



# Analysis of Factors Influencing Consumer Behavior in Buying Prepaid Cell Phone Cards During the Covid-19 Pandemic

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**Abstract.** The COVID-19 pandemic has impacted public health, economic conditions, education, and social life. The government implemented a study and work-from-home policy and made prepaid cell phone card operators necessary telecommunications providers for community activities during the Covid 19 pandemic. Product attributes include card and voucher design, roaming capacity, variations, features, time units, call rates, and cost. Non-product-related attributes: the price of a starter pack and top-up voucher, user impression, usage impression, feeling and experience, and brand personality. This research aims to find out how much relationship-related product attributes and unrelated product attributes have on consumer purchasing decisions and to find out which indicators are the most dominant, related product attributes and non-product related attributes. The research method is descriptive research. The independent research variables are attributes related to the product and attributes not related to the product.

In contrast, the dependent variable is consumer behavior, and the control variables are demographic data and consumption behavior. Data were analyzed using correlation analysis with the help of the SPSS program. The population is all prepaid cell phone card users in Indonesia: Telkomsel, Indosat Ooredoo, and XL Axiata. The samples for this research were consumers who visited prepaid cell phone operator outlets and registered online and consumers who had prepaid cell phone cards and were registered in Jabodetabek. The research results show a positive relationship between product-related and non-product-related attributes in telephone card purchasing decisions. The most dominant indicator is brand personality.

**Keywords:** Brand Personality, Consumer Behavior, Covid-19, Product-Related Attributes, Product-Unrelated Attributes.

## 1 Introduction

The policy to enforce learning from home and working from home practically makes prepaid cellular phone card operators as telecommunications providers the backbone for community activities during the Covid 19 pandemic [1]. The use of cell phones in Indonesian society during the COVID-19 pandemic was increasing, among the causes, office work, business people, ordering goods and services, registration for seminars and training, college students, and schools at the elementary, middle, and high school levels. SMA and others who have used the online system due to the

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COVID-19 pandemic that hit Indonesia for almost two years [2]. This, of course, requires all these activities to have a cellphone.

The three largest cellular card operators in Indonesia with coverage throughout Indonesia and internationally, namely PT. Telkomsel, PT. Indosat Ooredoo and PT. XL Axiata. There are 162.48 million prepaid phone card subscribers for Telkomsel, 58.6 million for Indosat Ooredoo, and 55.54 million for XL Axiata. The number of prepaid cellular card users for the three largest operators amounted to 276.62 million subscribers, or a percentage of 96.62 percent, compared to postpaid cellular card users, which amounted to 9.65 million subscribers, or 3.37 percent. So, most telephone card users in Indonesia use prepaid cellular cards, predominantly prepaid cellular cards from PT. Telkomsel, then PT. Indosat Ooredoo and the third PT. XL Axiata [3]. The three prepaid cell phone card operators offer different products, each provided by prepaid cell phone card operators to consumers. From this product, the prepaid cellular phone card that has become the consumer's choice would be seen as different from other prepaid cellular phone cards [4],[5],[6].

The problems of this research are: 1). Is there a relationship between product-related attributes and product-unrelated attributes of prepaid cellular phone cards with consumer purchasing decisions during the COVID-19 pandemic? 2). What are the most dominant indicators of product-related and product-unrelated attributes of prepaid cellular phone cards in consumer purchasing decisions during the COVID-19 pandemic?

## 1.1 Literature Review

Marketing is not only the activity of selling products but all activities carried out to make product sales successful. This activity includes planning what to sell, in what quantity, determining the price, where to sell, and how to let potential buyers know about your product. "Marketing is about identifying and meeting human and social needs" [7].

A successful marketing strategy was generally determined from one or more marketing mix variables. The marketing mix is: "The set of tactical marketing tools-product, price, place, and promotion that the firm blends to produce the response it wants in the target market" [8]. Marketing Mix is defined, namely: 1). product, a combination of goods and services the company provides to its target market; 2). Price is the amount consumers must spend to get a product and service; 3). Place, company activities that make a product and service available and accessible to the target buyer; 4). Promotion is an activity in communicating the benefits of a product and service and persuading customers to buy these products and services [8]

A product is a group of tangible physical attributes in an identifiable form. Understanding the product can not be separated from the need, because the product is everything expected to meet the needs of humans or organizations. A company, in planning offerings to the market, generally distinguishes between product levels. Five product levels need to be considered [9]: 1). Core Benefits; 2). Generic Products; 3). Expected Products; 4). Augmented Products; 5). Potential Products.

