EFFECT OF PRODUCT QUALITY ON CUSTOMER SATISFACTION OF SELECTED TABLE WATER BUSINESSES IN GOMBE METROPOLIS

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Abstract

The main objective of this study was to examine the effect of product quality on customer satisfaction of selected table water businesses in Gombe metropolis. While the specific objectives were to: (i) examine the relationship between aesthetics and customer's satisfaction of selected table water businesses in Gombe metropolis; ii. to examine the relationship between perceived quality and customer's satisfaction of selected table water businesses in Gombe metropolis. The study adopted survey research design and data were collected through the use of five (5) points Likert-scale questionnaire which was adapted from previous studies. The study covered customers of thirty-seven (37) table water businesses in Gombe metropolis. Due to infinity nature of the study population, the study used Cochran's (1977) formula to arrive at 384 sample size and the study adopted convenience sampling techniques to administered 407 questionnaires to customers of the thirty-seven (37) table water businesses. Data obtained was analyzed using Chi-Square test with the aid of SPSS package. Findings from the study revealed that aesthetics has positive and significant relationship with customer satisfaction while perceived quality has weak significant relationship with customer satisfaction of selected table water businesses in Gombe metropolis. The study recommends among others that aesthetics' attributes of the table water such as: taste, odor, color salinity, turbidity and size of the water should be improved from time to time in order to satisfy customer needs and aspiration and by extension increase business profitability.

Key Words: Product Quality, Aesthetics, Perceived Quality, Customer Satisfaction, Table Water Business

Introduction

Customers are among the key elements for business success, because they are the backbone of every organization (Razak, 2016). Mary (2021) opines that customer satisfaction constitutes one of the major sources of profits for business enterprises without which business might not survive. Customer means a person or an organization who buys good(s) or service(s) from another person(s) or firm(s).

According to Oxford English Online Dictionary (n.d), satisfaction means fulfilment of one's wishes, expectations or needs, or the pleasure derived from something. It implies enjoyment gained from anything. Almuhanna & Alharbi (2023) see customer satisfaction as marketing phrase that assesses whether good or service meets or surpasses customers' expected result(s). The pleasure or disappointment customer derived from consuming a product greatly depends on the quality of the product (Sambo, 2022). In this study, product quality which is the independent variable (IV) was viewed from Aesthetics and Perceived Quality perspectives and it was used to measure customer satisfaction which served as dependent variable (DV). Kotler & Armstrong (2016) defined product as "anything offered to the market for attention, acquisition, use, or consumption that may satisfy a need or want." Similar to this, Wardhana & Maulana (2016) defined product as "a combination of goods and services offered by a company in order to fulfill the wants and needs of market or customers," On the other hand, quality is the sum (totality) of goods or services' traits (features) and characteristics that affect its capacity to satisfy a need that has been expressly or implied stated by the customer (Kotler & Amstrong,

2016). Based on this, issues relating to quality management in line with production of highly qualitative products remain crucial because every organizational survival depends largely on its ability to meet or surpass the expectations of its customers (Asshidin, et. al., 2016). Assessing details of factors affecting customer's satisfaction is key, because it can provide useful information to the organization about issues relating to its profitability and this could bother on product and quality management.

Asshidin, et. al. (2016) opine that customers consider qualities and its impact on their satisfaction before they make any purchase intention, in view of this reasons and various complain by customers about poor product quality which can lead to customer dissatisfaction and affect repurchase intentions and organizational profitability, conducting this study becomes vital. This study focused on the effect of product quality on customer satisfaction of selected table water businesses in Gombe metropolis between the period of 2021 to 2023. A field survey was conducted in the thirty-seven (37) registered table water businesses in Gombe metropolis, taking into consideration only customers that bought and used these firms' table water within this specified period. Table water businesses are business enterprises that produce packaged drinkable water for human consumptions. Water is an essential food substance and very important for human existence, its usage includes domestic activities such as drinking and cooking (Abugu & Nwofor, 2018). Portable water is an important agenda among the needs of the citizens because food alone without water cannot sustain human beings. Portable water is a water that is free from impurities (pathogenic organisms), appealing, safe and also acceptable for drinking (Ca, et. al., 2015). Furthermore, Water borne diseases like typhoid, dysentery, diarrhea and cholera can easily be contracted by drinking water that is not pure. The spread of many table water businesses in Nigeria is caused by inadequate portable water supply (Abugu & Nwafor 2018).

