# The Effect of Product Innovation towards Brand Image and Its Implication on Consumer Buying Behavior (A Case of Toshiba television in Jakarta)

Jesslyn Octavia [1*,] A.B.M. Witono [2], and Dedi Kurniawan [2]

[1] Global Master of Business Administration, College of Management, Providence University, Taichung, Taiwan

[2] Business Administration Department, Faculty of Business, President University, Indonesia, 17530, Indonesia

ABSTRACT

The television production industry is facing fierce competition from its substitutes, such as the smartphone industry. Television manufacturers need to find the right strategy to maintain sales. This study examines the effect of product innovation on brand image and consumer buying behavior on television products. Research on product innovation and its contribution to brand image and consumer buying behavior, specifically in the television production industry, is not yet fully observed. This study used quantitative methods with survey techniques. Toshiba television product is the object of the research. Three hundred respondents who had purchased television responded to a questionnaire distributed in the DKI Jakarta area, Indonesia. Data were analyzed using the Structural Equation Modeling technique by employing AMOS software. The study found that product innovation has a significant effect on brand image and consumer buying behavior. The brand image also has a significant effect on consumer buying behavior. Hence, product innovation and brand image are both important factors that can influence consumer buying behavior. These two aspects should be the main concern for television manufacturers, especially Toshiba, to compete grabbing consumers.

\* Corresponding Author at Global Master of Business Administration, College of Management, Providence University, Taichung, Taiwan
E-mail address: g1085766@gm.pu.ed.tw (author#1)

## Introduction

The business conditions of the television production industry are going to a very tight competition with the market that is getting crowded over time. Toshiba is one of top Japan's companies producing television units that closed its last big factory in Indonesia (Wahyuni, 2016). According to Lestarini (2016), Toshiba Corporation estimated that a bigger loss would be experienced in 2016. Toshiba suffered a net loss of ¥710 billion, or equivalent to Rp 82.26 trillion compared to the previous losses, which amounted to ¥550 billion. In January 2016, Toshiba closed its factory in Indonesia due to the weakening world economy and the decreasing of purchasing power on consumers. This leads to the plummeted company's product sales. Toshiba originally has six factories. However, it closed one by one in the last ten years (Rusyandi, 2016). Figure 1 shows the decrease in Toshiba's revenue from $77,256.16M in 2012 to $69,019.97M in 2013, and in 2016 Toshiba experienced a drastic drop to $47,205.90M.

**Figure 1**. Revenue of Toshiba Corp. in 2012-2016
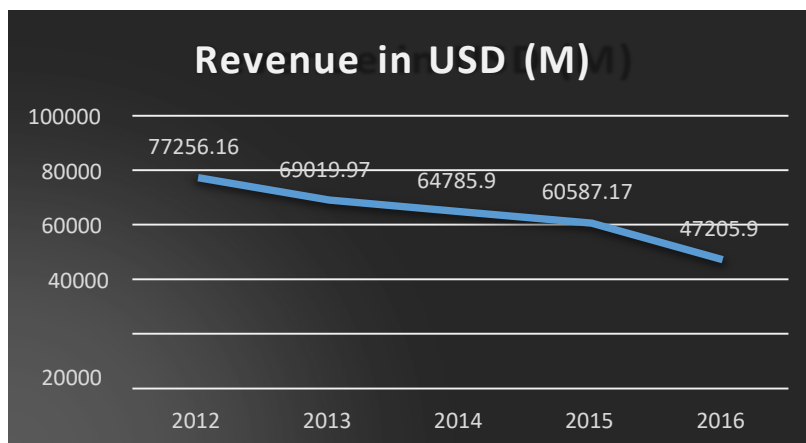


Source: www.asia.nikkei.com

According to Rani (2014), a company should sell products that make customers think if that product appears as the solution to their needs. Meanwhile, Kanagal (2015) stated that if sales are initially low, a company should improve the product quality and drop the price in order to increase sales.

The television industry needs to find solutions to increase sales so that the decline will not continue. Sales will increase if the consumer's buying behavior of a product increases. Then, what are the factors that can increase the consumer's buying behavior? Many variables have been studied as factors that influence consumer's buying behavior, including brand image and product innovation. Product innovations include creating, selecting, and developing or

improving products, processes, and technologies, and brand image can be seen as how the customers see the brand. Jasmani and Sunarsi (2020) found that brand image affects consumer buying decisions for bakery products. Suhaily and Darmoyo (2017) researched purchase decisions on Japanese electronic products. They also found similar results that brand image influences purchase decisions. In this case, it is mediated by customer trust.