Product attributes are defining features that characterize a product and service, namely, what consumers think about the product or service whether they need to be involved in buying or consuming it. "Product-related attributes are defined as the ingredients necessary for performing the product or service function sought by

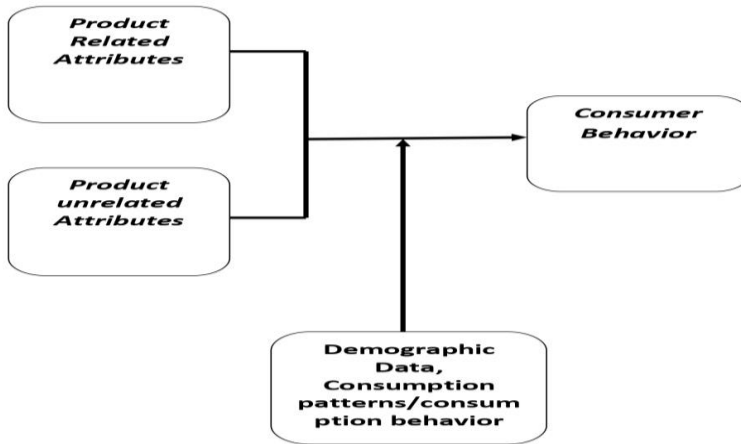
consumers, and non-product-related attributes were defined as external aspects of the product or service that often relate to its purchase or consumption in some way." Product-related attributes refer to the physical composition of the product or service requirement and what determines the product's nature and level of performance. Product-related attributes change product and service categories, including 1). Some products have several elements or features; 2). Other products have many essential elements but few features; 3). Finally, some products have many aspects and features. Product-unrelated attributes can affect the buying or consumption process but do not directly affect product performance. The five types of these attributes are: 1). Prices; 2). User Imagery: Gender, Age, Race, Income; 3). Usage Imagery; 4). Feelings and Experiences; 5). Brand Personality [10].

Product attributes consist of 1). Product Quality: In developing a product, manufacturers must find a level of quality that will support that position in the market; 2). Product Features and product characteristics for marketing activities can be one way to win the competition; product characteristics or styles become a tool to distinguish the company's products from competitors; 3). Product Design was intended to align the performance of a product (characteristics/style) and the product's function so that the product can highlight both the quality and characteristics of a product without interfering with each other [8].

Companies can reduce the nature of uncertainty in marketing if they know consumer behavior and can anticipate the influence of the variables of their marketing decisions on consumers. Several factors influence consumer buying behavior was influenced by: 1). Cultural factors, cultural factors have the most widespread and profound influence on consumer behavior consisting of Culture, SubCulture, and Social Class; 2). Social factors Consumer buying behavior was influenced by social factors, namely Reference Group, Family, Role, and Status; 3). Personal Factors and purchasing decisions can also be affected by individual characteristics: Age and Life Cycle Stage, Occupation, Economic Circumstances, Lifestyle, Personality, and Personal; 4). Psychological factors can influence consumer purchasing decisions through Motivation, Perception, Learning, Belief, and Attitude [11].

Consumer decision-making is an integration process that combines knowledge to evaluate two or more alternative behaviors and choose one of them. This integration process results from a choice, which is presented cognitively as a desire to behave [12].

This acceptance process has a close relationship with behavioral responses, which is called the Hierarchy Of Effects Model). There is a close relationship between product attributes, the acceptance process, and the effect hierarchy model. The effect hierarchy model consists of 1). Awareness, 2). Knowledge, 3). Liking, 4). Preferences, 5). Intention to buy, 6). Purchase: To be competent from its competitors while remaining oriented to consumers, namely by providing satisfaction to consumers (customer satisfaction) [13].