Statement of the Problem

The main objective of business enterprises is to satisfy the needs of customer at profits, this basically mean that without customers, business activities will be unproductive (Tijjani, Danbauchi & Eliasaph, 2021). According to Nolega, Oloko & Oteki (2015), some business owners usually focus on the improvement of their product without paying attention to the needs and wants of their customers, therefore they often lost their customers to their competitors who serve them better. Similarly, studies revealed that most businesses in developing countries like Nigeria hardly survive the first ten years due to pressures which include intense competition and change in customer taste and fashion (Cruz, 2015; Mary, 2021). Therefore, business owners must ensure that they scan their environment regularly by conducting market research to know the wants and needs of their customers and to also know whether the quality of their products satisfies customers' needs and wants (Rachman, et. al., 2023). Salim & Rodhiah (2022) opine that business organization's profits largely depend on the quality of products produced by the organization.

This simply means that qualitative product leads to customer satisfaction and in return leads to increase in sales volume and profitability through repeat buying. This is also in line with the assertion made by Kotler & Keller cited by Kumar (2019) that "Success and failure of a business is determined by customer satisfaction" For this reason, examining the effect of product quality on customer satisfaction most especially from the customer's perspective becomes crucial because it provide information to organization on how to best manage product quality which will lead to customer satisfaction and organization profitability if adhered to (Kelemu & Mandefro, 2017; Asshidin, et al., 2016). Although several researchers including: Kang and Wang (2022), Stone, *et. al.,* (2018); Coursaris & Osch (2015); Ling & Mansori (2018); Jaskulska (2013); Seng & Mahmoud (2020); Peng, et. al., (2017) and Razak, et al., (2016) conducted studies on product quality and customer satisfaction. However, the targets of these researchers were on different products other than table water and most of the studies were conducted outside Gombe State and Northeast Nigeria. In view of the above mentioned problems, this study examines the effect of product quality on customer satisfaction of selected table water businesses in Gombe metropolis using Aesthetics, Perceived Quality dimensions.

Statement of the Hypotheses

H_o^1:   Product Aesthetics has no significance relationship with Customer's Satisfaction of selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria.

H_o^2:   Product Perceived Quality has no significance relationship with Customer's Satisfaction of selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria.

Objective of the Study

The aim of this study was to examine the effects of product quality on customer's satisfaction in selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria. However, the specific objectives of the study were to:

i.   Examine the relationship between Aesthetics and Customer's Satisfaction of selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria.

ii.   Examine the relationship between Perceived Quality and Customer's Satisfaction of selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria.

Conceptual Review

Product Quality

Kotler & Armstrong (2016) defined "product as anything offered to the market for attention, acquisition, use or consumption that might satisfy a need or want" While quality was defined as "the totality of features and characteristics of product or services that bears on its ability to satisfy stated or implied needs" (Kotler as cited in Razak, et. al*., 2016)*. Product quality refers to the characteristics of product that satisfy customers want and needs in exchange for monetary consideration. Grace, et al., (2021) opine that product quality is one of the main focus that is very important in increasing the competitiveness of products in order to satisfy customers. This was also supported by Fiqqih (2022) who stated that product quality has a very close relationship with the product's ability to carry out its functions, such as: overall product, reliability, accuracy, repair and easy to operate.

