

# **BRAND CHOICE IN THE COMPUTER INDUSTRY: HOW PERCEIVED PRODUCT QUALITY INFLUENCES CONSUMER DECISIONS**

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**Abstract:** The perception of quality plays a significant role in consumers' brand choice within the computer industry. This study focuses on understanding how consumers perceive product brand quality and its influence on their purchasing decisions. By analyzing consumers' perceptions of quality in relation to brand choice, this research aims to provide valuable insights for marketers and companies operating in the computer industry. Understanding the factors that drive consumers' brand choices can help companies develop effective marketing strategies and enhance their brand positioning in the competitive market.

**Keywords:** Consumers perception; Industry; Product brand; Marketers

## **1. Introduction**

The computer industry is a highly competitive marketplace where consumers have a wide array of choices when it comes to purchasing products (Dodds et al., 2023; Cretu & Brodie, 2007). In this study, we aim to explore the impact of consumers' perception of quality on brand choice within the computer industry. Understanding how consumers perceive and evaluate the quality of different product brands can provide valuable insights for companies looking to position their products effectively and gain a competitive edge in the market (Kiom & Handayati, 2022). By delving into this topic, we hope to shed light on the factors that drive consumer decision-making processes in the computer industry. The perception of quality is a critical factor that influences consumers' decision-making processes when it comes to purchasing products within the computer industry (Chen et al., 2020). Understanding how consumers perceive and evaluate the quality of different product brands can provide valuable insights for companies looking to position their products effectively and gain a competitive edge in the market (Armawan, 2021). When consumers assess the quality of a product brand, they consider various factors such as durability, performance, design, and customer support. These perceptions of quality are instrumental in shaping their brand choices. Additionally, the reputation and trustworthiness of a brand play a significant role in influencing consumer decisions within the computer industry (Dodds et al., 2023). Moreover, the rapid advancements in technology and the constant introduction of new products further complicate consumers' decision-making processes (Král' & Jánošková,

2020). As a result, it becomes imperative for companies to understand how consumers navigate through the myriad of options and make informed choices based on their perceptions of quality. This study will delve deeper into these factors, aiming to provide a comprehensive understanding of the dynamics at play within the computer industry (Hussain et al., 2015). By exploring these intricacies, we can contribute to the body of knowledge that informs effective marketing strategies and brand positioning in this competitive marketplace.

## **2. Research Design of Sample Size, Primary and Secondary Data**

### **2.1 Understanding Research Design: A Primer**

In scientific research, the design of a study is crucial for ensuring valid and reliable results. A well-designed research study includes careful consideration of various factors, such as sample size, primary and secondary data sources, and the overall research methodology (Ranganathan & Aggarwal, 2018). The sample size refers to the number of individuals or units that will be included in the study. Determining an appropriate sample size is important as it affects the statistical power and generalizability of the study findings. Primary data refers to the information that is collected directly from the research participants or through direct observation, while secondary data refers to existing data sources that have already been collected by someone else for a different purpose. Primary data is often collected through surveys, interviews, experiments, or observations, while secondary data can be obtained from sources such as government statistics, academic research papers, or organizational records (Nanjundeswaraswamy & Divakar, 2021; Draugalis et al., 2008; Bolarinwa, 2020). **2.2 Determining Sample Size for Your Study**

Determining the appropriate sample size for a study is a critical step in research design (Paré & Kitsiou, 2017). It is important to balance the need for statistical power, cost, and time constraints. Researchers should carefully consider the research objectives, population size, desired level of precision, and expected effect size when determining sample size. Additionally, the characteristics of the population and study sites, as well as the research design and analysis methods, should also be considered (Bolarinwa, 2020). In order to ensure the validity and reliability of the results, researchers should plan ahead and carefully consider the sample size, primary and secondary data sources, and data validation processes. By incorporating these factors into the research design, researchers can increase the chances of obtaining accurate and unbiased results efficiently (Nanjundeswaraswamy & Divakar, 2021).

