



# Exploring the Mediating Role of Product Features in Smartphone Purchase Intentions among Bangladeshi University Students

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

**Background:** This study explores the mediating role of product features in influencing smartphone purchase intentions among university students in Bangladesh. It focuses on how brand image and price affect purchase intention, with product features serving as a mediator in this relationship, utilizing a mediation model.

**Objective:** The aim is to identify the factors that directly influence purchase intention and assess how mediation among these factors shapes consumer behavior.

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**Methodology:** A total sample of 170 university students was selected through the judgment sampling technique. The data were analyzed using a mediation model to explore the relationships between purchase intentions, brand image, price, and product features. A multivariate analysis technique known as Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to test the hypothesized relationships.

**Results:** The findings reveal that among the three factors studied, only product features significantly and directly influenced purchase intention. Moreover, product feature was found to fully mediate the relationship between price, brand image, and purchase intentions. This indicates that while price and brand image do not have a direct impact on purchase intentions, their effects are channeled through the perception of product feature.

**Managerial Implication:** Smartphone brands targeting Bangladeshi university students should focus on improving product features to increase purchase intentions. While price and brand image matter, their impact is mainly mediated by product features, highlighting the importance of offering innovative and appealing characteristics to attract this consumer group.

*Keywords: Purchase intention; brand image; price; product feature; university student; Bangladesh.*

## 1. INTRODUCTION

Smartphones have become essential for university students, functioning as both communication tools and devices for academic and personal productivity. The competitive smartphone market requires an understanding of the factors driving purchase intention, such as product features, brand image, and price. Literature highlights brand image as a significant influence on consumer behavior, although recent studies suggest that its effect on purchase intention may be indirect, working through other factors like product features (Bian & Moutinho, 2011). Similarly, price is a key determinant, but its impact on tech-savvy, value-conscious students depend on perceived product value (Zeithaml, 1988). Recent studies emphasize the growing importance of product features, such as battery life and camera quality, in shaping purchase intentions (Park & Kim, 2014).

Despite extensive research on these factors, studies exploring their interconnected influence on Bangladeshi university students are scarce. This study aims to bridge this gap by examining how product features mediate the effects of price and brand image on purchase intention, providing valuable insights into consumer decision-making.

Smartphones have become indispensable to young consumers, with marketers focusing on tech-savvy youths as key drivers of the market (Alshurideh et al., 2015). Global smartphone usage has surged to 3.5 billion users (Bankmycell, 2020), and university students, in particular, demonstrate high levels of smartphone dependency for activities such as

social media, studying, and texting during classes (Rahim A. et al., 2016). Despite this, limited research exists on smartphone purchasing behavior in Bangladesh, especially concerning young consumers (Rani & Kautish, 2018). Understanding the complex purchasing behavior of youths remains a challenge, particularly in the competitive smartphone market targeting Bangladeshi university students. Brands must grasp how product features mediate the effects of brand image and price on purchase intentions (Kotler & Keller, 2016). This study investigates the role of product features in influencing purchase decisions to offer insights for refining marketing strategies (Dodds, Monroe, & Grewal, 1991). We propose the following research questions to be addressed in this empirical study:

RQ: How do brand image and price influence smartphone purchase intentions among Bangladeshi university students, and what role do product features play as a mediator in this relationship?

### 1.1 Research Objectives

The objective of this study is to examine the factors that influence the purchase intention of Bangladeshi university students towards smartphone brands. Specifically, the study aims to:

- ❖ To examine the direct impact of product features, brand image, and price on the purchase intention of university students towards smartphones.
- ❖ To analyze the mediating effect product features of price, and brand image on

purchase intention in the context of Bangladeshi university students.

- ❖ To provide insights into how smartphone brands can enhance their marketing strategies to target university students effectively.

## 2. LITERATURE REVIEW

### 2.1 Purchase Intention

Purchase intention is the intention to acquire goods or services in the future, but it is not always followed through because it is dependent on the individual's ability to execute (Warshaw & Davis, 1985 in Qun et al., 2012). According to Blackwell et al. (2001), what is crossed in the buyers' minds represents their intent to purchase. According to comparable studies, consumers will go through the process of recognizing the product to purchase, then finding information about the product, evaluating, purchasing, and providing feedback. As a result, people will buy a product after conducting preliminary research to ensure that they purchase an appropriate item to suit their needs and desires. There are numerous smartphone brands available on the market to meet the demands and desires of users. Consequently, various consumers will have varying tastes and preferences. Thus, consumer purchasing behavior is influenced by factors such as brand name, price, quality, recreation, and innovation awareness, as well as alternative options and impulsiveness (Leo et al., 2005). As a result, it is critical to investigate the elements that influence a consumer's decision to purchase a smartphone. This study will look at factors such as product characteristics, brand name, social influence, and product sacrifice as they relate to smartphone purchasing intentions.

### 2.2 Brand Image

Consumers will have a reason to buy or use a product with a brand image that is judged appropriate as a good product, quality, and utilized by famous individuals, directly affecting the high buying interest in a product. A well-known brand image can influence product selection, and brand image benefits purchasing interest (Hsueh, H., Li, Y. and Harris, L. (2012). A positive influence of brand image on purchasing interest exists, with a better brand image increasing purchasing intentions. A product with a positive brand image is one significant means of catching a consumer because consumers will

choose a product with a positive image consciously or unconsciously (Chen and Chang, 2010). Because of the positive brand image, purchasing intent increased (Wang and Tsai, 2014). The presence of brand image influences the purchase intention of artificial bag products (Wahyuni and Suparna, 2014). Studies show that customer perception of brand image directly affects purchase intention, suggesting that brands must focus on optimizing their image to drive sales (Du & Tham, 2024).