The product innovation variable was also found to be one factor that can increase consumer's buying behavior. Buying behavior is all the processes and actions taken by a consumer when buying and consuming a product. Nazzaro et al. (2019) researched innovative food products and found that consumers were very open to product innovation. They also found that the willingness to pay consumers was higher for innovative products compared to traditional products. Kim et al. (2019) researched purchase behavior in augmented products, especially on the relationship between design innovation and perceived value and purchase intention. They found that design innovation on augmented products contributed to the perceived value, which in turn increased purchase intention.

Based on empirical problems in the television industry explained above, as well as the findings of several studies on the role of product innovation and brand image in increasing consumer buying behavior, this study will re-examine the product innovation and brand image as the variables that can increase consumer buying behavior, especially in a television manufacturing company.

## 2. Literature review

### 2.1. Product Innovation

Masda (2015) proposed that the key to winning the competition is to create innovation. Innovation must be created by companies because innovation is one source of company growth. According to Yohanes and Indriyani (2013), creativity is an important part of innovation. Creativity is not just ideas. Companies need creativity and innovation at the same time. Hadiyati (2011) explained that the absence of innovation would make a company unable to last for a long time. This is due to the changes in the customer's need, desire, and demand. Customers tend to look for new products from other companies that might better satisfy their needs.

According to Suriatna (2013), innovations include creating, selecting, and developing or improving products, processes, and technologies. Innovative products can be distinguished from their uniqueness in form, function, or behavior. Product innovation has three indicators such as the followings:

1. Product quality, which is the ability of a product or service to perform its functions, which cover reliability, durability, and thoroughness.

2. Product features, which are items inside a product, including the addition of the product features and product variants. These are to distinguish a product from the others.

3. Styles and designs of products, which are other ways in adding value to customers. The style describes the appearance of a particular product.

Marion (2009) stated that innovation starts with thoughts, continues with improvements, and results in the presentation of distinguished items, processes, or administration. According to Hadiyati (2011), innovation becomes very important because of the following reasons:

1. Technology is changing very fast with the presence of new products, processes, and new services. Companies need to adapt and adjust the new technological innovation.

2. When the market and technology are changing very fast, a good idea may be more easily imitated. This requires a method and a process by which new, better, faster products and services can be produced.

3. Innovation promises faster growth, expands market share, and gives a better corporate position.

## 2.2. Brand Image

Hague (1994) stated that a brand is a recognized name and/or image (for example, logo, trademark, or bundle plan) proposed to distinguish merchandise or services. Brand image is a person's impression of a brand and the perceived uniqueness of a brand when compared to other brands (Faircloth, 2005). The brand image can be seen as how the customers see the brand. It is the key to how buyers settle on their decisions in the wake of social occasion data about the specific brand and the choices.

According to Rosengren et al. (2010), there are three different inductive processes that form a brand image. First, marketing communication. Marketing communication is one method to influence individuals to purchase products and services. This can form images and perceptions of a brand in a customer's mind. Second, consumption experience. This factor is very important for consumers to be consistent with marketing communication. Third, social influence. This can be in the form of word of mouth that influences customers. It has a capable impact because of the way that it is an exchange between two or more individuals, where conclusions are

expressed and are regularly reflected as having more validity than different sorts of specialized strategies (Blythe, 2006).

According to Hsieh et al. (2004), a good brand image can make it easier for consumers to find out the consumer needs that are met by the brand while at the same time confirming the difference with competitors. Companies that have a good brand image will have a special place in the consumers' minds.

Sondoh et al. (2007) argued that image cannot be measured by characteristic estimations alone yet should incorporate estimations of purchasers' view of the quality and advantages that are feasible from utilizing the brand. Brand image is portrayed by the impression of the customers, which is reflected by the distinctive affiliations they held as the main priority about the brand (Sääksjärvi & Samiee, 2011). They also stated brand credibility, brand character, consumers' overall attitude towards the brand, as well as consumers' feelings for the brand are correlated with brand image.