## **3. Exploring Primary Data Collection Methods**

Primary data collection methods involve directly gathering information from research participants or through direct observation (Paré & Kitsiou, 2017). Common primary data collection methods include surveys, interviews, experiments, and observations. These methods allow researchers to obtain firsthand information and insights that are specific to their research questions and objectives. They also provide the opportunity for researchers to ask follow-up questions, clarify any misunderstandings, and gather indepth information. Secondary data, on the other hand, refers to information that has already been collected by someone else for a different purpose. In the present scenario, the researcher plans to collect primary data by conducting surveys and interviews with research participants (Andrade, 2020; Krejcie & Morgan, 1970; Conducting Surveys – Research Methods in Psychology, 2019). The researcher also intends to observe the research object directly to gather primary data. **3.1 Utilizing Secondary Data in Research**

Secondary data can be a valuable resource for researchers, providing them with existing information that has already been collected by others (Indrayan & Mishra, 2021; what is an adequate sample size for qualitative research, 2023). Researchers can utilize secondary data analysis to answer research questions, especially in the field of developmental sciences. This approach eliminates the need for researchers to collect primary data themselves, saving time and effort (Bolarinwa, 2020; Zuberbühler et al., 2020). In addition, secondary data sets allow for longitudinal analyses and testing of important developmental questions that would be impractical to study through primary data collection alone.(Nanjundeswaraswamy & Divakar, 2021)

### **3.2 Balancing Primary and Secondary Data Sources**

In order to ensure a comprehensive research study, it is important to balance the use of primary and secondary data sources. Primary data sources provide direct and specific information that is tailored to the research questions, while secondary data sources offer existing information that can complement and enrich the primary data (Vasileiou et al., 2018; Andrade, 2020) By combining both primary and secondary data sources, researchers can validate and strengthen their findings through triangulation, increasing the reliability and validity of the research (Zuberbühler et al., 2020). In summary, the researcher in this study plans to utilize primary data collection methods such as surveys, interviews, and direct observation to gather firsthand and specific information relevant to the research objectives. Also, make use of secondary data, which has already been collected by others, to complement and enrich their primary data.

### **3.3 Key Considerations in Research Methodology**

When designing a research study, several key considerations must be taken into account regarding the choice of data sources. These considerations include the sample size, the availability and accessibility of primary and secondary data, the statistical knowledge required for analyzing both types of data, and the ethical considerations involved in collecting and analyzing data (Sajid et al., 2019). Overall, this study carefully considers the appropriate sample size for their study, ensuring it is sufficient to draw meaningful conclusions.

### **3.4 The Role of Sample Size in Research Validity**

The sample size plays a crucial role in research validity. A larger sample size generally increases the precision and reliability of research findings, as it allows for more representative and generalizable results. Researchers should aim for a sample size that is large enough to detect meaningful effects and minimize the likelihood of type I and type II errors (Zuberbühler et al., 2020; Indrayan & Mishra, 2021) By utilizing a larger sample size, researchers can increase the statistical power of their study, leading to more accurate and robust conclusions (Andrade, 2020). In this particular study, the researcher plans to collect data through online surveys, which can potentially reach a larger sample size compared to other data collection methods.

### **3.5 Primary Data Validation and Screening**

Validation and screening of primary data are essential steps in ensuring the reliability and accuracy of the collected information. Researchers can validate primary data through various methods, such as conducting data checks for inconsistencies and errors, using descriptive statistical techniques to identify outliers or unusual patterns.

### **3.6 Role of Triangulation Technique in Qualitative Research**

The triangulation technique is a valuable approach in qualitative research. It involves collecting data from multiple sources or using multiple methods to support the validity and reliability of the findings. By using triangulation, researchers can obtain a more comprehensive and multi-faceted understanding of the research topic.

#### **3.6.1 Use of One Data Collection Method**

In this particular study, the researcher has chosen to use online surveys as the primary method of data collection. This method allows for a cost-effective and efficient way to reach a large number of participants.

### **3.7 Pilot Study for Validity and Reliability Testing**

Before the actual data collection, a pilot study or pretest is conducted to test the validity and reliability of the measurement tools. This helps ensure that the data collection instruments are accurately measuring the constructs of interest and producing reliable results.

#### **3.7.1 Use of Secondary Data and Limitations**

Secondary data can be a valuable source of information for research purposes. However, it is important to be aware of the limitations imposed by the procedures during data collection. These limitations may include potential biases in the data, incomplete or outdated information, and lack of control over the data collection process (Naing, 2003). Overall, the research design of this study includes utilizing a larger sample size through online surveys, validating primary data through screening and descriptive statistical methods, employing the triangulation technique in qualitative research, conducting a pilot study for validity and reliability testing, using both secondary and primary data sources, and being aware of the limitations of secondary data (Heale & Forbes, 2013).

