchased a specific product or service might be faced, as Shimp and Bearden (1982) argued that financial risk is one of the most important types of risk perception, when purchasing new products in particular.

Given the price levels of electronic products, compared with those of food products, it is expected that the degree of financial risk when buying a hand set is much higher than when purchasing grocery products, consistent with Derbaix (1983), White and Truly (1989) and Grewal et al. (1994) who emphasized that the higher the price the higher the perceived financial risk. Similarly, customers tend to hesitate or postpone purchasing a new mobile phone version due to higher financial risk, like wine customers. By contrast, Dodds et al. (1991) highlighted that some customers are less affected by a price factor.

What is important is, thus, that a monetary issue is perceived as the important risk when making buying-decisions, as demonstrated by the previous empirical research (e.g. Stone and Gronhaug, 1993). It should be, on the other hand, noted that when studying financial-related risk perception, many authors argued that a financial risk type is closely associated with performance risk (e.g. Grewal et al., 1994). In other words, it would be difficult to distinguish financial risk from performance risk without investigating its relationship between them. It should be, nevertheless, mentioned here that the researchers adopt financial risk perception as a different risk type from performance risk.

Accordingly, the above argument leads the authors to propose the following hypothesis:

H 1: Demographic factors are closely related to a financial

risk, when consumers buy a cell phone.

2.2. Performance risk

It is necessary to look at the definition of performance risk perception here to understand white goods customers, compared to other customers. As noted by the past research (e.g. Beneke et al., 2012), many researchers have also used performance risk and functional risk interchangeably. Here, the researchers simultaneously use the both terms without distinguishing them like the previous studies. As one of the most common types of perceived risk, these terms has been defined as the uncertainty or the fear that a product might not deliver promised functions or benefits, that is, the outcome of a product purchase might not satisfy the expectations of customers (Beneke et al., 2012).

When discussing performance risk type, the authors include price-perceived performance risk pointed out by Grewal et al. (1994). Before making buying-decisions, the prior research suggested that customers generally tended to doubt whether the products bought would function or not, as expected (e.g. Bauer, 1960; Oglethorpe, 1988; Mieres et al., 2006). It is consequently interesting to note that customers are likely to use price levels to avoid perceived risk, that is to say, customer sperceive the price as one of the most important criteria to reduce the probability of making an uncertain selection of inferior quality products (Tull et al., 1964; Shapiro, 1968). In a word, price levels indicate that the higher price might guarantee higher product quality. What is evident is that performance risk type is closely related to financial risk perception.

Given that the customers buying a hand set relatively spend more money and time on making a purchase decision, it should be accepted that their perceived performance risk is higher than that of grocery customers. Whether a product will meet customer expectations or not obviously causes the risk perceived by consumers.

The authors, therefore, propose the following hypothesis:

H 2: Demographic factors are closely related to a performance risk, when consumers buy a hand set.

2.3. Social risk

When making a buying-decision, customers have a tendency to consider that purchasing a product might reduce, even damage their social status (Jacoby and Kaplan, 1972; Kaplan et al., 1974; Mieres et al., 2006), that is to say, customers are aware of whether their buying-decisions are positively or favorably evaluated by others or not. This kind of risk should be regarded as a social risk. It should, therefore, be noted that social risk refers to the possible perceived loss of a customer's image or status because of the buying of a particular brand or service. As pointed by the empirical research conducted by Bruwer et al. (2013), when buying wine, customers perceived social status as one of the most important risk dimensions.

Unlike the customers who want to be recognized by others by carrying luxury goods such as cars, bags, suits, accessory and the like, it should be noted that hand set buyers are less aware of their social status when making buying decisions. As evidence, there is no worldwide luxury brand in domestic household goods. It is, therefore, expected that customers do not buy a cell phone to highlight their social position, although some customers wanted to be recognized as a pioneer in the mobile market in the past. In the same vein, before the emergency of the mobile phone with the function of a music player, the MP3 which is much smaller than Sony Walkman and further easier to carry was very popular during the beginning of 2000s in Korea. Like a handset during 1990s, carrying some portable electronic goods at that time used to be regarded as part of the symbol of wealth. This kind of trend amongst customers, however, has disappeared in recent.