***H<sub>1</sub>: There is positive relationship between Brand Image and product feature towards smartphone brand.***

***H<sub>2</sub>: There is positive relationship between Brand Image and purchase intention towards smartphone brand.***

### 2.3 Price

Prices enable consumers to choose where to trade with a product (Nagle & Holden, 2002), and it will always be the most important component in customers' purchase decisions since pricing builds an image of the brand in the customers' thoughts (Chow et al., 2012). Pricing was highlighted as a critical element influencing customers' smartphone choice by Juwaheer et al. (2014); yet smartphone pricing is a key signal of product quality: greater price indicates superior technology, improved design, and increased features. According to Negi and Pandey (2013), lower-income customers favor low-cost phone brands. Furthermore, Mokhlis and Yaakop (2012) and Twenefour (2017) discovered that pricing was one of the most important elements impacting mobile phone user choice. In addition, Ayodele and Ifeanyichukwu (2016) recommended during their study that mobile businesses implement a more attractive and appealing pricing plan to better appeal to young adults. Research on Mixue Ice Cream and Tea indicates that price positively affects both purchase intention and final purchase decisions, highlighting its role as an intervening variable (Halyana & Bangsawan, 2023). Price is a critical determinant in consumer choices, with studies showing that competitive pricing strategies enhance purchase intention (Lowu, 2024).

***H<sub>3</sub>: There is positive relationship between Price and product feature towards smartphone brand.***

***H<sub>4</sub>: There is positive relationship between Price and purchase intention towards smartphone brand.***

## 2.4 Product Feature

Product features are the properties of a product that allow it to satisfy the desires of consumers by applying and using it (Kotler & Armstrong, 2007). Smartphones in the mobile phone industry include wireless connectivity, application installation, a file management system, a built-in web browser, multimedia presentation and capture, full programmability, numerous gigabytes of storage and location, high-resolution displays, and motion sensors (Oulasvirta et al., 2011). Consumers choose cell phones with features that better satisfy their wants and desires, and different features provide varying levels of satisfaction (Chow, Chen, Yeow, & Wong, 2012). Rahim et al. (2016) only listed product features. Ahmed, Gull, and Rafiq (2015) corroborated technological advancements and inventions. Ayodele and Ifeanyichukwu (2016) proposed attractive characteristics, Mokhlis and Yaakop (2012) proposed innovative features, while Nath et al. (2015) identified technical and value-added features as significant variables in mobile device selection. Ling et al., 2006 discovered that consumers prefer five design characteristics of mobile phones: color screen, camera, internet browsing, wireless connectivity, and voice-activated dialing. According to Chow et al. (2012), smartphone consumers are more concerned with the camera than with operating systems. Ling, Hwang, and Salvendy (2007) discovered that the physical look, size, and menu structure of mobile phones have a substantial impact on customer purchase behavior. In the opinion of Gopal, Anjali, and Aakanksha (2013), light-weighted phones outperform heavy-weighted phones, however, Riyath and Musthafa (2014) highlight the fashionable appearance of a phone to be regarded as popular. Negi and Pandey (2013) discovered that the longest battery backup is the most important consideration for young girls when purchasing mobile phones.

***H<sub>5</sub>: There is positive relationship between Product feature and purchase intention towards smartphone brand.***

## 2.5 Mediation Effect

The relationship between product features, brand image, and purchase intention in the smartphone market is both complex and multifaceted. In fact, research indicates that product features can mediate the influence of brand image on purchase intention, although the strength of this

mediation varies across different contexts. Moreover, product features significantly impact purchase intentions, often more than brand image itself. For example, a study found that while brand image was not a key factor for youths in Sarawak, product features and price value were crucial in influencing their purchase intentions (Ngian et al. 2023). Additionally, another study highlighted that product quality, which is a component of product features, directly affects purchasing decisions, thereby suggesting that consumers prioritize tangible attributes over brand image (Lukitaningsih et al. 2024).

In certain cases, brand image can serve as a mediator, especially in contexts like celebrity endorsements, where it influences purchase intention indirectly through brand credibility (Andryani & Salim 2024). However, celebrity endorsement and brand credibility play significant roles in purchase intention, but this effect is not universally applicable. For instance, other studies reveal that brand image did not significantly impact purchase decisions (Al-Fatwa et al. 2024).

While product features often mediate the relationship between brand image and purchase intention, the effectiveness of this mediation can vary based on consumer demographics and market conditions.

Furthermore, the relationship between product features, price, and purchase intention in the smartphone market is equally complex, with product features acting as a significant mediator. Indeed, research indicates that while price influences consumer decisions, it is the product features that predominantly drive purchase intentions. Moreover, product features significantly impact consumer buying decisions, often outweighing price considerations (Manandhar & Timilsina 2023). For instance, enhanced product quality correlates positively with increased purchase intention, therefore suggesting that consumers prioritize features over price when choosing smartphones (Ekawati 2023). Although price plays a role, its direct influence on purchase intention is less significant compared to product features and brand image (Katu & Suparna 2022). Additionally, brand image mediates the relationship between price and purchase decisions, indicating that consumers may overlook higher prices for brands with strong reputations (Katu & Suparna 2022). Thus, the overall relationship between

these factors demonstrates how product features dominate the purchasing decisions of consumers, with brand image and price acting as secondary influences depending on the context. A study by Chen and Tsai (2007) emphasizes that product features significantly affect consumer perceptions of value, thereby mediating the relationship between price and purchase intention. When consumers perceive product features as valuable or superior, they are more likely to be influenced positively by the price, regardless of whether it is high or low. Brand image acts as a crucial mediator between marketing strategies and purchase intention. For instance, social media marketing activities positively affect purchase intention through brand image, perceived value, and trust (Zhang et al., 2019).