1. Brand Credibility

   According to Sheeraz et al. (2012), brand credibility alludes to believability in attributes of a brand (product). Hanzaee and Taghipourian (2012) stated brand credibility is characterized as the believability of a product position contained in a brand, which involves reliably conveying what is guaranteed. The idea of credibility has two primary measurements, in particular trustworthiness and expertise. That is, to be seen as credible, a brand should be seen as willing and ready to convey what is guaranteed. Trustworthiness infers that a brand will convey what is guaranteed, while expertise infers that it is equipped for conveying. Consequently, brand credibility obliges buyers to see willing of the brand (trustworthiness) and its ability (i.e., expertise).

2. Brand Character

   The relationship between customer and brand resembles two individual relationships. This relationship can be neighborly or not. Brands are broadly recognized to have human qualities that credit particular human-like identity attributes, and most buyers select brands that are consistent with their necessities and personality characteristics. Brand characters are shaped by consumer experience and any contact among shoppers and the brand. A brand character is a vital apparatus, and a metaphor that can help marketers to understand consumers' perceptions of a brand and distinguishes brand identities, and finally develops brand equity (Ranjbar, 2010). It has been noted by Ahmad and Thyagaraj (2015) that brand character is an idea in social advertising, which

is known as a collection of human attributes related to a brand. In recent times, the idea of brand character has accomplished huge significance inside the successful management of brands. With a point of view to better satisfy their customers' needs and to set up long-term customer-brand connections, organizations position their brands with fascinating identities.

According to Keng et al. (2013), a brand character has been characterized as an arrangement of human characteristics related to a brand. They have found that brand character helps a consumer to uncover his/herself, a perfect self, or accurate parts of the self through the utilization of a brand. Chang (2014) has categorized the elements of brand character. The first is sincerity representing the down-to-earth character, real, sincere, and honest characters. The second is excitement representing how daring, exciting, and imaginative a brand is. The third is competence representing the aspect like confidence, intelligence, reliability, and security. The last fourth is the sophistication that represents how glamorous, upper class, good looking, charming, or feminine a brand is. The last character is ruggedness that represents how tough, outdoorsy, masculine, and western a brand is.

## 2.3. Consumer Buying Behavior

Buying behavior is all the processes and actions taken by a consumer when buying and consuming a product (Stávková et al., 2008). Buying behavior includes social and mental processes. Shih et al. (2015) stated that demographic factors such as age, gender, income, and such are one of the factors that influence consumer's buying behavior.

According to Khaniwale (2015), some questions come to customers' minds while they try to buy a product. They ask what, where, why, when, and how to buy a product. They also ask whether to buy or not to buy the product. These all influence buyer behavior. Yakup et al. (2011) noticed that a marketer may influence a customer's buying behavior but cannot control the behavior. Because consumer behavior might be affected by several individual and non-individual factors. Individual factors include experiences, attitudes, motives, perceptions, self-concept, and values. Meanwhile, culture, profession, family, and reference groups are the forms of non-individual factors.

Shih et al. (2015) thought that consumer buying behavior is how consumers select, purchase, use and dispose of products, services, ideas, or experiences to meet their demand. Rani (2014) also stated that cultural, social, personal, and psychological factors can influence consumer behavior.

### 2.4. Hypothesis Development

How are the relationships among those three variables and what variables contribute to increasing consumer buying behavior, and how is the mechanism? Brands can influence customer's purchasing decisions by introducing new products with unique and innovative features. Andrews and Kim (2007) stated that introducing new innovative products is one of the most effective ways to differentiate a brand from other brands as well as protect brand image. Hanaysha et al. (2014) also stated that there is a relationship between product innovation and brand image. These two things are also used by organizations to survive and grow and continue to create new values for consumers. Shih et al. (2015) also found the same thing that product innovation positively affects brand image. It will produce a perception of superiority in the minds of consumers so that it can produce satisfaction for consumers.