The researchers, nevertheless, hypothesize that:

H3: Demographic factors are closely related to a social risk, when consumers buy a smart phone.

2.4. Psychological risk

It should be mentioned that Stone and Gronhaug (1993) found that psychological risk is closely related to other perceived risk types, except for early buying risk, although some researchers (e.g. Mieres et al., 2006) argued that psychological risk dimensions like self-confidence, self-esteem, self-image, enjoyment of product purchase process and so on are able to make customers feel unhappy when making a decision to purchase goods or services. The authors, nevertheless, define the psychological risk type as the probability that a given purchase might be consistent with the customer's image, and further, the concern related to the customer's unsatisfaction with buying or using products or services, as noted by prior research (e.g. Arslan et al.,2013).

According to the empirical research result conducted by Bruwer et al. (2013), psychological risk dimensions like self-confidence (Taylor, 1974), self-image, and shopping satisfaction of wine purchase are clearly associated with the social nature of wine consumption. Although there is little attention to the customers who buy electronic goods, it would be possible to expect that they have less perceived psychological risk, compared with other product categories like fashion and design-oriented products. As for the product categories characterized by visible appearance, psychological risk type is much more important than other perceived risks (Derbaix, 1983).

Moreover, it was observed by Bruwer et al. (2013) that the degree of the psychological risk type of customers differs, depending on the degree of perceived risk. In the same vein, Locandr and Hermann (1979) emphasized that generalizedself-confidence has something to do with specific self-confidence, when customers make buying decisions. What is important is that psychological components differently influence a psychological risk type. As a result, the customers with lower self-confidence are more likely to purchase well-known brand products to reduce perceived risks (Olsen et al., 2003).

Considering the above complicated findings, the authors suggest the following hypothesis:

H4: Demographic factors are closely related to a psychological risk, when consumers buy a cell phone.

2.5. Physical risk

When making a buying decision, customers take into account physical risk, because the products or services bought might hurt their health or safety (e.g. Roselius, 1971; Jacoby and Kaplan, 1972; Kaplan et al., 1974 Mieres et al., 2006). As a consequence, the safety problem that certain products might be able to damage customers'health has become one of the most important elements of perceived risks.

As an example, with the increasing interest in the health or physical well-being, many authors have paid their attention to identifying perceived risks associated with organic produce (e.g. Hammitt, 1990; Williams and Hammitt, 2001). Likewise, when parents buy toys in particular, they tend to think about toy safety. In the end, the British government has introduced the Toys Regulations to protect users from danger, that is, physical risk in 1995. By contrast, Stone and Gronhaug (1993) found that physical risk is not significant when customers purchase a computer. With regard to physical risk, they highlighted that the user experience is closely related to a customer's buying decision.

Depending on the characteristics of each product category, what is important is that customers are differently aware of the degree of physical risk. Without doubt, the customers who buy medicine or medical products are more likely to worry about physical risk than the buyers who purchase general foods such as soft drink, bread, milk, and so on. Similarly, it is expected that the customers who buy a mobile phone take into account physical risk type resulted from electromagnetic waves.

As a result, the authors propose the following hypothesis:

H5: Demographic factors are closely related to a physical risk, when consumers buy a smart phone.

2.6. Time risk

Thanks to sophisticated information technology, it is easy to gather product-related as well as supplier-related information on the Internet. Compared with the past when customers had to visit shops to collect a variety of information such as price, product reputation, design, stock availability and quality level, nowadays, they can save the amount of time and effort to make decisions. Similarly, most of manufacturers have made considerable effort to offer right information through online websites as part of marketing vehicles to attract customers.

As noted by Roselius (1971) and Murray and Schlacter (1990), nevertheless, a time risk type should be here defined as the potential loss of time and effort spent to purchase products or services. In other words, time risk refers to the perceived amount of time required to buy products, that is to say, when products bought fail, customers should believe that they waste time as well as effort to repair, replace or return them. Without doubt, customers tend to spend lots of time to make a right decision amongst a huge number of goods or services. In that the price levels of hand sets are comparatively higher than those of grocery products, furthermore, customers might regard the time risk as one of the most important perceived risks. As evidence, many researchers (e.g. Johnson and Andrews, 1971; Laurent and Kapferer, 1985; Derbaix, 1983) highlighted that some product categories with higher value are more risky than other products with lower value like convenience and shopping goods. Before a buying-decision, accordingly, the information searching activity that requires time and effort varies, depending on the degree and the dimensions of perceived risks (Bettman, 1975).

