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Examining the Relationships between Product Quality, Customer Satisfaction and Loyalty in the Bamboo Institute, Dili, Timor-Leste

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ABSTRACT

The objectives of this research are to test and explain the influence of product quality and customer satisfaction on customer loyalty, in addition to customer satisfaction on the relationship between product quality and customer loyalty. A total of 190 valid questionnaires were collected from costumers of Bamboo Institute in Dili, Timor-Leste, and the relationships between 3 variables were tested using SMART-PLS 3.0. The result of the study revealed that product quality and customer satisfaction influence positively and significantly on customer loyalty, and customer satisfaction fully mediate the relationship between product quality and customer loyalty. The result of study confirms that product quality and customer satisfaction are strong antecedent factors for customer loyalty. Therefore, to enhance customer loyalty, it is important to provide the product quality that meets the customer's satisfaction level.

Keywords: Product quality, customer satisfaction, customer loyalty, Timor-Leste.

1. Introduction

The Bamboo Institute, PI is a public institute in Timor-Leste that manufactures furniture. This institute creates jobs and contributes to State income. The annual income of this institute fluctuates: in 2017, its income decreased from US$ 98,615.38 in 2016 to US$ 79,502.28 (19.38%), and in 2018, the income increased to US$ 140,568.77 or an increase of 77% from 2017. It is predicted that this figure will continue increase in 2020 (Rua, 2020).

The consumer's need for furniture in the Timor-Leste market has started to increase as consumers learn about the quality of its bamboo products (Unidade Setor Ekonomiku-MF). The same products from other companies are available in Timor-Leste market: there are 468 companies working in the furniture sector (SERVE, 2019). This number is considered large for a country as small as Timor-Leste and this means that competition is increasing and poses a major threat to the Bamboo Institute's revenue projections. The Bamboo Institute must strive to ensure customer satisfaction to maintain customer loyalty.

Consumer loyalty is an important factor for a company's income, because consumers who are associated with a product will recommend products to their partners, and will continue to buy products from the company. Therefore, an organization needs to retain customer loyalty (Mahoney & Tang, 2017). Conversely, Bowen & Chen (2001) said that loyal consumers are consumers who repeatedly buy products from a company, with a commitment to repurchase the product or service and recommend others to buy. Therefore, consumer loyalty is influenced by product quality and consumer satisfaction.

Consumer satisfaction is one of the most marketing concepts because a consumer will buy and use a product repeatedly if satisfied with a product or service. Therefore a company must be good at production and sales, as well as how to attract and retain its customers. Thus, a company must find out the needs and desires of consumers, in order to produce products and provide certain services according to the needs and desires of consumers and to satisfy them (Whalley, 2010). Consumer satisfaction with a company's products is very important to ensure or retain consumer loyalty. Chandrashekaran et al. (2007) notes thatsatisfaction has a strong relationship to customer loyalty and the strength of satisfaction is a factor that determines the vulnerability of consumers. Customers perceive satisfaction as a target obtained from the purchase and use of goods and services, thus satisfaction is the result that companies are looking for to achieve (Carpenter, 2008). Satisfaction has influence on consumer loyalty (Cakici et al., 2019). There are some studies showing that customer satisfaction has a positive effect on customer loyalty (Brunner et al., 2008; Chiou & Shen, 2006; La, 2004).

Customer satisfaction is also related to the quality of products and services. Mooradian, Matzler, & Ring (2014) consider that a product in the market always has a balance between changes in quality and price. Consumers want to pay more for higher quality goods and services (better quality). There are studies which confirm that product quality has a positive effect on consumer satisfaction (Gök et at., 2019).

The role of mediation effect of consumer satisfaction on the relationship between product quality and customer loyalty is very important to ensure competition and company performance. Although until now there has been no integral

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and comprehensive research on the relationship between product qualities, satisfaction and consumer loyalty in Timor-Leste. The other part, this relationship is very important to ensure competition and good performance of the companies. Therefore, the research aims to find out the relationship between product quality, customer satisfaction and consumer loyalty.

2. Theoretical Framework, Conceptual Model and Hypothesis

2.1. Theoretical Frameworks and Conceptual Model

2.1.1. Product Quality

Products are any items that are distributed to the market for attention, purchase, use or consumption with the aim of satisfying consumer wants and needs (Kotler and Amstrong, 2012). Product quality is an important function and perceptions of consumer performance related to existing product attributes or services (Albayrak, 2015:136). Basically, consumers always see and evaluate the quality of products in the market before buying (Adhikari, 2018:22)**.** Normally consumers look for high quality products. Good product quality, use according to function, durable and not easy to damage (Izquierdo & Samaniego, 2007).