Dimension of Product Quality

Garvin as cited by Van in (2020) identified eight (8) dimensions of product quality. These dimension include: performance, conformance, perceived quality, features, reliability, aesthetics, durability and serviceability. But Aesthetics and Perceived Quality dimensions are the main focus of this study.

a.   **Aesthetics:** Aesthetics refers to the looks, sounds, tastes, smells and texture of a product and it is usually based on personal judgement and preferences of individuals. According to Bekar & Surucu (2017), product aesthetics is defined in various ways due to its qualitative attributes which is subject to individual customer's perception, which could be determined through either inspection or comparison. Aesthetics can simply mean the outer appearance of a product which can be seen, felt or touched. Water aesthetics are generally not health-related, however, customers can easily detect them and as such, it can easily have significant effects on their perception about quality and acceptability. Water aesthetic includes: taste, odor, color, turbidity, Salinity, hardness, softness and temperature (Cotruvo, 2016).

b.   **Perceived Quality:** this refers to customer's value judgement of what quality is. Perceived quality is how customers see quality; customers most often rely on indirect measures when comparing brand or company promotional activities and this has less effects on product objective features because customers do not always have detailed information about some product characteristics (Danjuma, 2017). In this study, perceived quality was viewed from the value surrounding table water such as packaging, branding, advertising, labelling, and company reputation.

Customer Satisfaction

Customer Satisfaction is the physiological response, feeling of pleasure or disappointment of customer which occur after comparing the performance of a product with his/her expectations before

and after consuming the goods or services. Customer Satisfaction therefore can be defined as marketing term that measures how products (goods or services) supplied by a company meets or exceeds customer's expectation. Some of the factors affecting customer satisfaction are: price, customer's emotions, convenience, additional cost and product quality (goods or services)

Indicators of Customer Satisfaction

Tjiptono (2015) opines that the indices for measuring customer satisfaction can be traced to:

i.   Conformity of Expectation: This occurs when the desires of the customers match the product's performance. For instance, if the customer's expectation and perceived performance of the product after usage matched or surpassed, the customer will feel satisfied; otherwise, dissatisfaction will set in.

ii.   Interest to Visit Again (Repeat Buying): This has to do with the willingness of the customer to patronize the business again after the initial purchase because of the benefit(s) and value derived after consumption of the product. A satisfied customer is likely to visit again while unsatisfied may not.

iii.   Recommendation to Other People: This refers to the willingness of the customer to recommend the product used to friends or family based on the level satisfaction derived from the product. A satisfied customer is likely to recommend while unsatisfied may not.

iv.   Willingness to Pay: Customer satisfaction has a strong influence on the customers' willingness to pay acquiring a product service (Dhingra, et. al., 2020; Mekoth, et. al., 2020). Studies including Saha, et. al., (2020); and Demir, et. al., 2020) also confirm that satisfied customers are willing to pay in order to avoid additional search and costs efforts.

Conceptual Model

Business enterprises need to establish long term relationship with its customer by satisfying their needs and aspirations through production of quality product, this will in return boost business sales performance and profitability. Therefore, customer satisfaction in this study is the latent variable measured by aesthetics and perceived quality as the observed variable of product quality. Figure 1 below shows the relationship between independent and dependent variable.

Figure 1
Observed Variables of the Independent Construct that Measured the Latent Variable.
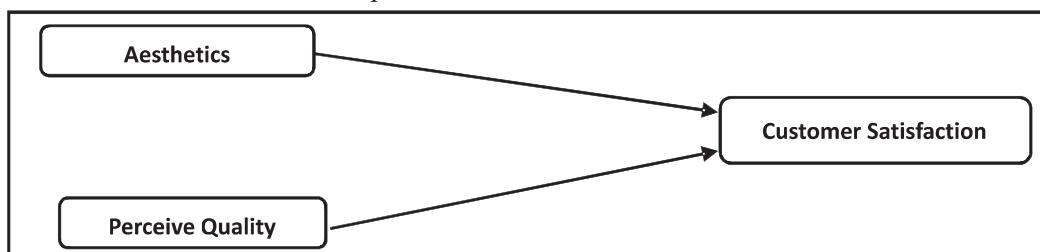
Source: Adapted from Buba & Muhammad, (2021)

Empirical Review
Aesthetics and Customer Satisfaction

Ling & Mansori (2018) investigated the effect of product quality on customer satisfaction and loyalty: evidence from Malaysia engineering industry. The purpose of the study was to study the factors that can assist a company to build a sustainable competitive advantage through effective enhancement of customer satisfaction and customer loyalty. The study employed a quantitative descriptive research design and 90 questionnaires were administered through emails. The result of the study indicated that product aesthetics with p-value *0.0141* and *□=0.148* enhance customer satisfaction. Similarly,