Based on the above theoretical arguments, this research proposes the following hypothesis:

H6: Demographic factors are closely related to a time risk, when consumers buy a hand set.

2.7. Early buying risk

Unlike the previous risk types mentioned earlier, academic researchers have paid little attention to early buying risk type, because this kind of risk type has recently appeared in the Korean mobile market. Owing to the intensified competition amongst hand set manufacturers, the period of launching a new brand cell phone has become shorter and shorter. It means that the early buying risk type might become higher and higher.

First of all, it is necessary to define the term, early buying risk, to differentiate from other risk types and further, prevent the confusion about time risk. The authors propose here that the early buying risk means that customers are not confident of their buying decision, because they believe that the model bought might become old fashioned sooner or later and hand set makers will provide much better services and promotions with the new version of a cell phone in the near future. Given that the new models of a mobile phone have competitively been introduced in Korea, this kid of perceived risk might become one of the most critical factors influencing mobile phone buyers from a hand set manufacturer's point of view.

With respect to the difference between time risk and early buying risk, it should be noted that the former is closely related to the time for post-purchase activities like return, fix and so on, whilst the latter has nothing to do with the post-purchase activity, that is, is associated with the expectation of a new model or service. The belief that waiting for the new version launch of a mobile phone is a right buying-decision rather than buying a current hand set model might play an important role in purchasing a cell phone as a perceived risk.

Accordingly, this study hypothesizes that:

H7: Demographic factors are closely related to an early buying risk, when consumers buy a smart phone.

3. Research methodology

In order to demonstrate whether the above hypotheses are available, the authors have developed the questionnaire based on the previous research results, and employed a self-administered technique. As mentioned earlier, most of existing literature has focused on six types of perceived risks, regardless of the characteristics of the products purchased by customers, although a few researchers have made an effort to categorise perceived risks into several groups, according to product items (e.g. Brooker, 1984; Asembri, 1986; Mitchell and Greatorex, 1993; Mitchel and Greatorex, 1988; Bruwer et al., 2013; Ho and Victor, 1994; Jasper and Quellette, 1994). To achieve a research objective, furthermore, the researchers have added the new construct, which is an early buying risk, to previous risk types. It means that the final questionnaire consists of 7 constructs: (1) financial risk, (2) performance risk, (3) social risk, (4) psychological risk, (5) physical risk, (6) time risk, and (7) early buying risk, and 5 demographic questions.

Before field research, the questionnaire have been pretested by the 12 volunteers who are undergraduate students at the Kong-Ju National University(KNU) during March in 2014, and then, finalized. 490 questionnaires were distributed to the acquaintances of authors from April to May in 2014, and then, within a month, 469 are returned. Amongst them, 422 are available, as seen in Table 1. Particularly, most of research populations (74.2 %) are less than 29 years and 69.0 % are students at high schools or universities.

As a research measurement method, the researchers have used a five-point Likert-scale technique like previous research.

<Table 1> Demographic Factors

Demographic Factors		Frequency	%
Gender	Female	166	39.30%
	Male	256	60.70%
Marriage	Yes	75	17.80%
	No	347	82.20%
Job	Salary	90	21.30%
	Owner	27	6.40%
	Students	291	69.00%
	Housewives	7	1.70%
	Others	7	1.70%
Age	Under 20	118	28.00%
	20~29	195	46.20%
	30~39	60	14.20%
	40~49	36	8.50%
	Over 50	13	3.10%
Education	High school	121	28.70%
	College	289	68.50%
	Graduate	12	2.80%

3.1. Test of dimensionality

Given that this study is to identify the relationship between demographic factors and perceived risk types, it is necessary to select a right research technique. First of all, the authors have different data analysis methods to increase research reliability and validity, such as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

In terms of research reliability, whether the research questions developed under each construct are suitable to achieve a research goal should be demonstrated. The factor analysis method has, accordingly, been adopted at the first stage. Without doubt, the relationship between 7 constructs and the variables based on literature review by using the principal components model with the oblique rotation technique should be mentioned. It is worthwhile to note that oblique rotation has been used to gain theoretically significant factors, without reducing the number of developed variables.