Traditionally, good quality product is like a standard product, suitable quality to use, and looks nice. Thus, product quality makes consumers satisfied and loyal to a product (Cakici, Akgunduz, & Yildirim, 2019). There are many factors that influence product quality. Product quality is influenced by value, prestige, brand and the model of the product itself (Beneke and Zimmerman, 2014; Veloutsou, 2015). Product quality is also influenced by fair perception and quality of service (Zietsman et al., 2019).

Researchers always use different indicators to measure product quality. Thus, each research result is also different. Product quality is measured by fair, right, and according to production cost (Beneke et al., 2013). Mooradian et al. (2014) measured product quality using dimensions such as: (1) Performance, (2) Features, (3) Reliability, (4) Conformance, (5) Durability, (6) Serviceability, (7) Aesthetics (Form, style, design, Other Perceptions). Forker, Vickery, & Droge (1996) measure the product quality using 8 dimensions, such as: (1) Conformance to specification: Manufactured product capabilities that comply with existing performance standards. (2) Reliability: ability to maximize time for product failure or function failure. (3) Durability: ability to maximize time to change product. (4) Design quality (design innovative): ability to provide product, characteristic, style or with superior operational characteristic compare with product from other competitors. (5) Product development: ability to develop existing products well. (6) Brand Image: the ability to create a positive and favourable image in the minds of consumers when they hear the product brand. (7) Company reputation: the ability to create a positive and favourable image in the minds of consumers when they hear the name of company; and (8) Customer service: ability to serve consumers after selling products to ensure customer satisfaction.

2.1.2. Customer Satisfaction

Consumer satisfaction is the result of a product that provides good benefits in accordance with the needs and expectations or positive feelings about the use of a product or service (Farooq et al., 2018). The desire of consumers today is not only the quality of the product or service, but also the value of the goods and services themselves (Whalley, 2010:50).

Satisfaction has a relationship with consumer answers when buying a product and believe that the product is in accordance with the expectations and quality they feel. (Angelova, 2011; Lien, Cao and Zhou, 2017). The result of satisfaction is a precondition for customer loyalty to a product or service of a company (McMullan and Gilmore, 2002). Therefore, customer satisfaction can be interpreted as a way to increase market share with a company's profits (Angelova, 2011).

Customer satisfaction is the center of ideas in marketing. In accordance with this observation, the company's goal is to serve consumers well in order to create consumer satisfaction and maintain consumer loyalty who always use products and recommend products or services to other consumers (word of mouth) (Zameer et al., 2015; Omar et al., 2016). Products that have higher quality than consumer expectations, will make consumers satisfied, continue to use the company's products or services and become evangelists for our product brands (Mooradian et al., 2014:276). On the other hand, if the product is not in accordance with consumer expectations, then consumers will not be satisfied, and it will make them not buy and not recommend to other consumers (Chien and Chi, 2019).

Many indicators are used to measure consumer satisfaction with the products or services of a company or organization. Unfortunately, until now there has been no consensus among researchers on indicators that measure consumer satisfaction. However, differences in these indicators exist due to differences in the types, dimensions and environments of consumers of firms. By Annamdevula & Bellamkonda (2016), many indicators are used to measure consumer satisfaction with the products or services of a company or organization. To measure customer satisfaction, the indicators used are as follows: (1) Satisfied with the quality of equipment, (2) Satisfied with service quality, (3) Satisfied with other support of service quality, (4) Completely satisfied with all services from the company, (5) Satisfied with the quality of administrative services, (6) Satisfied with the quality of academic services. Farooq, Salam, Fayolle, & Jaafar (2017) To measure consumer

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satisfaction in the context of an publishing company, using indicators such as: (1) I am happy with the decision to buy a product, (2) I have a preference for choosing the company as a fair decision, (3) I make the right decision for choosing this company as a product supplier, (4) I am satisfied and very pleased with the experience gained from this company.

2.1.3. Customer Loyalty

Consumer loyalty is generated by emotional experiences during the process of using a product brand when consumers interact with the design. Professionals also need to keep in touch when consumers have purchased goods to ensure trust and connection. If consumers are already positively associated with a company's product brand, during and after purchasing, this will result in advocacy for the product brand. Advocacy for product brands will be more oriented towards word of mouth marketing on social media (Mahoney & Tang, 2017:190).