Jaskulska (2013) investigated quality of service and product as the main factors influencing customers' satisfaction in the clothing retailing industry in Ireland. The study case study was ZARA Plc, and the purpose of the study was to rank the dimension and identify the best predictors of overall service and product quality on customer satisfaction. The study adopted questionnaire based on SERVQUAL and Garvin's eight dimensions of product quality. One hundred (100) questionnaires were administered to respondents using snowball method. Data collected was later analyzed using regression analysis (ANOVA). Findings from the study showed that product aesthetics has the height t- value *(t=3.500)* and lowest value significant *(sig=0.001)* and it was considered as the best predictor of customer satisfaction in ZARA garments Plc.

Perceived Quality and Customer Satisfaction

Ihsanniyah, et al., (2020) investigated the effect of perceived quality, perceived equity, and perceived value: on repurchase intention of Boba's customers. The purpose of the study was to examine the factors that increase repurchases interest among Boba drink shop customers using perceived quality, perceived value, perceived equity and customer satisfaction variables in Jakarta during the PSBB period in April-May, 2020. Data was collected from 252 respondents using questionnaires and convenience sampling technique; data collected were analyzed using Exploratory Factor Analysis and Structural Equation Modeling. Findings from the study revealed that perceived quality positively influence customer satisfaction and repurchase intention.

Furthermore, Noor, et al. (2019) investigated product quality attributes that influence customer's satisfaction of online apparels, the purpose of the study was to examine the relationship between product quality attribute and customer satisfaction in online apparel purchasing and to determine the most determinant factors of the product quality attributes. The study adopted survey research design and 389 online questionnaires were administered to the respondents. Data collected were analyzed using SPSS and Smart-PLS. The study revealed that product perceived quality (? =0.078 and p-value >0.05) has no significant effect on customer satisfaction in online apparel shopping in Malaysia.

Theoretical Review
Expectation-Disconfirmation Theory

Expectation-Disconfirmation theory propounded by Oliver (1977) postulated that satisfaction or dissatisfaction is a function of both referent (a standard against which comparison is made) and perceived performance. According to this postulation, expectation is a predetermined standard upon which the benefit derived from product is been determined by the consumer. The theorist explained that customers usually have predetermined expectations before purchasing product and that the expectation is usually been compared against the value obtained from the product. If the value obtained matched or surpassed the expectation after consumption, satisfaction will take place but if otherwise, it will lead to dissatisfaction. The three (3) possible outcomes postulated by the theorist are: positive disconfirmation is when the obtained value surpasses the customer expectation; zero disconfirmation is when the obtained value is accurately the same with customer expectation; and negative disconfirmation is when the obtained value fall short of the customer expectation.

Methodology

This study adopted a survey research design; the units of the survey are the customers of the thirty-seven (37) selected table water businesses in Gombe metropolis. The population is infinity (unknown), because the table water businesses do not keep customers' data, rather they keep daily sales records. Therefore, the study adopted Cochran's (1977) sample size determination formula (z^2pq/e^2) and 384 sample size was obtained. According to Vem, Mbasua & Davireng (2019); and Nishat (2021), Cochran formula is usually used for an unknown population. Five-Points Likert-Scale type ranging from Strongly Agree (SA) to Strongly Disagree (SD) was adapted to obtain responds from the respondents. Data collected from the survey was analyzed using Chi-Square test with the aid of SPSS Package. The

reliability of the five Likert scale questions was tested with the reliability of 22 items that critical to measure the variables using Cronbach's Alpha. The overall reliability test for the items was 0.828 (82.8%), which implies that the items were valid and reliable. Cronbach's Alpha of 0.700 and above is accepted for a valid work (DeVellis, 2003).