**Fig. 1.** Conceptual framework.

H1 = A relationship exists between product-related attributes and product-unrelated attributes of prepaid cellular phone cards on consumer purchasing decisions during the COVID-19 pandemic.

H2 = There are the most dominant indicators of product-related attributes and product-unrelated attributes of prepaid cellular phone cards in consumer purchasing decisions during the COVID-19 pandemic.

## 2 Methods

The research method used was descriptive research. Descriptive research is: "A form of conclusive research that was intended to generate data describing the composition and characteristics of the relevant group of units such as customers, salespeople, organizations, or market areas" [14].

The independent variables in this study are product attributes with sub-variables product-related attributes and product-unrelated attributes that were oriented to consumers. In contrast, the dependent variable is consumer behavior. The control variables in this study are demographic data and consumption patterns or behavior. The measurement scale using a semantic differential scale is one of the most frequently used attitude measurement techniques in studying brand and company image [13]. The collected data was analyzed using Correlation Analysis with the help of the SPSS (Statistical Package for Social Sciences) program. This correlation test was conducted to determine the relationship between the independent variable (independent variable) and the dependent variable (dependent variable) and vice versa. The validity test was carried out to determine whether the measuring instrument used could measure what it wanted to measure. The reliability test was carried out to test the instrument's reliability, meaning that the tool used consistently measures the same symptoms [16]. The instrument reliability test used in this study was the Spearman-Brown split-half technique [17].

This study also wants to know from all the indicators, both product-related attributes and product-unrelated attributes, which one is the most dominant or which contributes the most to the encouragement of consumers to purchase the prepaid cellular phone card, then the Coefficient of Determination is used.

### 3 Results and Discussion

Descriptive statistics are statistical tools that describe or provide an overview of the object under study through sample or population data as it is, without analyzing and making generally accepted conclusions from the data. Descriptive statistics were used to describe data in terms of the mean, median, standard deviation, minimum value, and maximum value [15]. This test was carried out to make it easier to understand the variables used in the study.

From Table I, it can be seen that the average values for various indicators of product-related attributes of prepaid cellular phone cards are as follows: 1). Card design and voucher design, the mean value is 6.415, indicating that respondents are very interested in card design and refill voucher design. 2). Card roaming range, the mean value is 6,400. This prepaid card roaming indicator is very profitable for respondents; 3). Regarding voucher variations, the mean value is 6,770. The respondents assessed that the variety of prepaid vouchers available was very beneficial for respondents. 4). Card features: The mean value for prepaid card features is 6,112, indicating that respondents are very interested in phone card features with various choices; 5). In time units, the mean value is 6.612. This value shows that this prepaid cell phone card is profitable for the respondents. 6). Conversation rates, the mean value is 6.487. The prepaid card's per-minute conversation rate is beneficial to respondents and still affordable (7). Roaming charges, the mean value is 1,800 respondents for roaming charges from manufacturers of prepaid cell phone cards is not a burden for respondents where every prepaid cellular phone card operator has various variations of roaming fees.

**Table 1.** Descriptive statistics of product-related attributes.

Indicator	N	Minimum	Maximum	Mean	Standard Deviation
Card design and voucher design	170	1	7	6,415	0,608
Card roaming	170	1	7	6,400	0,725
Voucher variations	170	1	7	6,770	0,298
Card Features	170	1	7	6,112	0,970
Time units	170	1	7	6,612	0,489
Conversation rates	170	1	7	6,487	0,370
Roaming charges	170	1	7	1,800	0,766

**Table 2.** Product unrelated attributes descriptive statistics.

Indicator	N	Minimum	Maximum	Mean	Standard Deviation
Price:					
• Starter card	170	1	7	1,894	0,997
• Top-up vouchers	170	1	7	1,776	0,752
Card user impression	170	1	7	6,629	0,553
Effects of using the card	170	1	7	6,780	0,288
Feelings and experiences	170	1	7	6,365	0,908
Brand personality	170	1	7	6,259	1,028