Consumer loyalty and retention is something that promotes customers to accept new products from the company and opens up market opportunities for new products (O'Cass & Heirati, 2015:62). Izquierdo & Samaniego (2007) state that consumer loyalty will provide income and benefits to a company. When companies provide satisfaction to their workforce properly, they will provide superior service to customers. As workers, providing better service quality will have a positive influence on consumers. According to Asnawi et al. (2019), consumers are loyal to a product or service when they are satisfied with the product or service itself. Because of that, consumer loyalty is influenced by customer satisfaction.

To date, researchers have had different opinions about the dimensions and indicators for measuring consumer loyalty. However, consumer loyalty focuses on consumer behavior intentions. According to Zeithaml et al. (1996), loyalty has five indicators related to consumer behavior intentions, such as: (1) talking positively about the company, (2) recommending the company to others, (3) encouraging others and neighbors to establish business relationships with the company, (4) considering the company as the first choice, and (5) continue to do business with the company in the future. Cakici et al. (2019) using consumer loyalty indicators, such as: (1) intend to choose this company continuously, (2) consider the company as the first choice, (3) feel better when going to one company, even though there are other companies.

2.1.4. Conceptual Model

In this study, researcher saw that the relationship between variables such as product quality is a determinant factor that affects consumer satisfaction and loyalty in an industry's competitive environment. This concept is built from theory (Berry, Parasuraman and Zeithaml, 1988; Parasuraman, Zeithaml and Berry, 1994) about the relationship between service quality, satisfaction with consumer loyalty to products and services. Satisfaction with loyalty is influenced by product quality. This empiric concept is being targeted in many countries with different environments, types and industrial scales. Starting from here, this research concept seeks to enrich existing theories and empirics (Berry, Parasuraman and Zeithaml, 1988; Parasuraman, Zeithaml and Berry, 1994; Subrahmanyam, 2017; Sangpikul, 2018; Sriyalatha and Appuhamilage, 2019) to link product quality, satisfaction with consumer loyalty.

To test this model, the indicators of product quality variables were adopted from (Beneke et al., 2013), satisfaction and loyalty adopted from authors, such as Parasuraman et al. (1994), Pedro et al., (2018), Pereira et al., (2016), ho Özkan et al., (2019). From here, the authors build a research model as in Figure 1.

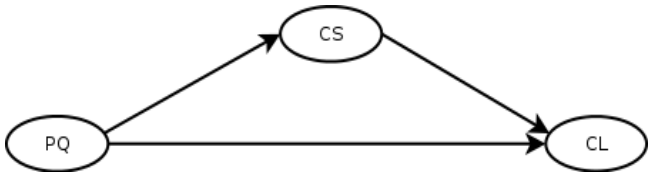

Figure 1. Conceptual model (PQ= product quality, CS= customer satisfaction, CL= customer loyalty)

2.2. Hypothesis

2.2.1. Product Quality and Costumenr Loyalty

Usually, customers are looking for good and high quality products (Izquierdo & Samaniego, 2007). Product quality is related to customers' knowledge about a product brand which has a positive effect on customer loyalty (Devaraj, Matta, & Conlon, 2001; Kuang et al., 2009). Good product quality will make consumers happy and proud, with this they will buy repeatedly and recommend others to buy by word of mouth (word of mouth marketing).

Many empirical studies have shown that product quality can increase consumer loyalty to a company's product or service. According to (Djumarno et al., 2018; Jannah et al., 2019) confirm that product quality has a positive effect to costumers loyalty. Cakici et al. (2019) also confirmed that product quality can make customers loyal to a product.

H_1: Product quality has positive effect and significant to customers loyalty in Bamboo Institute, PI, Timor-Leste

2.2.2. Product Quality and Costumer Satisfaction

Product quality indicates a product that is good, durable and reliable. A quality product will make customers satisfied to decide and buy the product (Kotler and Amstrong, 2012). Product quality is important to ensure a company's competitive advantage in the market. Improving product

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quality will increase customer satisfaction, which in turn will improve company performance (Hussain and Ranabhat, 2013). Product quality has a positive impact to customers satisfaction (Razak, Nirwanto and Triatmanto, 2017; Jannah, 2019; Suhendar & Ruswati, 2019). This is confirm with the research result of Djumarno et al. (2018) ho Hoe & Mansori (2018) showed that product quality has the high impact to customers satisfaction.