Table1
List of Registered Table Water Companies in Gombe Metropolis and its Locations

S/N	Business Name	Physical Address
1.	Gombawa Table Water	Commercial Area, Gombe.
2.	Gombawa Table Water	Nasarawo Qtrs. .Gombe
3.	Z. Vital Table Water	Adjacent Nut, Gombe
4.	Uneek Table Water	Nasarawo Gombe
5.	Miyetti Table Water	State Low-Cost, Gombe
6.	Nasab Table Water	Pantami, Behind Maternity
7.	Monas Table Water	Alkahri, Quarters, Gombe.
8.	Gaskiya Table Water	G.R.A. New Extension, Gombe
9.	Atlantis Table Water	Bye Pass , Gombe
10.	Pindis Table Water	Behind Deputy Governor Office, Gombe
11.	Arafat Table Water	Bye -Pass Gombe
12.	L.B.I. Table Water	Tudun Wadan Pantami, Gombe
13.	Babs Table Water	Sabon Line, Gombe
14.	A.B. Daula Table Water	Hmmadu Kafi, Gombe
15.	A.M. Dama Table Water	Behind Ggss Doma
16.	U.N. Table Water	Behind Army Barracks, Gombe
17.	Scanben Table Water	New Liji, Gombe
18.	Fusaha Table Water	Jekada Fari Quarters, Gombe
19.	Sahat Table Water	Bye -Pass Gombe
20.	Promise Table Water	Herwa Gana Quarters, Gombe
21.	El-Faruk Table Water	Pantami Road, Behind Government House
22.	Albukram Table Water	Bcga, Gombe
23.	Anuri Table Water	Dalha House, New Market, Gombe
24.	Salwa Table Water	Bcga, Gombe
25.	Alnusaiba Table Water	Pantami, Gombe
26.	Diyam Kwadam Table Water	Kwadom
27.	Ufash Table Water	Commercial Area
28.	Zam Table Water	BCGA
29.	Savaah Table Water	State low-cost
30.	El-As Table Water	G.R.A. Gombe
31.	Gaskiya Table Water	Nasarawo, Gombe
32.	Maidugu Spring Water	Tunfure Quarters, Gombe
33.	Nagarta Table Water	Bogo, Gombe
34.	Prado Table Water	Federal Low-Cost, Gombe
35.	Proper Table Water	G.R.A. Gombe
36.	Umoline Table Water	Bye-Pass, Gombe
37.	Unique Table Water	Nasarawo Quarters, Gombe

Source: Ministry of Trade and Industry, Gombe State, February (2023).

Results and Analysis
Test of Hypotheses
Below are the results of the Chi-Square test of the hypotheses with the aid of SPSS package.
Ho[1]:   Product Aesthetics has no significance effect on Customer's Satisfaction of selected table water businesses in Gombe metropolis, Gombe State Northeast Nigeria.

Table 2: Chi-Square Test

	Value	df.	Asymptotic Significance (2-sided)
Pearson Chi-Square	111.248[a]	8	.000
Likelihood Ratio	117.531	8	.000
Linear-by-Linear Association	48.993	1	.000
N of Valid Cases	385		

Source: Output SPSS, (2023)

a.   7 cells (46.7%) have expected count less than 5. The minimum expected count is .11.

Reject null hypothesis if P value is > 0.05 and accept null hypothesis if P value is < 0.05.
Conclusion: The Chi-Square test carried out on the data was significant at the 0.05 level (2-tailed $_{p<}$ 0.005) of significance Chi-Square ($x^2 = 111.248$, df = 8) so the H_{01} was rejected and H_1 was accepted.

Decision Rule
From the Chi-Square table 2 above, Ho[1] was accepted, which implies that aesthetics has significant relationship with customer satisfaction in selected table water businesses in Gombe metropolis.

Ho[2]   Perceived Quality has no significant relationship with customer satisfaction in table water businesses in Gombe metropolis.

Table 3: Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.522[a]	12	.077
Likelihood Ratio	20.332	12	.061
Linear-by-Linear Association	3.785	1	.052
N of Valid Cases	385		

Source: Output SPSS, (2023)

a. 10 cells (50.0%) have expected count less than 5. The minimum expected count is .04.
Reject null hypothesis if P value is > 0.05 and accept null hypothesis if P value is < 0.05.
Conclusion: The Chi-Square test carried out on the data was not significant at the 0.05 level (2-tailed $_{p>}$ 0.005) of significance Chi-Square ($x^2 = 19.522$, df = 12) so the H_{01} was accepted and H_1 was rejected.