As a result of data analysis, it is found that the data gathered through field survey passed the thresholds for sampling adequacy (KMO 0.763, Bartlett's Test of Sphericity 2657.247, $p < 0.000$). With respect to the KMO value, the authors have confirmed that the analysis result which is 0.763 is available, as Kaiser (1974) highlighted that its figure should be higher than 0.7. In other words, it is evident that research samples are adequate to accomplish the research aim.

By adopting EFA method, amongst the 7 constructs proposed, the researchers have removed time risk, and further, 2 items under social risk, 1 item under psychological risk, and 2 items under physical risk. It means that the study has totally eliminated 9 of developed 28 items, as seen in the Table 2.

In the same vein, in examining whether the research model suggested is appropriate or not, the data analysis results are reliable, because the accumulated variance value is 61.59%. Consequently, it can be said that the unidimensionality of developed constructs as well as variable measures is confirmed, in that each item loads highest on its intended factor.

<Table 2> Factor Analysis and Reliability

	Factor loading	Mean	Cronbach α
Financial Risk (eigen value = 2.513, % of variance = 11.97%)			
FR1	0.808	3.808	0.792
FR2	0.785	4.022	
FR3	0.761	3.652	
FR4	0.659	3.681	
Performance Risk (eigen value=2.854, % of variance =13.59%)			
PR1	0.854	2.434	0.769
PR2	0.841	2.571	
PR3	0.765	3.281	

PR4	0.614	3.329	
Social Risk (eigen value= 1.485, % of variance = 7.07%)			
SR1	0.808	2.604	0.658
SR2	0.785	2.436	
Psychological Risk (eigen value= 2.022, % of variance=9.63%)			
Psy1	0.821	1.868	0.616
Psy2	0.755	1.811	
Psy3	0.553	1.799	
Physical Risk (eigen value=1.594, % of variance=7.59%)			
Phy1	0.854	3.276	0.683
Phy2	0.770	2.384	
Early Buying Risk (eigen value=2.465, % of variance=9.63%)			
EBR1	0.799	3.746	0.715
EBR2	0.778	2.463	
EBR3	0.659	3.091	
EBR4	0.544	2.703	
Cummulative % = 61.59			

3.2. Research reliability and validity

In order to improve research reliability and validity, choosing a right research method is the significant part of research activities, as mentioned earlier. By adopting a factors analysis method, the research has explored the relationship between demographic factors and each construct. The authors found that the values of Bartlett's Test of Sphericity of the construct were significant (P-value=0.000), based on the factor analysis technique.

As a consequence, the research results imply that the constructs developed and proposed have satisfactory fit and are significant to conduct out the research. Moreover, it is found that the eigenvalues for the six constructs are in excess of 1.0, except for time risk and explained 61.59% of the total variance respectively. It should be noted that the research model is significant and incorporates as many reliable factors as possible.

Likewise, whether developed constructs are free from errors and are able to yield consistent research results should be mentioned to increase research reliability. The researchers have, thus, used Cronbach's Alpha index to measure the internal consistency of the multi-items developed by reviewing previous literature. Through reviewing the reliability tests for various dimensions of the relationships, the authors have confirmed that the Cronbach's alpha values of each construct range from 0.616 to 0.792, as shown in the Table 2. As Nunnally (1978) stressed that the values of Cronbach's alpha should be over o.60 to improve research reliability, all Cronbach's alpha indexes exceed the preferable criterion of 0.60. Accordingly, it can be said that they are all reliable.

<Table 3> Correlation matrix

	1	2	3	4	5
Financial Risk	1				
Performance Risk	.196**	1			
Social Risk	.205**	.225**	1		
Psychological Risk	.185**	.205**	.434**	1	
Physical Risk	.144**	.195**	.140**	.189**	1
Early Buying Risk	.160**	.227**	.396**	.241**	.187**

Notes: ** = P< 0.01 (two tailed).