Not only influencing brand image, but product innovation is also found to be a factor that influences consumer buying behavior. Masda (2015) argued that technological advancement globally made the innovation activity on product development quite significant. Many products in the market tried to fit in with existing developments. Product innovation is something that consumers perceive as a novelty. As a new product, product innovation is expected to be able to meet the expectations of the consumer. When a product innovation is capable of presenting consumer expectations, then the chance is larger to influence consumer purchasing decisions. The finding of Nazzaro et al. (2019) supports this hypothesis. They conducted research on innovative food products and found that consumers were very open to product innovation. They also found that the willingness to pay of consumers was higher for innovative products compared to traditional products. Kim et al. (2019) researched purchase behavior in augmented products, especially on the relationship between design innovation and perceived value and purchase intention. They also found that design innovation on augmented products contributed to a perceived value which then increased purchase intention.

As discussed above, product innovation is believed as one factor that can influence brand image as well as consumer buying behavior. Besides, brand image is found to influence consumer buying behavior. Brand image is the subjective awareness reflected from the brand association in the memory of consumers. However, besides affecting consumer's decision-making, the brand image also significantly influences consumer's buying behavior (Kotler & Keller, 2006). Shih et al. (2015) found that that the better the brand image, the higher consumer purchases. Macdonald and Sharp (2000) also stated that brand image considerations would define consumers' choices when making a purchase. Meanwhile, Malik et al. (2013) agreed that

brand image is one factor that positively influences consumer buying behavior. A positive brand image will be perceived as a positive attitude. Jasmani and Sunarsi (2020) also found that brand image affects consumer buying decisions for bakery products. Suhaily and Darmoyo (2017) researched purchase decisions on Japanese electronic products. They also found similar results that brand image influences purchase decisions. In this case, it is mediated by customer trust.

Although a lot of research has been conducted on these three variables, less research has been done that focuses on the television production industry. Therefore, this study will re-examine the relationship between the three variables but specifically use the television production industry case. Thus, the hypothesis proposed in this study are as follows:

H1: Product innovation positively influences brand image.
H2: Product innovation positively influences consumer buying behavior.
H3: Brand image positively influences consumer buying behavior.

Meanwhile, if the relationship between the three variables is described in the form of a theoretical framework, it will appear as in Figure 2 below.

**Figure 2**. Theoretical Framework
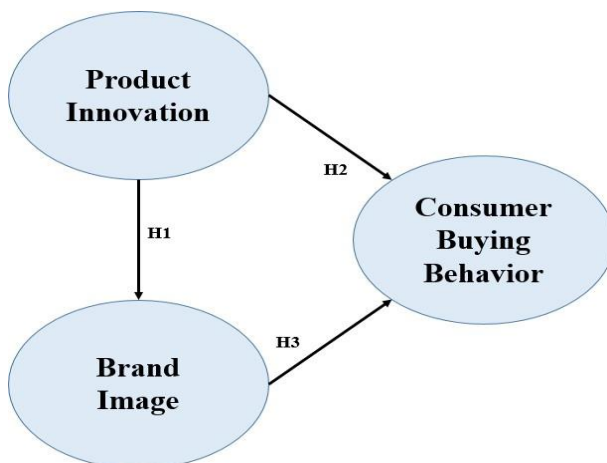


## 3. Research Method

This research uses the quantitative research method. Three hundred samples were collected from people in the Jakarta area. The respondents are employees working in Jakarta area that have bought a television at least once, and they know about Toshiba television product. The

majority of the respondents are male (80%). They are mostly 20-28 years old (60%), graduated with a bachelor's degree (75%), and work as office staff (57%).

Data were collected using online and offline questionnaires. Online questionnaires were created using Typeform and distributed through social media and instant messaging applications. Meanwhile, offline questionnaires were distributed to respondents face-to-face.

Product innovation, brand image, and consumer buying behavior are measured using indicators shown in Table 1. Each indicator is measured by 5 points of Likert (1 = strongly disagree and 5 = agree).

The data were analyzed using a statistical procedure of structural equation modeling assisted by the AMOS software.