**H<sub>6</sub>: Product features can mediate between brand image and purchase intention towards smartphone brand.**

**H<sub>7</sub>: Product features can mediate between price and purchase intention towards smartphone brand.**

### 3. CONCEPTUAL FRAMEWORK

This exploratory study incorporates several key constructs: price and brand image as the independent construct, purchase intention as the dependent construct, product feature as the mediating construct. The conceptual model, illustrated in Fig. 1, presents the relationships among these constructs.

### 4. METHODOLOGY

The complete research methodology, from start to finish, is illustrated in the following flowchart. It is important to note that the steps are interrelated

to ensure logical progression throughout the study.

Fig. 2 shows the chronological sequence of the research method followed in conducting this empirical study. As previously mentioned, the steps are systematic and interrelated.

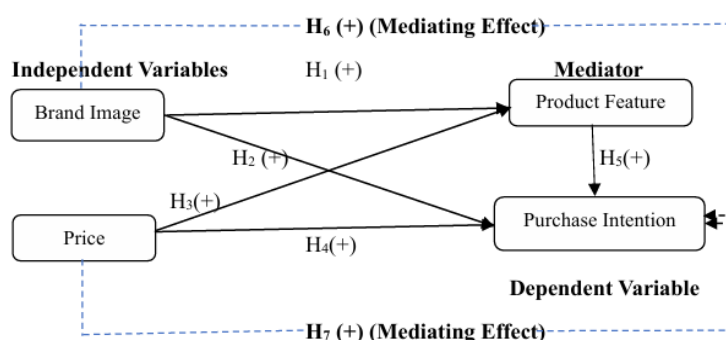
### 4.1 Data Nature, Respondent Selection, and Sampling Technique

This empirical study relies on the collection of primary data, as secondary data sources are unsuitable for the research objectives. To gather specific, relevant information, a purposive sampling technique was employed.

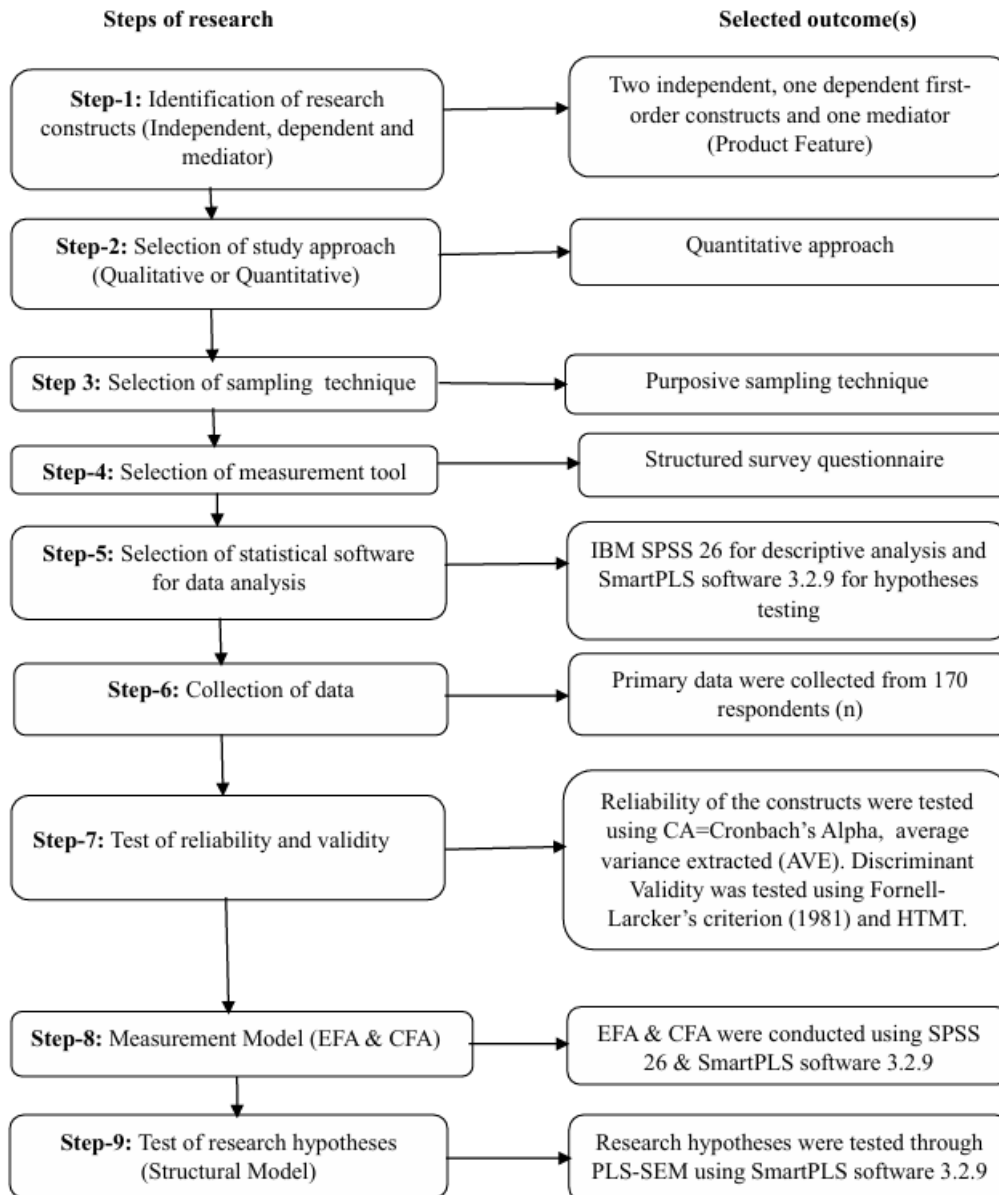
Purposive sampling is ideal when researchers need to obtain data from individuals who possess specific knowledge or meet predefined criteria (Sekaran and Bougie, 2010). This method is particularly useful when the sample must adhere to certain characteristics (Blumberg et al., 2011). Consequently, we selected university students deliberately, as they could provide relevant insights into the purchase intentions toward smartphone brands among Bangladeshi university students.