Decision Rule
From the Chi-Square table 3 above, Ho[2] was accepted, which implies that perceived quality does not have significant relationship with customer satisfaction in selected table water businesses in Gombe metropolis.

Table 4: Correlation

		PA	PQ
PA	Pearson Correlation	1	.166**
	Sig. (2-tailed)		.001
	N	385	385
PQ	Pearson Correlation	.166**	1
	Sig. (2-tailed)	.001	
	N	**385**	**385**

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

Table 4 above present the correlation indexes for the relationships between the two independent variables involved in this study. The correlation index for relationship between Aesthetics and Perceived Quality was .166. The correlation index for relationship between Perceived Quality and Aesthetics was also .166. The overall results from these analyses indicated that, there is small, positive and significant relationship between the variables of product quality and customer satisfaction. The R Square of this model was .129, which means 12.9% of customer satisfaction can be explained by these two variables. The table 4 below which is the model summary presents results obtained after fitting the multiple liner regressions.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.360a	.129	.125	.59929

a. Predictors: (Constant), P_QUALITY, P_AESTHETICS
Source: Output SPSS, (2023)

The adjusted R-Square in the table shows that the dependent variable (customer satisfaction) was affected by 12.5% of the independent variables (aesthetics and perceived quality). It shows that table water aesthetics and perceived quality dimensions are responsible for customer satisfaction. The overall model was also tested with the aid of ANOVA; the results are given in table 5 below:

Table 6: ANOVA a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.363	2	10.182	28.350	.000b
	Residual	137.195	382	.359		
	Total	157.558	384			

a. Dependent Variable: C_SATISFACTION
b. Predictors: (Constant), P_QUALITY, P_AESTHETICS
Source: Output SPSS, (2023)

Table 6 shows the level of significance, it clearly indicates that the two product quality dimensions, aesthetics and perceived quality are related to customer satisfaction and that the relationship between them was significant compared to Alpha value =0.05. Table 6 below shows the coefficient of all the independent variables included in the model alongside with its respective P-Values.

Table 7: *Coefficients*[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		**B**	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	2.784	.236		11.774	.000
	P_AESTHETICS	.328	.045	.350	7.237	.000
	P_QUALITY	.031	.036	.041	.853	.394

Source: Output SPSS, (2023)
a. Dependent Variable: C_SATISFACTION

Table 7 clearly shows that the two product quality dimensions used in this study were significantly related to customer satisfaction. under the standardized coefficients, it was evident that Aesthetics has the highest and most important factors causing satisfactions to customers of selected table water businesses in Gombe metropolis with a standardize coefficient of 0.350. Studies by Ling & Mansori (2018) and Jaskulska, (2013) supported this dimension, they both investigated the effects of aesthetics on customer satisfaction and their results showed that aesthetics has positive and significant relationship on customer satisfaction. Perceived Quality with a standardize coefficient of 0.41 and p-value >0.05 was against the findings of Ihsanniyah, et al. (2020), which reported that perceived quality positively influence customer satisfaction. However, findings of this study is in agreement with study conducted by Noor et. al., (2019) which revealed that perceived quality (? =0.078 and p-value >0.05) has no significant effect on customer satisfaction in online apparel shopping in Malaysia.

Conclusion

In every business, customer satisfaction is very important; therefore it should be handled very well. This study tested the model of customer satisfaction in selected table water businesses in Gombe metropolis. In measuring customer satisfaction, the study examines the effect of product quality using aesthetics and perceived quality dimensions. Findings from the study shows that aesthetics which consists of table water taste, color, turbidity, salinity and odor has positive and significant effect on customer satisfaction. But perceived quality attributes which include branding, labeling, advertising and company reputations has a weak significant effect on customer satisfaction, the study concluded that, product quality through aesthetics and perceived quality has effect on customer satisfaction. The study recommends that, Aesthetics (taste, color, turbidity, salinity and odor) quality dimension should be improved in table water businesses in Gombe metropolis, because it serves as a critical factor in building customer relationship towards customer satisfaction. Table water business owners and other stakeholders should pay more attention to perceived quality attributes (branding, labeling, advertising and company reputations) because its play critical roles in customer satisfaction.

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