Also, considerable efforts to increase or improve the reliability of the research have been made by the professional staff of KNU. In other words, developed and proposed variables are confirmed, and further, a questionnaire is finalised by pretesting. The content validity of variables can, therefore, be acceptable. Similarly, the authors have analyzed convergent and discriminant validity by investigating the cross-loadings computed from the correlation between each construct's component score and the indicators of other constructs. In addition, the Table 3 indicates the matrix of correlations for the six dimensions. The results of data analysis are available to demonstrate the degree of research validity.

3.3. Research Results

To achieve a research objective, one-way ANOVA in SPSS 21.0 has been employed. The Table 4 shows the output of the ANOVA analysis and whether there are statistically significant differences between the group means among the six Perceived Risk Types (Financial Risk, Performance Risk, Social Risk, Psychological Risk, Physical Risk, and Early Buying Risk) and 4 factors (Gender, Age, Job, and Education) respectively.

4. Findings

Based on the above data analysis, the authors could report the results of the study as the following. First, there were statistically significant differences between financial risk and the group as a whole (Age, Job, Education) as determined by one-way ANOVA (Age: F= 8.23,p= .000, Job: F= 4.16,p= .003, Education: F= 8.05,p= .000).But, there was no significant difference between the male group and the female group for the perceived risk types, as shown in the Table 4. Associated with age, a Scheffe post-hoc test revealed that the group less than 20 years was significantly different from the other groups, whilst the housewives group was importantly different from the other groups for the perceived risk type. In terms of job catego-

<Table 4> ANOVA Test of Perceived Risk Type and Multiple Comparisons

Demographic Factors	Groups		Fin.	Per.	Soc.	Psy.	Phy.	EB
Gender	Malea	M	3.77	2.86	2.18	1.84	2.77	2.88
		SD	0.91	0.99	0.78	0.84	1.00	0.84
	Femaleb	M	3.82	2.95	2.20	1.84	2.91	3.17
		SD	0.90	0.95	0.75	0.81	0.95	0.89
	F-value		0.30	0.86	0.06	0.00	2.26	11.10
	P		0.59	0.35	0.81	1.00	0.13	0.001***
	Tukey							b>a
Age	Under 20a	M	3.43	2.88	2.08	1.77	2.72	2.74
		SD	0.89	0.94	0.71	0.82	1.00	0.85
	20~29b	M	3.89	2.89	2.22	1.79	2.78	3.10
		SD	0.84	0.94	0.79	0.83	0.93	0.86
	30~39c	M	3.86	2.99	2.25	1.93	2.93	3.29
		SD	1.04	1.06	0.85	0.85	0.99	0.79
	40~49d	M	4.09	2.81	2.12	2.08	2.93	2.89
		SD	0.87	1.11	0.63	0.67	1.13	0.75
	Over 50e	M	4.40	3.06	2.54	2.08	3.62	2.75
		SD	0.43	1.10	0.83	0.93	0.85	1.19
	F-value		8.23	0.31	1.50	1.57	2.81	5.60
	P		0.000***	0.87	0.20	0.18	0.03	0.000***
	Tukey		e>d>b>c>a					c>b>d>e>a
Job	Salarya	M	3.98	2.94	2.34	2.00	2.82	3.17
		SD	0.91	1.00	0.84	0.81	0.97	0.76
	Ownerb	M	3.88	2.81	2.16	1.94	3.13	2.83
		SD	0.88	1.20	0.77	0.78	1.02	0.88
	Studentsc	M	3.69	2.89	2.16	1.78	2.77	2.95
		SD	0.89	0.94	0.75	0.83	0.97	0.88
	House wivesd	M	4.64	3.00	2.18	1.86	3.57	3.61
		SD	0.38	1.20	0.43	0.75	1.17	1.01
	F-value		4.16	0.11	1.65	1.39	2.08	2.43
	P		0.003***	0.98	0.16	0.24	0.08	0.047**
	Tukey		d>a>b>c					d>a>c>b
Education	High Schoola	M	3.47	2.92	2.08	1.79	2.79	2.70
		SD	0.88	0.97	0.71	0.83	1.01	0.83
	Collegeb	M	3.90	2.88	2.23	1.85	2.82	3.09
		SD	0.89	0.97	0.79	0.83	0.97	0.85
	Graduatec	M	4.15	3.27	2.27	2.08	3.42	3.42
		SD	0.80	1.08	0.69	0.63	1.04	0.92
	F-value		8.05	0.76	1.13	0.52	2.55	7.77
	P		0.000***	0.52	0.34	0.67	0.06	0.000***
	Tukey		c>b>a					c>b>a

rization, it is found that the high school group differs from the college groups for the perceived risk type.