H_2: Product quality has a positive influence and significant to customers satisfaction in Bamboo Institute, PI, Timor-Leste

2.2.3. Costumer Satisfaction with Costumer Loyalty

Consumer satisfaction is a very important factor to guarantee consumer loyalty to a product or service from a company. Therefore, satisfaction has a major influence on consumer loyalty to a product or service (Hoe and Mansori, 2018; Wantara and Tambrin, 2019). Research Mahmud et al. (2013) and Djumarno et al. (2018) also confirm that customer's satisfaction has a significant effect to customer's loyalty. So that, the hypothesis in this research is:

H_3: Customers satisfaction has a positive influence to customer loyalty in Bamboo Institute, PI, Timor-Leste

2.2.4. Product Quality, Costumers Satisfaction with Costumers Loyalty

Product quality may not affect consumer loyalty. A quality product will make customers like the product and they can still buy the product. When a customer wants to buy a quality product or service, the customer must be satisfied first. When customers are satisfied with the quality of a product, the customers will remain loyal to the product or service. In this way, customers will continue to search and buy, promote and recommend to others to buy by word of mouth. So, customer satisfaction has an important role in mediating the relationship between product quality and consumer loyalty (Delcourt et al., 2013; Fuentes-Blasco et al., 2017). Therefore, in this study, the following hypotheses can be formulated:

H_4: There is a significant and positive relation between product quality and customer loyalty with the mediation of customer satisfaction in Bamboo Institute, PI, Timor-Leste

3. Research Method

The population in this study was customers who purchased bamboo products at the Bamboo Institute, IP, Timor-Leste during the last three years, from January 2017 to November 2019, totalling 458 customers. Using a margin error of 5% and Slovin formula to calculate sample size, then the total sample for this study was 214. The number of respondents is in accordance with the requirements because the minimum sample to be used in a study is 30. This is confirmed by Hair et al. (2014) that when analysing data using Smart-PLS, the minimum sample must be 30. To select a sample, the technique used is the simple random method, so that everyone as a population can have the same opportunity to be selected as respondents.

The instrument used to obtain data was a questionnaire consisting of three parts: research objectives, respondent characteristics (age, education, profession, etc.) and the questions used to measure each variable. All questions will be measured from a scale of 1 (Strongly disagree) to a scale of 5 (Strongly agree) as this scale is widely used in marketing research. To test this model, the indicators of product quality variables were adopted from (Beneke et al., 2013), satisfaction and loyalty were adopted from (Parasuraman et al., 1994; Pereira et al., 2016; Pedro et al., 2018; Özkan et al., 2019). Questionnaires were directly delivered to the respondents based on simple random methods using database provided by the institute.

The collected data was tested using Smart-PLS 3.0 as this statistical package can be used for a small sample (minimum 30), reflective/formative indicators, multi-variable test, and classical assumption tests (Hair et al., 2014; Saldanha et al., 2018).

According to Hair et al. (2014) as cited by Saldanha et al. (2019), When testing using Smart-PLS, it will be carried out through three stages, as follows: First, you have to build the model first in Smart PLS 3.0. This model is built based on theoretical and empiric revisions. Second, test the relationship between indicators and variables or constructs (outer model measurement). This will test the reliability and validity of the indicators. To test the reliability using the parameter composite reliability (CR) with Cronbach alpha (CA). A reliable indicator when the CR value is greater than 0.70, and CA is greater than 0.70 (Hair et al., 2014; Saldanha et al., 2018). The validity test is divided into two parts, namely: convergent validity (outer loading or indicator loading with average variance extracted-AVE) with discriminant validity (Fornell-Larcker, Cross load, and Heterotrait-Monotrait). In convergent validity, the indicator is valid when the outer loading (OL) value is greater than 0.7, and the average variance extracted (AVE) value is greater than 0.5 (Hair et al., 2017; Saldanha et al., 2019). Validity is seen from discriminant validity, a valid indicator when value "root" AVE of an indicator for that indicator is greater than the value of another indicator. (Hair et al., 2014), and value of heterotrait-monotrait (HTMT) smaller than 0.85 (Henseler, Ringle and Sarstedt, 2015). Third, after testing the relationship between indicators and variables (outer model measurement) to see the validity and reliability of each indicator, the next step is to test the significance of the relationship between variables and variables (inner model measurement). It is also used to test hypotheses. In testing