**Table 1.** Variable measurements

| Variables | Indicators | Sources |
|---|---|---|
| Product Innovation | Television is considered to be innovative in terms of product design | (Hanaysha et al., 2014) |
| | Toshiba brand differs from competing models in the market | |
| | Toshiba brand is highly innovative compared to other T.V. brands in the market | |
| | Toshiba is frequently updated with new models | |
| | Toshiba brand is frequently supplemented with new features and specifications for the customers | |
| | Toshiba brand frequently comprises new features which are meaningful to the customer | |
| | Toshiba is producing specialty products | (Johnson et al., 2009) |
| | Toshiba is upgrading its existing product | |
| | Toshiba is developing new products | |
| Brand Image | Using the Toshiba brand makes me feel like a person with high social status | (Broyles et al., 2009) |
| | Using the Toshiba brand makes me feel popular | |
| | I am familiar with the Toshiba brand | |
| | Toshiba brand lacks character | (Sääksjärvi & Samiee, 2011) |
| | Toshiba brand is very upscale | (Hanzaee & Taghipourian, 2012) |
| | Toshiba claims from this brand are believable | |
| | Toshiba brand has a name you can trust | |

| Variables | Indicators | Sources |
|---|---|---|
|  | Toshiba brand has created a distinct image in my mind | (Hanaysha et al., 2014) |
|  | Toshiba provided me a better lifestyle |  |
|  | The staff of the Toshiba brand can build a strong brand relationship with me |  |
| Consumer Buying Behavior | Purchase the product based on brand name | (Sivanesan, 2014) |
|  | I mostly purchase brands shown in ads |  |
|  | The quality of the television material is important during the buying process | (Zekiri & Hasani, 2015) |
|  | The television design has an impact on product selection during the buying process |  |
|  | The quality of television is related to the price of the product |  |
|  | Approval of my environment or friend is the most important thing for me on the television that I will take | (Yakup et al., 2011) |
|  | Suitability to my culture, belief, tradition, and custom is the most important factor on the television that I will take |  |

## 4. Result and Discussion

### 4.1. Validity Test

The validity test is assessed using Keiser-Meyer-Olkin (KMO) and Bartlett's Test, Communalities, and Rotated Component Matrix. The minimum value to pass KMO and Bartlett's test is 0.6, and the significant value must be 0.000 or lower. In the communalities, all indicators in each variable have to be at least 0.5 value to be considered valid. Table 2 shows the KMO and Bartlett's test for Product Innovation.

**Table 2.** KMO and Bartlett's Test of Product Innovation

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .880 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 992.852 |
|  | df | 15 |
|  | Sig. | .000 |

In Table 2, the factor analysis tested six questions, and the result showing that the KMO and Bartlett's test has proved that all indicators are valid. It can be seen in the value of the KMO

Measure of sampling adequacy, which is 0.88, which is greater than 0.6. Another factor is the significant value of 0.000. This means that the variables are passed the validity test.

**Table 3.** Communalities of product innovation

|     | Initial | Extraction |
| --- | --- | --- |
| PI4 | 1.000 | .590 |
| PI5 | 1.000 | .666 |
| PI6 | 1.000 | .740 |
| PI7 | 1.000 | .684 |
| PI8 | 1.000 | .678 |
| PI9 | 1.000 | .608 |

Based on Table 3, 6 questions were extracted. The result shows that all the indicators have passed the requirement (at least 0.5 of the value of extraction). Initially, there were nine indicators to be tested, but three questions were deleted because they did not complete the requirement in the Communalities. Those three questions appeared the extraction value in less than 0.5. However, after deleting those three questions, the researcher re-tested the remaining six questions. Providentially, those six questions have passed all the requirements.

**Table 4.** Total Variance Explained of Product Innovation

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3.966 | 66.102 | 66.102 | 3.966 | 66.102 | 66.102 |
| 2 | .580 | 9.673 | 75.775 | | | |
| 3 | .466 | 7.758 | 83.534 | | | |
| 4 | .439 | 7.309 | 90.843 | | | |
| 5 | .306 | 5.101 | 95.944 | | | |
| 6 | .243 | 4.056 | 100.000 | | | |

Extraction Sums of Squared Loadings are 66.102% of the cumulative percentage. It shows that it has passed the minimal requirement of cumulative percentage (60%). Rotated Component Matrix is not shown in this analysis because there is only one factor.

**Table 5.** KMO and Bartlett's Test of Brand Image

| | |
|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .784 |
| Approx. Chi-Square | 660.439 |
| Bartlett's Test of Sphericity          Df | 10 |
| Sig. | .000 |

In the brand image, there are six indicators to be tested. The value of the KMO Measure of Sampling Adequacy is 0.836, and the significant value is 0.000. This means that the variable passed the requirements.