### 4.2 Description of Measurement Tool

Data were collected using a structured survey questionnaire, which served as the primary measurement instrument. Due to the geographical distance of the respondents, the questionnaire was distributed electronically via email to those who consented to participate. Participants received detailed information about the survey in advance to ensure clarity and reduce any potential confusion.



**Fig. 1. Conceptual framework**  
Source: Researcher own contribution



**Fig. 2. Research framework**  
Source: Researchers' elaboration

The study utilized a reflective first-order model to evaluate constructs, including Brand Image, Product Features, Purchase Intention, and Price, following methodologies established by Aaker (1996), Sweeney & Soutar (2001), Dodds, Monroe, & Grewal (1991), and Voss, Parasuraman, & Grewal (1998). A total of twenty-three items were employed to measure these constructs. Brand Image was defined as an independent construct, consisting of six items adapted from Aaker (1996) for the Bangladeshi context. Respondents rated the influence of

Brand Image on purchase intention using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Product Features served as a mediator construct, also comprising six items adapted from Sweeney & Soutar (2001) for the Bangladeshi context. Participants rated the impact of Product Features on purchase intention using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Price was treated as an independent construct, with six items adapted from Voss, Parasuraman, & Grewal (1998) to suit the Bangladeshi context. Respondents assessed

the effect of Price on purchase intention on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Purchase Intention was operationalized as a dependent construct, utilizing five items adapted from Dodds, Monroe, & Grewal (1991) for the Bangladeshi context, also measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

### 4.3 Sample Size

The appropriate sample size was determined using G\*Power 4.0 software (Soper, 2023), following Cohen's (2013) guidelines and Westland's (2010) recommendations. Based on an effect size ( $f^2$ ) of 0.3, a significance level ( $\alpha$ ) of 0.05, four predictors, and 23 observed variables, a minimum sample size of 166 was targeted to achieve 80% statistical power for the model structure (Gefen, D., Rigdon, E.E., & Straub, 2011). A total of 250 potential respondents were initially identified through personal contacts. The completed questionnaires were returned via Google Forms. After a thorough screening process, 170 valid samples were retained for analysis.

## 5. RESULTS

### 5.1 Demographic Information

The demographic data gathered from the survey respondents, including their gender, age, student status, prior smartphone purchase history, and current smartphone brand, is presented in

Table 1. According to the data in Table 1, approximately 70% of the respondents were male, nearly 50% fell within the age range of 21-24 years, over 68% were private university students, more than 94% had previously purchased a smartphone, and most respondents owned Samsung or Xiaomi devices.

### 5.2 Univariate Normality

Regarding skewness, the latent factor indices we employed exhibited a high normal distribution. According to Hair et al. (2010), data can be considered normal when skewness ranges from -2 to +2 and kurtosis ranges from -7 to +7. Here, the skewness and kurtosis values varied from -1.48 to 0.40 and -1.30 to 1.28 respectively. These criteria highlight the nuances of statistical analysis and the flexibility in interpreting data normality (see Table 2).

### 5.3 Multivariate Normality

To identify any potential influential outliers in our data, we conducted a Cook's distance analysis (Fig. 3). Cook's distance can be employed in various ways, such as identifying significant data points that have a substantial impact on the analysis or indicating areas where collecting additional data points would be beneficial (Cook, 1979). In our study, we did not identify any cases with a Cook's distance greater than 1. Most of the cases had values well below 0.038. This suggests that all the items in our data set were normally distributed.

**Table 1. Demographic information of respondents based on the questionnaire**

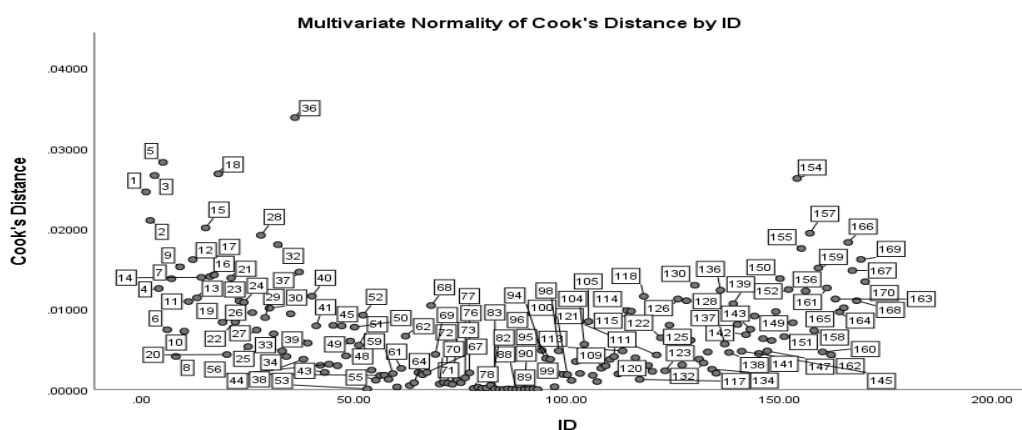
Name of the variables	Category	Frequency	Percent
Gender	Male	117	68.8
	Female	53	31.2
Age	17-20 years	49	28.8
	21-24 years	83	48.8
	25 years and above	38	22.4
	Public University	31	18.2
Status of the students	Private University	116	68.2
	National University	23	13.5
	Yes	160	94.1
Have you purchased smartphone before?	No	10	5.9
	Apple	9	5.3
What is your current Smartphone's brand?	Sony	2	1.2
	Samsung	41	24.1
	XiaoMi	48	28.2
	Lenovo	3	1.8
	Oppo	11	6.5
	Others	56	32.9