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the hypothesis, the parameter used is the T value with the P value. The relationship between one

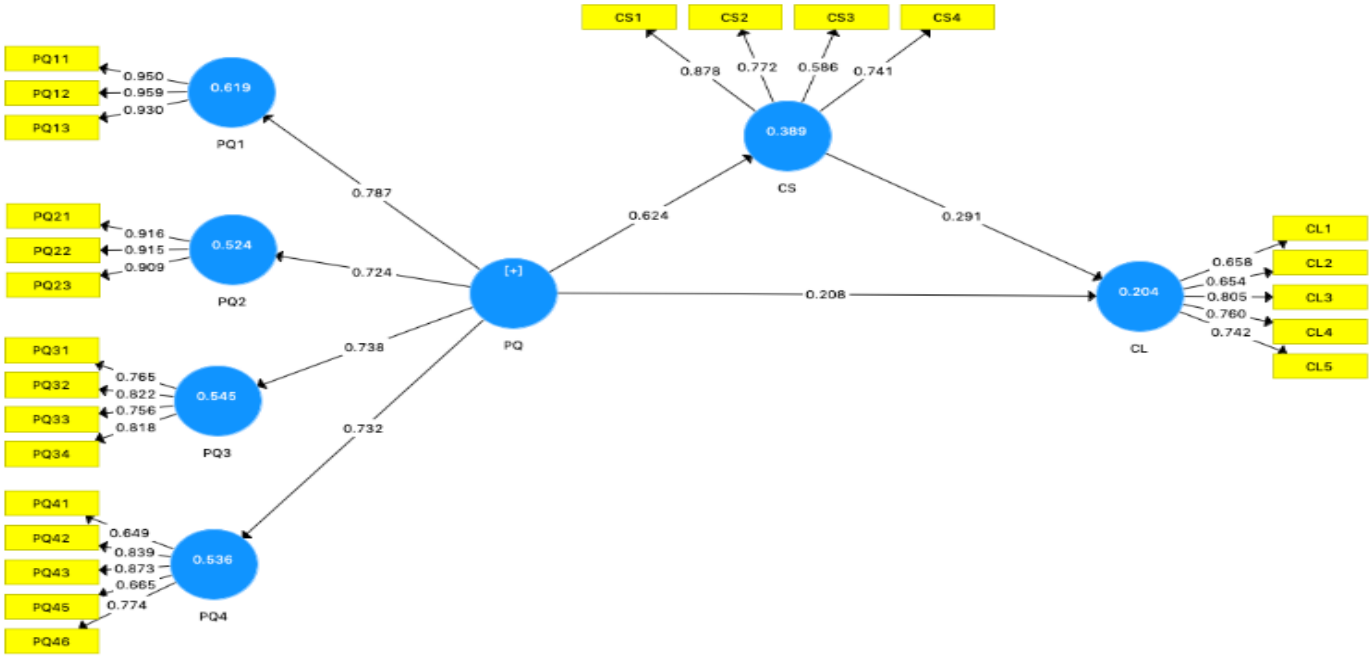

Figure 2. Indicator Loading for Convergent Validity

variable and another variable is significant if the T value is greater than 1.96, and the P value is smaller than 0.05. (Hair et al., 2017; Saldanha et al., 2019)

4. Result

4.1. Validity and Reliability

Reliability was tested using Cronbach's alpha (CA) parameter with composite reliability (CR). The item/indicator variable is reliable if the CA value is greater than 0.7 and the CR value is greater than 0.7 (Hair et al., 2014; Hair et al., 2017; Saldanha et al., 2019). The Table I, Showed the CA and CR values are greater than 0.70, so all items or indicators in this research model are reliable to test the relationship between variables (inner model measurement).

The validity test uses two types, namely convergent validity ho discriminant validity. Convergent validity test uses 2 parameters, namely outer loading (OL) and average variance extracted (AVE). The OL value of a variable item is greater than 0.7 and the AVE value is greater than 0.5, so seen from the convergent validity, this item is valid (Hair et al., 2014; Saldanha et al., 2018, 2019). Figure 2 shows that the OL value of all items in this study is greater than o.60, and this value has no effect on content validity. Table I also shows that the AVE value of all items in this study is greater than 0.50. So, all items of each variable are valid as seen from the convergent validity to test the relationship between variables (inner model measurement).