### **3.8 Sampling of Sample Size**

Since physical and financial constraints preclude a population survey, the research has relied on sampling. This is drawn as a subject of the population and examined in some detail to bring out a conclusion that will be representative of the total population. The following advantage would support the use of sample as a representative of the whole population, viz: reduction in cost, less time or greater speed, more accuracy, practicability, flexibility, and avoidance of superfluity. Two types of questionnaires were administered on two categories of respondents namely: Distributors/ resellers and end-users. The researcher carried out a pilot survey on the consumers in which case are hundred (100) questionnaires were administered. However, ninety-five (95) Respondents returned their questionnaires properly completed representing 95% success rate and one respondent did not return allowing 5% of failure. Statistically, it means that probability of success is:

$$P = 95/100 \times 100/1 = 95$$

The ninety-five (95) questionnaires completed and returned represented 95% responses and the only questionnaire which was not returned represents 5% nonresponse. On the basis of the outcome of this pilot survey, if one estimates a level of confidence to be 95%, then the test statistics method could be used as:  $D_{ex} = 1.96 - f(pxq)/n$   
 $O_{ex}$  = sample error at 5% 1.96 = a confidence level of 95% P= probability of success, q= probability of failure n== sample size. By substituting the corresponding values above into the formula, we have:  $0.05 = 1.96 \sqrt{(0.95 \times 0.5)/n}$

Removing the square root, by squaring both

$$2^2 \times \text{sides: } (0.05)^2 = 1.96^2$$

$$\sqrt{\frac{(0.95 \times 0.5)}{n}}$$

$$n = (1.96)^2 \times 0.95 \times 0.05 / (0.05)^2 \quad n = 3.84 \times 0.0475 / 0.0025 \quad n = 0.1824 / 0.0025 = 72.96 = 73$$

From the above analysis where sampling error was pre-determined at 0.05 and confidence level of 5% is estimated i.e. success (p) at 95% and failure (q) at 5%; the sample size (n) at this level of accuracy was estimated to be 73.

### **3.8.1 Study Sampling**

There are two broad classifications of data on which this research design is based- primary and secondary data. The collection method used for each type allow for necessary information to be collected from the appropriate quarter of the company under review. The primary sampling are data collected specifically for research needs at a point in time. They are data collected for the first time for this research work. The methods used in this project for collecting the primary data are mainly by personal interview and questionnaire. The researcher personally visited distributors and end-users in Lagos and Ibadan to conduct interview with them. Questionnaire was also prepared and administered to the same group of people and few end- users of the company's products and some selected distributors. Questionnaire was specifically used in order to reduce the subjectivity of the methods and to facilitate the scientific analysis and interpretation of data. On the other hand, the secondary sampling data are already published data collected for purpose other than the specific research needs at hand. The sources for secondary data can be through internal and external sources. For the purpose of this project, both sources were consulted. External sources consulted include textbooks of reputable authors on chapters of relevance to the topic under review, reputable international journal, websites of PCs on the internet, and magazines on PCs. The internal sources consulted include the records of computer distributors. All information collected from these sources has helped to indicate the direction through which the work will progress. It must, however, be noted that secondary data for this project is not immune from the advantages and limitation that are normally associated with such data.

## **4. Results and Discussion**

### **4.1 Brand awareness**

100 questionnaires were given out with respect to this project. One of the major issues was to evaluate consumer awareness of the various computer brands in the market by calculating the percentage of the total responses gotten from the respondents for each of each of the brand (though the use of percentage as the statistical tool). The table below gives a summary of the result.

Table 1: Brand awareness by respondents

<b>Brand name</b>	<b>Awareness response</b>	<b>% of total Responses</b>
<b>IBM</b>	180	31.7
<b>Compaq</b>	140	24.7
<b>Apple</b>	80	14.1
<b>Samtron</b>	4	0.7
<b>Unbranded</b>	120	21.1
<b>Toshiba</b>	40	7.0
<b>Enhance</b>	4	0.7
<b>TOTAL</b>	568	100

Table 1 shows the brand awareness by the brand name IBM, Compaq, Apple, Samtron, Unbranded, Toshiba and Enhance by the respondents. Based on the brand awareness, IBM has the largest of 31.7%, followed by COMPAQ 24.7%, Unbranded 21.1%) while APPLE shows 14.1% out of the respondents. A lot of users especially those using computers for business purposes (computer centres) are highly aware of the cloned types referred to in this project as unbranded.