Table 1: Demographic Information; Source: SPSS 26

**Table 2. Normality of the data**

	Descriptive Statistics						
	N	Mean	Std. Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
BI1	170	2.88	1.19	-0.14	0.19	-0.89	0.37
BI2	170	3.34	1.26	-0.44	0.19	-0.81	0.37
BI3	170	3.94	1.33	-1.31	0.19	0.52	0.37
BI4	170	3.55	1.29	-0.64	0.19	-0.72	0.37
BI5	170	3.81	1.19	-1.20	0.19	0.63	0.37
BI6	170	3.87	1.24	-1.15	0.19	0.32	0.37
PR1	170	4.03	1.24	-1.48	0.19	1.28	0.37
PR2	170	3.75	1.24	-1.03	0.19	0.09	0.37
PR3	170	3.36	1.21	-0.45	0.19	-0.68	0.37
PR4	170	3.07	1.33	-0.24	0.19	-1.16	0.37
PR5	170	3.12	1.28	-0.22	0.19	-0.98	0.37
PR6	170	3.52	1.20	-0.75	0.19	-0.29	0.37
PF1	170	3.97	1.19	-1.25	0.19	0.75	0.37
PF2	170	3.83	1.25	-1.07	0.19	0.25	0.37
PF3	170	3.71	1.15	-1.10	0.19	0.53	0.37
PF4	170	2.89	1.33	0.12	0.19	-1.23	0.37
PF5	170	3.22	1.34	-0.25	0.19	-1.18	0.37
PF6	170	3.74	1.14	-1.12	0.19	0.67	0.37
PI1	170	3.54	1.22	-0.78	0.19	-0.26	0.37
PI2	170	3.94	1.18	-1.30	0.19	1.02	0.37
PI3	170	3.66	1.11	-1.15	0.19	0.83	0.37
PI4	170	3.72	1.11	-0.93	0.19	0.33	0.37
PI5	170	3.69	1.15	-1.12	0.19	0.56	0.37

Table 2: Univariate normality; Source: Descriptive statistics (SPSS 26)



**Fig. 3. Cook's distance analysis; Source: SPSS (Version 26)**

**Table 3. Model validity measures**

	Brand Image	Price	Product Feature	Purchase Intention
Brand Image	0.928			
Price	0.566	0.779		
Product Feature	0.632	0.67	0.885	
Purchase Intention	0.545	0.578	0.742	0.788

Table 3: Discriminant validity; Source: SmartPLS software 3.2.9



**Table 4. Heterotrait-monotrait ratio analysis**

	Brand Image	Price	Product Feature	Purchase Intention
Brand Image				
Price	0.715			
Product Feature	0.723	0.821		
Purchase Intention	0.633	0.707	0.83	

Table 4: HTMT; Source: SmartPLS software 3.2.9

### 5.4 Discriminant Analysis

We employed Fornell & Larcker's (1981) guideline to evaluate discriminant validity, contrasting the average variance extracted (AVE) against correlation values among different variables. The tabulated results clearly demonstrate that the square root of AVE (highlighted in bold on the off diagonal) surpassed the corresponding correlation values, affirming the favourable discriminant validity within our data analysis. A visual depiction of the factors' discriminant validity is provided in Table 3.

### 5.5 Heterotrait-monotrait Ratio (HTMT)

To determine the convergent validity of the constructs, the HTMT value should be compared to a predefined threshold (commonly set at 0.85 or 0.90). A HTMT value below the designated threshold signifies robust convergent validity, signifying that the constructs exhibit the anticipated interrelationships. Conversely, if the HTMT value surpasses the threshold, it warrants scrutiny for potential concerns regarding convergent validity, possibly indicating overlap or multicollinearity between the constructs. Notably, the current study reveals no evidence of multicollinearity among the constructs.

### 5.6 Common Method Bias Test

Variance inflation factors (VIFs) span from 1 to 10 and beyond, with each VIF denoting the extent to which variance is inflated for individual coefficients. The interpretation of VIF involves certain ranges: a value of 1 implies no correlation, 1-5 indicates moderate correlation, and values above 5 signify high correlation (Hair et al., 1998). Furthermore, a VIF exceeding 3.3 is indicative of pathological collinearity and suggests the potential existence of common method bias within a model. In this instance, our model (as presented in Table 5) remains devoid of common method bias, given that all VIF values remain equal to or below 3.3 (Kock, 2015). To explore the potential impact of multicollinearity

among the variables, VIFs were calculated. The highest VIF value observed was 1.439 (as depicted in Table 5), which adheres to the acceptable threshold as advocated by Hair et al. (1998). Consequently, there is no apparent presence of multicollinearity concerns within the factors.

**Table 5. VIF Analysis**

	Product Feature	Purchase Intention
Brand Image	1.472	1.775
Price	1.472	1.934
Product Feature		
Feature		2.188

Table 5: VIF Analysis; Source: SmartPLS software 3.2.9

## 6. MODEL EVALUATION

### 6.1 The Measurement Model

This study utilized a variety of measurement tools to assess the representation of specified indicators across multiple dimensions. Composite Reliability (CR), also known as Construct Reliability, and Average Variance Extracted (AVE) were employed to evaluate the constructs. CR measured the internal consistency of a set of indicators representing a construct, with higher values indicating a stronger inter-correlation among the indicators, thus reflecting a common focus on the same construct. AVE values were used to determine whether the specified indicators genuinely captured the essence of the construct.