Table I. Reliability (Cronbach's alpha and composite reliability) and convergent validity (AVE)

Item	CA	CR	AVE
CL	0.780	0.847	0.528
CS	0.741	0.836	0.565
PQ1	0.941	0.962	0.895
PQ2	0.901	0.938	0.834
PQ3	0.800	0.870	0.625
PQ4	0.821	0.875	0.586

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The discriminant validity test used two 2 parameters, namely Fornell-Larcker Criterion (FL) and heterotrait-monotrait (HTMT). Judging from FL, an item is valid if the AVE root value (AVE root square) of an item for that item is greater than the AVE root value of another item. Table II shows the FL value of all items meeting the criteria Hair et al. (2014), So, all items of the variables in this study are valid to test the relationship between variables and variables (inner model measurement).

Table II. Fornell-Larcker Criteria for Discriminant Validity

Item	CL	CS	PQ1	PQ2	PQ3	PQ4
CL	0.726					
CS	0.421	0.751				
PQ1	0.224	0.472	0.946			
PQ2	0.051	0.403	0.645	0.913		
PQ3	0.282	0.460	0.340	0.409	0.791	
PQ4	0.491	0.398	0.396	0.269	0.469	0.765

Looking at HTMT, an item value is valid, when the HTMT value is not more than 0.85 (Henseler et al., 2015). So, seen from Table III, all the values of each item of the variable are less than 0.90, except for the values of SQ3 and SQ4. But the value of these two items is still used to measure the relationship between variables because it has no effect on content validity (OL, FL, AVE, and HTMT), content reliability (CA and CR) (Hair et al., 2014). So, all the items are valid to use and test the relationship between variables (inner model measurement).

In this study, the third hypothesis test is to see the effect of the consumer satisfaction (CS) on consumer loyalty (CL). and the P value (0.001) is less than 0.05 as the standard value (Hair et al., 2014) (Table IV). This shows that consumer satisfaction (CS) has a positive and significant effect on consumer loyalty (CL). So, H3 is supported.The SMART-PLS 3.0 test results show that the T value (3.384) is greater than the minimum standard value of 1.96,

Table III. Table IIIHeterotrait-Monotrait (HTMT) for Discriminant Validity

Item	CL	CS	PQ1	PQ2	PQ3
CS	0,523				
PQ1	0,261	0,530			
PQ2	0,123	0,480	0,701		
PQ3	0,331	0,572	0,392	0,483	
PQ4	0,579	0,466	0,421	0,282	0,558

4.2. Hypothesis Test

In this study, the first hypothesis test is to see the effect of the product quality variable (PQ) on consumer loyalty (CL). The SMART-PLS 3.0 test results show that the T value (2.185) is greater than the minimum standard value of 1.96, and the P value (0.029) is less than 0.05 as the standard value (Hair et al., 2014) (Table IV). This shows that product quality (PQ) has a positive and significant effect on consumer loyalty (CL). So, H1 is supported.

In this study, the second hypothesis test is to see the effect of the product quality variable (PQ) on consumer satisfaction (CS). The SMART-PLS 3.0 test results show that the T value (14.479) is greater than the minimum standard value of 1.96, and the P value (0.000) is less than 0.05 as the standard value (Hair et al., 2014) (Table IV). This shows that product quality (PQ) has a positive and significant effect on consumer satisfaction (CS). So, H2 is supported.

Table IV. Path Coefficient for Hypothesis Test

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Value	Note
PQ -> CL	0.208	0.224	0.095	2.185	0.029	Significant
PQ -> CS	0.624	0.642	0.043	14.479	0.000	Significant
CS -> CL	0.291	0.282	0.086	3.384	0.001	Significant
PQ->CS->CL	0.182	0.180	0.053	3.408	0.001	Significant

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In this study, the forth hypothesis test is to see the mediation effect of consumer satisfaction (CS) on the relationship between product quality (PQ) and consumer loyalty (CL). The result of indirect effect test with SMART-PLS 3.0 (PQ--→CS--→ CL) showed that T value (3.408) is greater than the minimum standard value of 1.96, and P value (0.001) is less than 0.05 as the standard value (Hair et al., 2014) (Table IV). This shows that customer satisfaction has the mediation effect on relationship between product quality and customer loyalty. So, H4 is supported.