**Table 6.** Communalities of Brand Image

| | Initial | Extraction |
|---|---|---|
| BI3 | 1.000 | .672 |
| BI4 | 1.000 | .628 |
| BI5 | 1.000 | .620 |
| BI6 | 1.000 | .642 |
| BI7 | 1.000 | .541 |

Five questions have been extracted, as shown in Table 6. Based on the table above, all the variables are accepted because their extraction values are more than 0.5. Previously, there were ten questions to be tested, but five questions were deleted because they did not complete the requirement in the Communalities. Those five questions appeared that the extraction value in less than 0.5. However, after deleting those five questions, the researcher re-tested the remaining five questions. Providentially, those five questions have passed all the requirements and can be used in this research.

**Table 7.** Total Variance Explained of Brand Image

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3.103 | 62.052 | 62.052 | 3.103 | 62.052 | 62.052 |
| 2 | .827 | 16.542 | 78.593 | | | |
| 3 | .476 | 9.523 | 88.117 | | | |
| 4 | .303 | 6.052 | 94.169 | | | |
| 5 | .292 | 5.831 | 100.000 | | | |

Based on Table 7, the cumulative percentage in the column Extraction Sums of Squared Loadings is 62.052% which presented that the variable is accepted. Rotated Component Matrix is not shown in this analysis because there is only one factor.

The validity test was also applied to the dependent variable, consumer buying behavior. There are four indicators in the consumer buying behavior variable. Table 8 shows that the KMO of Sampling Adequacy for consumer buying behavior is 0.774, and the significant value of Bartlett's test is 0.000.

**Table 8.** KMO and Bartlett's Test of Consumer Buying Behavior

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .774 |
|---|---|---|
| | Approx. Chi-Square | 549.719 |
| Bartlett's Test of Sphericity | Df | 6 |
| | Sig. | .000 |

**Table 9.** Communalities of Consumer Buying Behavior

| | Initial | Extraction |
|---|---|---|
| CBB3 | 1.000 | .645 |
| CBB4 | 1.000 | .796 |
| CBB5 | 1.000 | .738 |
| CBB6 | 1.000 | .590 |

Table 9 shows the communalities result of consumer buying behavior. The result shows that the variable is valid because the extraction value of the question is more than 0.5 as the required value in the communalities.

Previously, there were seven indicators to be tested, but three questions were deleted because they did not complete the requirements in the Communalities. Those three questions appeared the extraction value in less than 0.5. However, after deleting those three questions, the researcher re-tested the remaining four questions. Providentially, those four questions have passed all the requirements and can be used in this research.

According to Table 10, the cumulative percentage in the column Extraction Sums of Squared Loadings is 69.211%. It shows that it has passed the minimal requirement of cumulative percentage (60%). Rotated Component Matrix is not shown in this analysis because there is only one factor.

**Table 10.** Total Variance Explained of Consumer Buying Behavior

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.768 | 69.211 | 69.211 | 2.768 | 69.211 | 69.211 |
| 2 | .613 | 15.326 | 84.537 | | | |
| 3 | .366 | 9.141 | 93.678 | | | |
| 4 | .253 | 6.322 | 100.000 | | | |

### 4.2. Reliability Test

The reliability test was used to detect the reliability of the instrument. This test is based on the value of Cronbach's Alpha. That value must be more than 0.6 to be considered reliable. According to Table 11, the product innovation has a high value of Cronbach's Alpha. This means that the instrument is reliable.

**Table 11.** Product Innovation Reliability Statistic

| No | Factor | Cronbach's Alpha | N of Items |
|---|---|---|---|
| 1 | Product Innovation | .897 | 6 |

Therefore, the final indicators of product innovation used in this research are as shown in the table below:

**Table 12**. Final questions of Product Innovation

| Variable | Indicators |
|---|---|
| Product Innovation | Toshiba is upgrading its existing product |
| | Toshiba brand is frequently supplemented with new features and specifications for the customers |
| | Toshiba is producing specialty products |
| | Toshiba is developing new products |
| | Toshiba brand frequently comprises new features which are meaningful to the customer |
| | Toshiba brand is highly innovative compared to other T.V. brands in the market |

Based on Table 13, the brand image is proven reliable. The value of Cronbach's Alpha for the variable is more than 0.6.