The results, detailed in Table 6, demonstrate the statistical adequacy and significance of Cronbach's Alpha, CR, and AVE values. For example, Brand Image yielded Alpha = 0.840, CR = 0.926, and AVE = 0.862. Similarly, Product Feature had Alpha = 0.907, CR = 0.935, and AVE = 0.783. Purchase Intention recorded Alpha = 0.848, CR = 0.891, and AVE = 0.620, while Price had Alpha = 0.680, CR = 0.821, and AVE = 0.607. Notably, all constructs exhibited

**Table 6. Factor analysis**

Factor's Name	Items	Factor Loading	T Statistics	IR	CA	CR	AVE	Sources
Brand Image	This smartphone brand has a good reputation.	0.934	40.652	0.872	0.840	0.926	0.862	Aaker (1996).
	I believe this smartphone brand is trustworthy.	0.923	23.247	0.852				
Product Feature	This smartphone has the latest features I'm looking for.	0.906	28.850	0.821	0.907	0.935	0.783	Sweeney & Soutar (2001)
	The features of this smartphone meet my needs.	0.800	12.025	0.640				
	The features of this smartphone are better than those of other brands.	0.909	27.701	0.826				
	The features of this smartphone are a major factor in my decision to buy it.	0.918	35.600	0.843				
Purchase Intention	I am likely to purchase this smartphone soon.	0.780	15.620	0.608	0.848	0.891	0.620	Dodds, Monroe, & Grewal (1991), Zeithaml, Berry, & Parasuraman (1996).
	I intend to buy this smartphone when I need a new one.	0.813	11.040	0.661				
	I will recommend this smartphone to others.	0.735	6.846	0.540				
	I will choose this smartphone over others based on its features.	0.788	9.467	0.621				
	I am considering purchasing this smartphone because it meets my needs.	0.820	11.428	0.672				
Price	The price of this smartphone is reasonable.	0.878	25.741	0.771	0.680	0.821	0.607	Voss, Parasuraman, & Grewal (1998).
	I believe this smartphone offers good value for its price.	0.751	8.202	0.564				
	I would be willing to pay more for a smartphone of this brand.	0.697	4.325	0.486				

Note: CR=Composite Reliability, Alpha= Cronbach's Alpha, IR= Indicator Reliability, VIF=Multicollinearity Statistic [AVE>0.50 (Fornell & Larcker, 1981; Henseler, Ringle & Sinkovics, 2009), Composite Reliability>0.70 (Hair et al. 1998), Cronbach's Alpha>0.60 (Nunnally & Bernstein (1994)), IR>0.4 (Hulland, 1999)]. [Source: SmartPLS 3.2.9]

Cronbach's Alpha values above 0.60, surpassing the threshold recommended by Nunnally & Bernstein (1994).

Moreover, all factors met the recommended benchmarks for CR (0.70 or higher, as per Hair et al., 1998) and AVE (0.50 or higher, as per Fornell & Larcker, 1981; Henseler, Ringle & Sinkovics, 2009). Additionally, in line with Hulland's (1999) suggestion that Indicator Reliability (IR) should be 0.40 or higher, all items in this study exceeded this threshold, thereby confirming the robustness and significance of the indicators in the model.

As shown in Table 6, all T-Statistic values exceeded 2.33 at the 1% significance level, providing strong evidence for the significant outer model loadings. This solid evidence enhances confidence in the validity of our Structural Equation Model (SEM).

In path modeling, a comprehensive global goodness-of-fit (GoF) measure can be applied, which is calculated as the geometric mean of the average commonality and the average R<sup>2</sup> for endogenous variables (Chin, 2010). The formula for GoF is:

$$\text{GoF} = \sqrt{(\text{AVE} \times \text{R}^2)}$$

In this study, the computed GoF value was 0.64 (with R<sup>2</sup> = 0.568 and average AVE = 0.718). This result indicates that the GoF value surpassed the highest cutoff threshold of 0.36. These findings highlight that the proposed model in this study demonstrated a more substantial explanatory capability compared to the suggested GoF benchmarks, where small = 0.10, medium = 0.25, and large = 0.36 (Akter et al., 2011).

## 6.2 Structural Model Assessment

The evaluation of the structural model entails estimating path coefficients and explaining the variance (R<sup>2</sup> values). Each relationship within the hypothesized model was assessed, initially considering the direct, unmediated connections. Additionally, by applying the bootstrapping method with 5,000 resamples, coefficients and t-statistics were calculated.

The structural model outlines the path coefficients linking the dependent and independent constructs. This study found that brand image and price do not have a direct and significant impact on purchase intention towards

smartphone brands among Bangladeshi university students, with ( $\beta = 0.097$ , CR = 0.613,  $p > 0.05$ ) and ( $\beta = 0.122$ , CR = 1.043,  $p > 0.05$ ), respectively. Consequently, H1 and H3 were not supported. However, product features were found to be directly related to purchase intention ( $\beta = 0.599$ , CR = 4.483,  $p < 0.01$ ), thus supporting H5. Furthermore, both brand image and price were significantly related to product features with ( $\beta = 0.372$ , CR = 3.407,  $p < 0.01$ ) and ( $\beta = 0.460$ , CR = 3.642,  $p < 0.01$ ), respectively, supporting H1 and H3. The regression coefficients are detailed in Table 7, with corresponding figures illustrated in Fig. 4.

Chin (1998) established R<sup>2</sup> benchmarks for endogenous latent variables, categorizing values of 0.67 as substantial, 0.33 as moderate, and 0.19 as weak. As shown in Table 7, the coefficient of determination (R<sup>2</sup>) for the dependent variable, purchase intention, is 0.568. This indicates that 56.8% of the variance in purchase intention towards smartphone brands among Bangladeshi university students can be explained by the combination of the two independent variables and the mediating variable. This result is consistent with Chin's (1988) guidelines.

Additionally, the model's fitness is confirmed by the Standardized Root Mean Squared Residual (SRMR) value of 0.077, which is well within the acceptable threshold for good model fit (Hu & Bentler, 1998; SRMR  $\leq$  0.08). The fit indices collectively suggest that the model provides a strong fit to the data, as illustrated in Table 7.