5. Discussions

The first objective of this study was to examine the effect of product quality (PQ) on consumer loyalty (CL). The results of the study show that product quality has a positive and significant effect on consumer loyalty. This means that when companies improve product quality will increase consumer loyalty. The factor that makes a significant contribution to customer loyalty is conformance to specification (PQ1) dimension compared to the other 2 dimensions. Because when the Bamboo Institute ensures the product quality according to quality standards, specifications, and the function desired by consumers, it can automatically increase customer loyalty as suggested by Cakici et al. (2019) that good product quality makes consumers loyal to these products. This study confirms some empirical research which shows that product quality has a positive and significant effect on consumer loyalty (Djumarno et al., 2018; Jannah et al., 2019), because product quality requires continuous innovation to create better quality with high value to maintain customers and ensure company competition in terms of high competitive dynamics. Likewise, according to resource based view theory, a good organization, high competition, and good performance is an organization that has resources with good capabilities and strategies. (Porter, 1980; Barney, 1991; Saldanha et al., 2018). However, the results of this study indicate inconsistencies with other empirical studies which show that product quality does not have a positive and significant effect on consumer loyalty because consumer loyalty to a company's product does not always work with product quality because consumers have many considerations to choose a good product to use and consume it (Jannah et al., 2019).

The second objective of this study was to examine the effect of product quality (PQ) on consumer satisfaction (CS). The Smart-PLS 3.0 test results show that product quality has a positive and significant effect on consumer satisfaction. This means that when companies improve product quality will increase consumer satisfaction on product or service. Because consumers want a balance of value between product quality and costs. The factor that makes a significant contribution to customer loyalty is conformance to specification (PQ1) dimension compared to the other 2 dimensions namely design innovative and product image. This means that the majority of Bamboo Institute consumers want the quality of the product to be in accordance with the standards, specifications and functions they need. This study confirms some empirical research which shows that product quality has a positive and significant effect on consumer satisfaction (Jannah, 2019; Razak et al., 2017; Suhendar & Ruswati, 2019) because a good quality product will make consumers feel satisfied and decide to buy the product (Kotler and Amstrong, 2012). However, the results of this study are different from the results of other empirical studies which show that product quality has no effect on consumer satisfaction (Rimawan et al, 2017) because consumers have many considerations to choose a good product to consume it.

The third objective of this study is to examine the effect of customer satisfaction on customer loyalty. The Smart-PLS test results show that customer satisfaction has a positive and significant effect on customer loyalty at the Bamboo Institute, because to increase loyalty, satisfaction is the most important factor to consider. If consumers are satisfied, it will increase their loyalty to stay with the company, because to make customers loyal, the company must provide satisfaction first (Rimawan et al, 2017). However, the results of this study are different from previous studies which show that customer satisfaction does not have a significant effect on customer loyalty because customer satisfaction does not have a strong relationship with customer loyalty (Khairawati, 2020). It means that if a company does not pay attention to customer satisfaction, it will have a negative impact on consumer loyalty.

The fourth objective of this study is to see the mediating effect of consumer satisfaction on the relationship between product quality and consumer loyalty. The Smart-PLS 3.0 test results show that customer satisfaction has a positive and significant effect on the relationship between product quality and customer loyalty. For this, consumer satisfaction strengthens the relationship between product quality and consumer loyalty at the Bamboo Institute. With the reason that the perspective of consumers about being satisfied with product quality, product prices, service quality and overall satisfaction with institution supports the relationship between product quality and consumer loyalty Bamboo Institute. The results of this study confirm previous research that customer satisfaction has a significant effect on the relationship between product quality and consumer loyalty, because product quality will give satisfaction to consumers

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which ultimately has a positive impact on increasing consumer loyalty (Jannah (2019).

6. Conclusions and Implications

Product quality, customer satisfaction and consumer loyalty are important factors for marketing research and applications in the trade sector. This is because all the existing variables also determine the company's competitiveness and sustainability. Therefore, many empirical studies have been conducted to examine the relationship between these variables in order to increase market share, profitability and company sustainability. Unfortunately, the results of these studies show inconsistencies. Some of them indicate that there is a positive and significant relationship between these variables, but some do not show significance. The results of this study also confirm the inconsistencies. The results of this study can be concluded to answer the objectives of this study.

Product quality has a positive and significant effect on consumer loyalty because high quality products will attract consumers to buy repeatedly and will recommend others to buy. This means that when improving product quality will help increase consumer loyalty. From this, it shows that consumers are satisfied with the quality of the product and the price of the product. Consumer satisfaction has a positive and significant effect on consumer loyalty. This means that when consumers are happy with a product or service, it will stimulate consumers to buy repeatedly and recommend others to buy the product or service that they buy. Consumer satisfaction also has a positive and significant effect on the relationship between product quality and consumer loyalty. This shows that a good product will increase customer satisfaction which ultimately helps to retain consumer loyalty.