Table 2: Ranking of determination of brand choice

<b>Factor</b>	<b>Banks/organization</b>	<b>Business Centers</b>	<b>Personal Users</b>
Brand Quality	90%	50%	70%
Price	50%	100%	70%
After sales Support	80%	70%	80%

Table 2 shows the ranking of determination of brand choice by the respondents. Brand quality was ranked by the respondents based on the determination of brand choice (Organization 90%, Business centers 50% while 70% choose personal users), price (Organization 50%, Business centers 100% while 70% choose personal users) while After Sales Support (Organization 80%, Business centers 70% while 80% choose personal users). Further analysis, by the use of Analysis of Variance (ANOVA), of the administered questionnaire was carried out to determine which factor consumers consider in rating different brands in terms of quality, performance, and durability/maintenance.

Table 3: Brand Rating

<b>FACTORS</b>	<b>BRAND</b>	<b>BANKS/ ORGANIZATION</b>	<b>BUSINESS CENTRES</b>	<b>PERSONAL USERS</b>
<b>QUALITY</b>	IBM	5	5	5
	COMPAQ	5	3	5
	APPLE	4	2	3
	UNBRANDED	2	5	3
<b>PERFORMANCE</b>	IBM	5	5	5
	COMPAQ	5	4	3
	APPLE	3	2	2

	UNBRANDED	1	5	3
<b>DURABILITY/MAINTAINANCE</b>	IBM	5	3	5
	COMPAQ	3	2	3
	APPLE	2	2	2
	UNBRANDED	1	5	4

Further investigation was carried out to down-play on one variable based on the quality only. They were further asked to choose a brand on performance only and then price only

Table 4: Summary of the quality variable only

<b>BRAND</b>	<b>% OF RESPONDANTS</b>
IBM	70
COMPAQ	20
APPLE	5
UNBRANDED	5

From the above table based on quality variable of consumers, 70% of respondents choose IBM while 20% of them choose COMPAQ and 5% of respondents choose APPLE as their best choice. Then, finally 5% of respondent's respond were UNBRANDED.

Table 5: summary of the result of performance variable only

<b>BRAND</b>	<b>% OF RESPONDENTS</b>
IBM	70
COMPAQ	10
APPLES	-
UNBRANDED	20

From the above table, based on performance variable, 70% of respondents choose IBM while 10% of them choose COMPAQ and None of them choose APLLE as one of their choices and finally 20% of respondents respond were UNRANDED.

Table 6: Summary of the result of price variable only

<b>BRAND</b>	<b>% OF RESPONDED</b>
IBM	40



COMPAQ	15
APPLE	10
UNBRANDED	35

Table 7: Regression Table

<b>FACTOR</b>	<b>R<sup>2</sup></b>
BRAND QUALITY	0.7802
PERFORMANCE	0.7642
AFTER SALES SUPPORT	0.4956

A regression analysis was carried out to determine the relationship between brand awareness and brand choice. Result shows that there is a positive relationship between brand awareness and brand choice based on quality ( $R^2 = 0.7802$ ), based on performance ( $R^2 = 0.7642$ ) and based on price ( $R^2 = 0.4956$ ) for IBM, Conpaq, Apple and unbranded computer products in the different market segments under consideration

#### **4.3 Source of product awareness**

Respondent were also asked to state their sources of brand information. The table gives details of the result.

Table 8: Information sources

<b>SOURCES</b>	<b>BANKS/CORPORATE ORGANISATION</b>	<b>BUSINESS CENTRES</b>	<b>PERSONAL USERS</b>
Electronic Media	50	40	60
Print	90	50	70
Media			
Sales Promotion	40	75	30
Group Discussions	65	60	50
Mouth To Mouth	-	-	-

This shows that the print media is the major promotion media through which computer users get information. It was basically in the corporate organization/banks that salesperson and sales promotions had effect on brand choice.



## **5. Conclusion**

In conclusion, the findings of this study emphasize the crucial role of consumers' perception of product brand quality in influencing their brand choice within the computer industry. Marketers and companies operating in this industry can benefit from understanding the factors that drive consumers' brand choices and utilize this knowledge to develop targeted marketing strategies. By prioritizing and enhancing product brand quality in line with consumers' perceptions, companies can strengthen their brand positioning and competitiveness in the market. This research highlights the importance of aligning brand quality with consumer preferences to effectively capture and retain market share in the computer industry.

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