## 6.3 Mediation Analysis

The mediation effect of the variable Product Feature on the relationships between the independent and dependent variables is presented in Table 8. The table clearly shows that Product Feature demonstrates full mediation between brand image and purchase intention ( $\beta = 0.223$ ,  $t = 2.647$ ,  $P < 0.01$ ). This is evident from the fact that the direct effect between brand image and purchase intention is not significant ( $\beta = 0.097$ ,  $t = 0.613$ ,  $P > 0.05$ ), while the indirect effects of both brand image and product feature, as well as product feature and purchase intention, are significant ( $\beta = 0.372$ ,  $t = 3.407$ ,  $P < 0.01$ , and  $\beta = 0.599$ ,  $t = 4.483$ ,  $P < 0.01$ ). Therefore, H6 is supported. Similarly, Product Feature also exhibits full mediation between price and purchase intention ( $\beta = 0.275$ ,  $t = 2.427$ ,  $P < 0.01$ ). The direct effect between price

**Table 7. Regression weight**

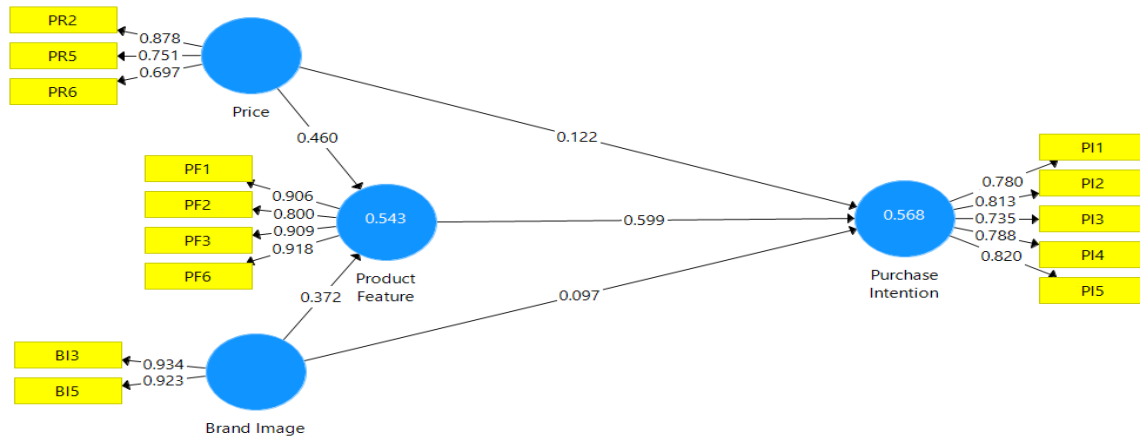
Hypotheses	Association	Beta	SD	LL	UL	T Statistics	P Values	Comment	
H <sub>1</sub>	Brand Image -> Product Feature	0.372	0.109	0.186	0.635	3.407	0.001	Supported	
H <sub>2</sub>	Brand Image -> Purchase Intention	0.097	0.158	-0.180	0.415	0.613	0.540	Not Supported	
H <sub>3</sub>	Price -> Product Feature	0.460	0.126	0.171	0.666	3.642	0.000	Supported	
H <sub>4</sub>	Price -> Purchase Intention	0.122	0.117	-0.133	0.348	1.043	0.297	Not Supported	
H <sub>5</sub>	Product Feature -> Purchase Intention	0.599	0.134	0.341	0.902	4.483	0.000	Supported	
		R Square							
	Product Feature	0.529							
	Purchase Intention	0.547							
	SRMR	0.077							

Table 7: Regression weight; SRMR≤0.08 (Hu & Bentler, 1998); Source: SmartPLS 3.2.9

**Table 8. Mediating effect**

Hypotheses	Association	Beta	SM	SD	LL	UL	T Statistics	P Values	Comment	Mediation
H <sub>6</sub>	Brand Image -> Product Feature -> Purchase Intention	0.223	0.228	0.084	0.092	0.421	2.647	0.008	Supported	Fully Mediated
H <sub>7</sub>	Price -> Product Feature -> Purchase Intention	0.275	0.286	0.113	0.087	0.526	2.427	0.016	Supported	Fully Mediated

Table 8: Mediating effect; Source: SmartPLS 3.2.9



**Fig. 4. Path Model; Source: SmartPLS 3.2.9**

and purchase intention is not significant ( $\beta = 0.122$ ,  $t = 1.043$ ,  $P > 0.05$ ), while the indirect effects between price and product feature, as well as product feature and purchase intention, are significant ( $\beta = 0.460$ ,  $t = 3.642$ ,  $P < 0.01$ , and  $\beta = 0.599$ ,  $t = 4.483$ ,  $P < 0.01$ ). Hence, H6 is supported once again. (Table 8).

## 7. DISCUSSION

This study offers valuable insights into the intricate relationships between factors such as price, product features, and brand image, and how they influence the purchase intentions of Bangladeshi university students towards smartphone brands. The findings of the study reveal that there is no significant positive direct relationship between variables such as price and brand image and their impact on purchase intention, apart from product features. This observation is consistent with prior research conducted by Kotler & Armstrong (2007), Oulasvirta et al. (2011), Chow, Chen, Yeow, & Wong (2012), Ayodele and Ifeanyichukwu (2016), Mokhlis and Yaakop (2012), Nath et al. (2015), Ling et al. (2006), and Ling, Hwang, and Salvendy (2007), which also highlighted the prominent role of product features in driving consumer decisions. Although price and brand image do not have a direct positive impact on purchase intention, the study finds that these variables exert a significant positive direct influence on product features. This finding aligns with the conclusions of Nagle & Holden (2002), Ayodele and Ifeanyichukwu (2016), Hsueh and Lee (2013), Lin (2013), and Chen and Chang (2010), who suggest that the perception of a product's features is strongly shaped by its price and brand image. Moreover, this research

highlights the mediating role of product features in the relationship between price, brand image, and purchase intention. Specifically, product features act as a bridge, influencing how price and brand image contribute to consumers' purchase decisions. This mediation effect is supported by recent studies such as Ngian et al. (2023), Andryani & Salim (2024), Manandhar & Timilsina (2023), and Katu & Suparna (2022), which also emphasize the importance of product features as a critical intermediary in the decision-making process. Finally, price and brand image may not directly influence purchase intention, their effect is realized through the perception of product features, which ultimately drives consumer behavior in the smartphone market.