The implications of this study are (1) seeing the results of the study indicate that product quality has a positive and significant effect on customer satisfaction. Therefore, it is recommended that the managers of the Bamboo Institute of Timor-Leste continue to improve product quality according to the needs and desires of consumers in order to maintain consumer satisfaction and retain loyalty in the intensity of market competition. From that, it can help the Bamboo Institute to expand market share, increase profitability and ensure trade sustainability. (2) Products from the Bamboo Institute use local materials such as bamboo to produce all kinds of goods such as tables, chairs and so on. As a local product from local materials, the government needs to empower the Bamboo Institute to improve quality with a variety of products, in order to create a market for local products, and reduce imported goods. The government needs to create a market for Bamboo Institute products by replacing government furniture with local products. This could strengthen the local economy in terms of the high intensity of competition in Timor-Leste.

7. Limitation and Future Research

This study uses customer satisfaction as a mediating variable for the relationship between product quality and consumer loyalty. But this research does not look at aspects such as differentiation of product, price, service, market orientation, entrepreneurial orientation and innovation orientation towards consumer satisfaction. Thus, future studies need to use these variables to observe their contribution to satisfaction with customer loyalty. This study also only looks at the effect of product quality on consumer behaviour (satisfaction with customer loyalty), but does not link to organisation’s competitive advantages and financial performance. Conversely, competitiven advantages and financial performance are the ultimate targets of business organizations. Therefore, future studies should not only link product quality with consumer behaviour, but also use competitiveness with the organization's financial performance.

This research was only conducted at the Bamboo Institute, PI Timor-Leste and used periodic data. Therefore, it is necessary to carry out continuous research to observe further to see the dynamics of changes in consumer behaviour (satisfaction and loyalty) which are influenced by product quality. This study also only uses a questionnaire data collection instrument, where the overall answer only depends on the respondent, and the respondent can give biased answers. Therefore, further research should also use interviews, observations and focus groups to confirm the answers from consumers.

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Appendix: Research Instruments

I. Product Quality (PQ)

No	Questionnaire	Likert Scale				
		1	2	3	4	5
1.1	**Conformance to specifications**					
1.1.1	The products I bought at this institute are in accordance with the quality standards I want.					
1.1.2	The products I bought at this institute match the specifications I wanted.					
1.1.3	I bought products from this institute because they function according to my wishes.					
1.2	**Durability**					
1.2.1	Bamboo products from this institute are durable.					
1.2.2	The bamboo products from this institute have a good finishing and durable.					
1.2.3	Bamboo products from this institute take a long time to replace.					
1.3	**Design innovation and Improvement**					
1.3.1	The bamboo product design of this institute is more attractive compared to other products.					
1.3.2	The bamboo product model of this institute is more attractive compared to other products.					
1.3.3	The verification of bamboo products from this institute has undergone many changes.					
1.3.4	Bamboo products from this institute have experienced changes in quality.					
1.4	**Brand image**					
1.4.1	Bamboo products from this institute are characterized by beautiful and attractive colours.					
1.4.2	Bamboo products from this institution are very easy to recognize.					
1.4.3	The bamboo products of this institute are very easy to say.					
1.4.4	The model of the bamboo product from this institute is in accordance with my wishes.					
1.4.5	Bamboo products from this institute are well known or famous.					
1.4.6	Bamboo products from this institute are a favourite product in the community.					

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II. Customer Satisfaction (CS)

No	Questionnaire	Likert Scale				
		1	2	3	4	5
2.1	I am satisfied with the quality of the bamboo products from this institute.					
2.2	I am satisfied with the service quality of this institute.					
2.3	I am satisfied with the price of bamboo products from this institute.					
2.4	Overall I am satisfied with this institute.					

III. Customer Loyalty (CL)

No	Questionnaire	Likert Scale				
		1	2	3	4	5
3.1	I have the intention to keep choosing bamboo products from this institute.					
3.2	I consider this institute to be my first choice.					
3.3	I feel better, when I go to this institute to buy bamboo products.					
3.4	I will recommend bamboo products to my friends.					
3.5	I will talk positively about bamboo products of this institute to others.					