**Table 13.** Brand Image Reliability Statistic

| No | Factor | Cronbach's Alpha | N of Items |
|----|--------|------------------|------------|
| 1 | Brand Image | .846 | 5 |

Therefore, the final indicators of brand image are shown in Table 14.

**Table 14**. Final indicators of Brand Image

| Variable | Indicators |
|----------|------------|
| Brand Image | Using the Toshiba brand makes me feel like a person with high social status |
| | Using the Toshiba brand makes me feel popular |
| | Toshiba provided me a better lifestyle |
| | Toshiba claims from this brand are believable |
| | Toshiba brand has a name you can trust |

The last variable to be tested using the reliability test is consumer buying behavior. The total indicators for the variable are four indicators. The result of the reliability test is presented in the following table:

**Table 15.** Consumer Buying Behavior Reliability Statistic

| No | Factor | Cronbach's Alpha | N of Items |
|----|--------|------------------|------------|
| 1 | Consumer Buying Behavior | .850 | 4 |

Since the minimum value of Cronbach's Alpha is 0.6, as shown in Table 15, consumer buying behavior is confirmed as reliable because the Cronbach's Alpha is higher than 0.6. Therefore, the final indicators for the variable that used in this research are:

**Table 16.** Final questions Consumer Buying Behavior

| Factor | Questions |
|--------|-----------|
| Consumer Buying Behavior | Suitability to my culture, belief, tradition, and custom is the most important factor on the television that I will take |
| | The television design has an impact on product selection during the buying process |
| | Purchase the product based on brand name |
| | The quality of the television material is important during the buying process |

## 4.3. Identification of the Structural Model

Identifying the structural model and the problem prior to the data is compulsory. Based on the analysis, the Chi-square is 160.543, the degree of freedom is 79, and the probability level is 0.000. Table 17 also shows other indicators to assess the structural fit of the model. The value of CMIN/DF is 2.032. It indicates that this model has reached a reasonable level of mediocre fit. All the structural fit measurements indicate that the structural model is fit.

**Table 17.** Goodness-of-Fit criteria

| Goodness of Fit Index | Cut-off Value | Value |
| --- | --- | --- |
| Chi-square | P < 0.05 | 0.000 (significant) |
| RMSEA | ≤ 0.08 | 0.059 (good fit) |
| GFI | ≥ 0.90 | 0.936 (good fit) |
| CMIN/DF | ≤ 5.00 | 2.032 (good fit) |
| TLI | ≥ 0.95 | 0.955 (good fit) |
| CFI | ≥ 0.90 | 0.966 (good fit) |
| IFI | ≥ 0.90 | 0.967 (good fit) |
| NFI | ≥ 0.90 | 0.936 (good fit) |

## 4.4. Input Matrix Type and Estimating the Proposed Model

An influence of a variable on a certain variable is considered significant when its C.R. (Critical Ratio) value is more than 1.96 or P (Path coefficient) value is less than 0.05. Also, the value of C.R. must be greater than the value of S.E.

**Table 18.** Regression Weight

| | | Estimate | S.E. | C.R. | P | Label |
| --- | --- | --- | --- | --- | --- | --- |
| BI <--- | PI | .574 | .081 | 7.060 | *** | par_13 |
| CBB <--- | PI | -.504 | .109 | -4.623 | *** | par_22 |
| CBB <--- | BI | .806 | .146 | 5.510 | *** | par_23 |

As depicted in Table 18, only two correlations match the requirements. The first correlation is between product innovation and brand image. The C.R. value is 7.060, which is greater than the S.E. value (.081), and the P-value is 0.00, which is less than 0.05. This shows that all requirements are passed, and the correlation is considered significant.

The second correlation is between brand image and consumer buying behavior. The C.R. value is 5.510, which is greater than the S.E. value (.146), and the P-value is 0.00, which is less than 0.05. This indicates that the correlation is considered significant.

Lastly, the correlation of product innovation and consumer buying behavior. Its C.R. value is -4.623, which is less than the S.E. value (.109), and the estimated value is negative. Then, the hypothesis stating that product innovation positively influences consumer buying behavior is not supported.