## 8. CONCLUSION

This study aimed to explore the factors influencing the purchase intention of Bangladeshi university students towards smartphone brands, focusing on the roles of product features, brand image, and price. Through a mediation model, the findings revealed that among the examined factors, product features were the only significant direct determinant of purchase intention. Additionally, product features fully mediated the effects of both brand image and price on purchase intention. This suggests that while brand image and price influence purchase intention indirectly, their impact is primarily driven through the perception of product features. The results emphasize the critical role that product features play in shaping purchasing decisions, underscoring the importance of technological specifications and functional qualities of smartphones for university students in Bangladesh.

## 9. RECOMMENDATIONS

Smartphone brands aiming to engage university students in Bangladesh should emphasize key product features such as battery life, camera quality, processing power, and overall user experience. These elements exert a direct influence on purchase intention and are vital for establishing a competitive advantage. Since product features mediate the relationship between brand image and purchase intention, companies should incorporate innovative features that resonate with their brand identity. This strategy not only enhances consumer perception but also strengthens the brand image, fostering increased customer loyalty.

Although price does not directly impact purchase intention, it indirectly influences decisions through product features. Consequently, pricing strategies should reflect the perceived value of these features. Providing high-value features at competitive prices can significantly increase a brand's appeal among students. Furthermore, marketing campaigns directed at university students should focus on showcasing superior product features that distinguish the brand from competitors. Highlighting key specifications and demonstrating how these features cater to the needs of tech-savvy students will likely enhance purchase intention. By adopting these strategies, smartphone brands can effectively capture the interest of university students in Bangladesh and solidify their market presence.

## 10. LIMITATIONS AND FUTURE RESEARCH

This study, while providing valuable insights into the exploring the mediating role of product features in smartphone purchase intentions among Bangladeshi university students, has several limitations. First, the sample size was limited to 170 respondents, which may not fully represent the entire population of university students across Bangladesh. The use of judgment sampling, although effective for this study's purpose, may introduce bias and limit the generalizability of the findings. Additionally, the study primarily focused on product features, brand image, and price as influencing factors, which may have excluded other relevant variables such as social influence, advertising, or technological innovation that could impact purchase intention. Lastly, the study was conducted in a specific cultural and geographic context, limiting the applicability of the findings to

other regions or consumer groups. Future research could address these limitations by employing a larger, more diverse sample that better represents the broader student population, potentially incorporating a random sampling technique to enhance generalizability. Researchers could also explore additional factors that might influence purchase intention, such as social media engagement, peer influence, or environmental sustainability. Additionally, conducting comparative studies across different regions or countries could provide a deeper understanding of how cultural and economic differences affect smartphone purchase decisions. Longitudinal studies could also be considered to track changes in consumer behavior over time, especially as smartphone technology continues to evolve rapidly. Finally, future research could investigate the role of psychological factors like brand loyalty, consumer trust, and perceived risk in shaping purchase intention.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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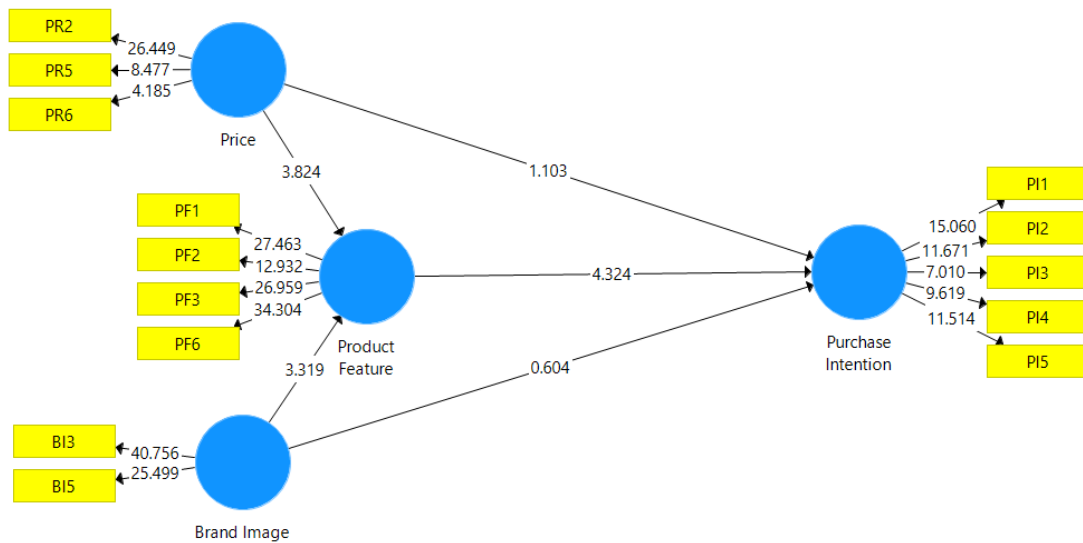
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## APPENDIX



**Fig. 5. Path Model with t-value (Inner & Outer); Source: SmartPLS 3.2.9**

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