Second, there weren't any statistically significant differences between the group means among the four perceived risk types (Performance Risk, Social Risk, Psychological Risk, and Physical Risk) and 4 factors (Gender, Age, Job, and Education) as seenin the Table 4.

Lastly, concerned about an early buying risk type, there were significantly statistic research results. As shown in the Table 4, job is apparently differentiated from others (Gender, Age, Education), as determined by one-way ANOVA (Gender: F= 11.10, p= .001, Age: F= 5.60, p= .000, Job: F= 2.43, p= .047, Education: F= 7.77, p= .000).

It is necessary to look at the research results associated with early buying risk in more detail. It should, therefore, be noted that the male group was significantly different from the female group, and then, the group less than 20 years the 20~39 groups. Furthermore, through a Scheffe post-hoc test, it is revealed that the housewives group was significantly different from the owner group, whilst the high school group was significantly different from the college group.

As a consequence, the hypothesis 6 which demographic factors are closely related to a time risk is not available, whilst the rest of them are available, as a research hypothesis. As shown in the Table 5, likewise, amongst the available 6 hypotheses, the hypothesis 1 and 7 are supported. It can be, thus, said that the customers who purchase handsets are aware of financial and early buying risk.

<Table 5> Detailed hypotheses results

Hypotheses	Description	Results
Hypothesis 1	Demographic --> Financial Risk	Supported
Hypothesis 2	Demographic --> Performance Risk	Unsupported
Hypothesis 3	Demographic --> Social Risk	Unsupported
Hypothesis 4	Demographic --> Psychological Risk	Unsupported
Hypothesis 5	Demographic --> Physical Risk	Unsupported
Hypothesis 6	Demographic --> Time Risk	Not Available
Hypothesis 7	Demographic --> Early Buying Risk	Supported

5. Conclusions

Through this empirical research, the study draws some conclusions from an academician's as well as a practitioner's point of view. First of all, the authors found that customers regarded an early buying risk as one of the important perceived risk types, distinguishing it from the time risk suggested by prior research, when purchasing a hand set. Owing to the intensified competition of hand set makers, it should be mentioned that the cycle of launching a new version mobile phone has become shorter and shorter. Because of this reason, customers have become more sensitive to an early buying risk.

From a scholar's perspective, the research has made considerable contribution to the customer behavior academic world. In addition to existing 6 perceived risk types, the authors have found early buying risk as a new risk type, when customers purchase cutting-edge product categories. Although some authors (e.g. Brooker, 1984; Asembri, 1986; Mitchell and Greatorex, 1993; Mitchel and Greatorex, 1988; Bruwer et al., 2013; Ho and Victor, 1994; Jasper and Quellette, 1994) have made a significant effort to identify perceived risk types based on a specific product category, they have not paid to this kind of risk type.

On the other hand, from a practitioner's point of view, the research implies that the fierce competition between cell phone makers to release new mobile phones tend to give rise to an early buying risk. Accordingly, cell phone producers have to manage this risk type when developing marketing strategy. Furthermore, considerable attention has to be paid to the younger generations who are more likely to perceive the early buying risk as one of important barriers to purchase cutting-edge product categories.

While studying, there were some limitations to achieve a research goal. In terms of research populations, most of respondents were less than 30 years. In order to increase research reliability and validity, the groups more than 30 should have participated in this research. This research has, also, focused on the customers who buy a mobile phone. In this respect, it would be difficult to generalise an early buying risk cross the whole product categories.

On the other hand, future research is needed to investigate how the age differences affect customers, when particularly making a decision to buy domestic appliances.

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