**Table 19.** Standardized Regression Weight

|  |  |  | Estimate |
|---|---|---|---|
| BI | <--- | PI | .574 |
| CBB | <--- | PI | -.504 |
| CBB | <--- | BI | .806 |

Based on Table 18 and Table 19, the H1 where product innovation positively influences brand image is accepted with the estimate value is 0.574. The H2 where product innovation positively influences consumer buying behavior is not accepted. The H3 is also accepted where the brand image positively influences consumer buying behavior. The Estimate value of this hypothesis is the highest (0.806).

**Table 20.** Standardized Total Effect

|  | PI | BI | CBB |
|---|---|---|---|
| BI | .574 | .000 | .000 |
| CBB | -.041 | .806 | .000 |

The standardized total effect, as shown in Table 20, is the result of the direct effect adding with the indirect effect.   Based on Table 20, the biggest effect in this research is the effect of brand image on consumer buying behavior (80.6%).

### 4.5. Discussion

As hypothesized, the independent variable, Product Innovation, significantly influences the dependent variable, Brand Image. In addition, Brand Image has been found to significantly influences Consumer Buying Behavior. Contrary to the hypothesis, this study found no evidence that Product Innovation has a significant effect on Consumer Buying Behavior. Table 21 summarizes the regression model result.

**Table 21.** Hypothesis Result

| Hypotheses | Conclusion |
| --- | --- |
| H1: Product innovation positively influences brand image. | Accepted |
| H2: Product innovation positively influences consumer buying behavior. | Rejected |
| H3: Brand image positively influences consumer buying behavior. | Accepted |

Brand image is found as the most significant variable affecting consumer buying behavior (80.6%). This result supports previous research conducted by Sivanesan (2014), which confirmed that brand image plays a vital role in supporting any business performance as the brand image is a suggested tool that can emphatically change consumer buying behavior. Research conducted on bakery products in South Tangerang City by Jasmani and Sunarsi (2020) also found that brand image has a significant positive effect on consumer purchasing decisions. Meanwhile, Hariandja (2016) conducted research on the influence of brand ambassadors on brand image and consumer purchase decisions with the case of the Tous Les Jours company in Indonesia. This study found that the brand image that is influenced by the brand ambassador plays a significant role in influencing consumer purchase decisions.

Product innovation is also found as a significant variable because it has a significant positive effect on brand image. Previous research conducted by Hanaysha et al. (2014) has a similar finding where innovation and brand image are related variables. Product innovation is used by a company in its pursuit of survival and growth. Good product innovation makes consumers feel that the product has superior features so that it creates a feeling of satisfaction in the hearts of consumers.

Research by Shiau (2014) about product innovation, brand image, and behavior intention in Japanese Doll products found that product innovation had a positive effect on brand image. There are three most influential aspects, namely new products, technological innovation, and service innovation. Another study from Wang et al. (2019) which examined the mechanism of the influence of perceived product innovativeness on brand loyalty in mobile phone products, also found that product innovativeness (perceived product innovativeness, perceived newness, and perceived meaningfulness) had a positive effect on brand image.

However, H2, which states that product innovation has a positive effect on consumer buying, is not supported by the results of data analysis in this study. Therefore H2 is rejected. Most studies do find that product innovation has an effect on consumer buying behavior or

purchase intention (Lahindah et al., 2018; Sinaga et al., 2021). However, there are other findings that are close to the findings of this study. Wang et al. (2019), for example, also found that consumer innovativeness is not proved to strengthen the correlation between perceived product innovativeness and brand loyalty. Consumer innovativeness is also not found to strengthen the correlation between perceived product innovativeness and customer perceived value.

## 5. Conclusion and Implications

The research objective of this study is to examine the effect of product innovation on brand image and the implication on consumer buying behavior of television products in the Toshiba brand. After analyzing to achieve research objectives, there are several results. First, two hypotheses are accepted, and one is rejected. Product innovation positively influences brand image, and brand image has a significant positive effect on consumer buying behavior. However, this study has no proof that product innovation positively influences consumer buying behavior.

There are very few researches analyzing the correlation between product innovation, brand image, and consumer buying behavior in the television production industry. This study contributes to enriching the research literature in this field, especially in the case of the television production industry.

However, this study has limitations. This research model is very simple which only tests three variables. Meanwhile, there might be many other variables that can be factors that influence consumer buying behavior. In addition, the relationships were only direct relationships, so that they could not explain the mechanism of the relationship between variables more clearly.

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