From Table II, it can be seen that the average scores on various indicators of product-unrelated attributes of prepaid cellular phone cards are as follows: 1). The price of starter cards and top-up vouchers, the mean values of 1.894 and 1.776 indicate that respondents' assessment of the price level of starter packs and reload vouchers is not expensive; 2). For the impression of card users, the mean value is 6,629. The expectations that respondents felt that they felt very appropriate who had tried to form and offer the image of this prepaid cellular phone card varied; 3). The impression of using the card, a mean value of 6.780, was very satisfied with the performance and could communicate more smoothly and in all times and conditions; 4). Feelings and experiences mean 6.365. The impression of service, convenience, and submission of complaints is delightful. 5). Brand personality, the mean value of 6,259 respondents' assessment of the brand personality of this prepaid cell phone card is excellent.

**Hypothesis #1**

The null hypothesis (Ho1) and the alternative hypothesis (Ha2) are as follows:

Ho1 = No relationship exists between product-related attributes and product-unrelated attributes of prepaid cellular phone cards on consumer purchasing decisions during the COVID-19 pandemic.

Ha1 = A relationship exists between product-related attributes and product-unrelated attributes of prepaid cellular phone cards on consumer purchasing decisions during the COVID-19 pandemic.

**Table 3.** Correlation coefficient between product-related attributes and unrelated product attributes with consumer purchase decisions and significant value.

Description	Correlation Value (rs)	Value Significance	Decision
The relationship between product-related and unrelated product attributes of prepaid cellular phone cards on consumer purchasing decisions during the COVID-19 pandemic.	0,308	0.000 (significant at = 0.001)	Ha Accepted

*\*\* Correlation is significant at the 0.001 level (2-tailed)*

The results of the study in Table III show a relationship between product-related attributes and product-unrelated attributes with purchasing decisions by consumers with a correlation coefficient of  $r_s = 0.308$  at the significance ( $\alpha$ ) of 0.001. The value of  $r_s = 0.308$  was classified as a low correlation because the value of  $r_s$  is between 0.20 - 0.39. Reinforced by the results of hypothesis testing with a critical ratio using the Spearman Model Test Ratio (TR), the calculation results show that  $TR = 4.1961$ , then the TR value is compared with (t-table value) = 1.960, it turns out that the TR value > t value table. The relationship is positive, meaning that the relationship is unidirectional. This means that if the product-related attributes and unrelated product attributes are more attractive or satisfying, it will encourage purchasing decisions by consumers of prepaid cellular phone cards. From these results, Ho1 could be rejected, and Ha1 accepted, which means a relationship exists between product-related attributes and product-unrelated attributes of prepaid cell phone cards on consumer purchasing decisions during the Covid-19 pandemic.

### Hypothesis #2

The null hypothesis (Ho2) and the alternative hypothesis (Ha2) are as follows:

Ho2 = no dominant factor from product-related attributes and product-unrelated attributes indicators for prepaid cellular phone cards in consumer purchasing decisions during the COVID-19 pandemic.

Ha2 = These were the most dominant factors from product-related attributes and product-unrelated attributes indicators of prepaid cellular phone cards in consumer purchasing decisions during the COVID-19 pandemic.

**Table 4.** Pearson correlation coefficient ( $r_s$ ), coefficient of determination ( $R^2$ ), and significant indicators of product related attributes.

Indicators	$r_s$ value	$R^2$ value	Value Significance
Card Design and Voucher Design Consumer Behavior	0,223**	0,0497	0,003
Card roaming→ Consumer Behavior	-0,133	0,0177	0,085
Voucher variations→Consumer Behavior	0,054	0,0029	0,483
Card features consumer Behavior	0,040	0,0016	0,606
Time units Consumer Behavior	0,079	0,0062	0,303
Conversation rates → Consumer Behavior	-0,011	0,0001	0,885
Roaming charges→ Consumer Behavior	0,011	0,0013	0,644

\*\* Correlation is significant at the 0.01 level (2-tailed)

**Table 5.** Pearson correlation coefficient ( $r_s$ ), coefficient of determination ( $R^2$ ), and significant indicators of product unrelated attributes.

Indicators	$r_s$ value	$R^2$ value	Value Significance
Price:			
• Starter card→ Consumer Behavior	0,198*	0,0357	0,013
• Top-up vouchers → Consumer Behavior	0,136	0,0185	0,077
Card user impression → Consumer Behavior	-0,194*	0,0376	0,011
Effects of using the card→Consumer Behavior	-0,146	0,0213	0,057
Feelings and experiences Behavior	0,113	0,0128	0,141
Brand personality → Consumer Behavior	0,415**	0,1722	0,000

\*Correlation is significant at the 0.05 level (2-tailed)

\*\*Correlation is significant at the 0.01 level (2-tailed)

The product-related attributes indicators seen in Table IV, which had a significant relationship with consumer incentives to purchase prepaid cellular phone cards, are at the 0.01 level, namely the relationship between card design and voucher design, with a correlation coefficient of  $r_s = 0.233$ . Furthermore, testing the hypothesis with the Test Ratio obtained the value of  $TR = 2,965$ . Suppose the value of  $TR$  is compared with the value of  $t$  table = 1.960 with = 0.01 two-tailed. In that case, it turns out that the  $TR > t$  table, which means there is a significant relationship between card design and voucher design with consumer encouragement to purchase prepaid cellular phone

cards, had a positive relationship, meaning that if the card design and voucher design are more attractive, it will increase the consumer's incentive to buy the prepaid cellular phone card. Judging from the coefficient of determination where  $R^2 = 0.0497$  shows that the contribution of card design indicators and voucher designs from product-related attributes is only 4.97 percent.

Table V shows three indicators with a significant relationship at the level of significance ( $\alpha$ ) of 0.05 and 0.01. The three indicators are the price of the starter pack ( $r_s = 0.198$ ), the impression of card users ( $r_s = -0.194$ ), and the brand personality ( $r_s = 0.415$ ). Furthermore, with the Test Ratio (TR) for starter packs with  $TR = 2.4947$ , the impression of card users with  $TR = -2.5632$ , and brand personality with  $TR = 5.9122$ . Furthermore, if the TR value is compared with the t table value = 1.960 with = 0.05 two-tailed and 0.01 two-tailed, it turns out that the three indicators have  $TR > t$  table (1.960), namely the price of the starter pack, the impression of the card user and the brand. Personality, thus, there is a significant relationship between the cost of starter packs, the image of card users, and brand personality with consumer encouragement in making decisions to purchase prepaid cell phone cards during the COVID-19 pandemic. This result also produces the closest relationship: brand personality with a correlation coefficient of  $r_s = 0.415$ , classified as a moderate correlation. Judging from the coefficient of determination  $R^2 = 0.1722$ . This means that the contribution of brand personality from unrelated product attributes is 17.22 percent. This can happen because the brand personality of each cellular phone card operator has been known for a long time by consumers and tries to persuade consumers through vigorous promotions broadcast in various electronic media and other print media. From these results,  $H_02$  could be rejected and  $H_a2$  accepted, which means there are the most dominant factors from the dimensions of product-related attributes and product-unrelated attributes of prepaid cellular phone cards in consumer purchasing decisions during the Covid-19 pandemic.

## 4 Conclusion

Attributes attached to a product can help consumers classify the weaknesses and advantages of a product and know the similarities and differences of the product. Information was needed to support consumers' opinions on several attributes that are generally known and can form perceptions as long as consumers consume or use the product. Respondents' responses to product-related attributes are that the card design is very attractive, the roaming power and variety of vouchers are very profitable, the features are extensive, time unit and call rates per minute are very beneficial, and roaming fees do not burden consumers. Likewise, respondents' responses to unrelated product attributes are the price of starter packs and the price of refill vouchers are not high, user impressions are very appropriate, user impressions are very satisfied, feelings and experiences while using the card are very pleasant, and the brand personality of prepaid cellular phone cards is very good. The results of this study show that there is a positive relationship between product-related attributes and product-unrelated attributes with consumer purchasing decisions on prepaid cell phone cards during the Covid 19 pandemic. Design is the most dominant product-related attribute that encourages consumers to make purchasing decisions during the COVID-19 pandemic. Card and voucher design, while the most prevalent product-



unrelated attributes that enabled consumers to make purchasing decisions during the COVID-19 pandemic, was brand personality.

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