



Investigating the Factors That Determine Tertiary Students Brand Choice of Mobile Phones in Northern Ghana

Michael Dergol-Dery¹, Alexander Suuk Laar^{2,*}, Mohammed Abdul-Gafaru³, Naazuing Valeria⁴

¹Chiraa S. H. S. Mathematics Department, Chiraa-Sunyani, Ghana

²C/O Ghana Health Service/ PATH-Ghana, Maternal and Child Health Unit, Accra, Ghana

³TAMALE, S. H. S Mathematic Department, Tamale, Ghana

⁴C/O Tebri Francis Xavier T. I. Ahmadiyya S. H. S., Mathematics Department, Kumasi, Ghana

Email address:

degol8181@gmail.com (M. Dergol-Dery), laar.alex.suuk@gmail.com (A. S. Laar), mohammedabdulgafaru@gmail.com (M. Abdul-Gafaru), naazuingvaleria232@gmail.com (N. Valeria)

*Corresponding author

To cite this article:

Michael Dergol-Dery, Alexander Suuk Laar, Mohammed Abdul-Gafaru, Naazuing Valeria. Investigating the Factors That Determine Tertiary Students Brand Choice of Mobile Phones in Northern Ghana. *International Journal of Information and Communication Sciences*.

Vol. 2, No. 2, 2017, pp. 24-29. doi: 10.11648/j.ijjics.20170202.12

Received: March 16, 2017; **Accepted:** April 15, 2017; **Published:** June 8, 2017

Abstract: This paper investigated the factors affecting students brand choice for mobile phones among university students at the University for Development Studies, Navrongo Campus in the Upper East region of Ghana. The research was a cross-sectional design with 300 students. The students were chosen using stratified random sampling. Statistical Package for Social Sciences version 20 was used to analyze the data. The results show that three major factors directly influencing students choice of brand of mobile phones in this study were user-friendliness, quality and price. Among all the mobile phone brands, the most used brands by the students were Nokia and Samsung. Nokia and Samsung together constituted 56 percent of phones used by the respondents. However, for future use, 45 percent are planning to use Nokia while 61 percent for Samsung. The price of mobile phones ranged between GHC 50.00 and GHC 301.00. Fashion and durability were factors that correlated and have relationships with the decision to buy a brand of mobile phone. This is one of the few studies in consumer behavior to assess preferences in a consumption context of mobile phone industry. The findings are useful for mobile phone dealers and manufacturers to incorporate these preferences by diversifying the types of mobile phones with different ranges of corresponding prices to meet consumers' needs and income levels.

Keywords: Mobile Phone, Brand, Affordability, Students, Ghana

1. Introduction

Mobile phones are one of the modern telecommunication technologies that have emerged over the past decades to facilitate communication among people within and across countries. Today, it has become a key communication tool and an essential part of everyday lives [1] and in both private and public institutions in Ghana. To increase telephone coverage, Ghana liberalized its telecommunication sector in the early 1990s to provide consumers with better, new and less costly telecom services [2]. This was done through the introduction of a five-year Accelerated Development Programme in 1994, to allow private participation in all sectors of the telecom industry [3].

Mobile phones are not only used for making calls, but among other functions, for text-messages as well as for internet browsing. The growing demand for mobile telephony services in Ghana has resulted in the creation of a wide mobile phone handset market. Marketing of mobile handsets has therefore taken a pulsating expansion, with new sophisticated handsets being introduced onto the market every now and then. It has also become fashionable to own a mobile phone. In recent times, apart from the acquisition of the phone and the type of phone one possesses is now the issue.

The need for fashionable phones has also caught up with

the mobile phone manufactures as they also manufacture new and fashionable mobile phones within short intervals of time to meet the taste of consumers. In a way, there seems to be a competition among the mobile phone manufacturers as they must provide latest and fashionable mobile phones to satisfy their customers. In Ghana mobile phone usage has become common, but there are numerous factors that need to be taken into account when choosing a brand of mobile phone. Consumer research in Ghana has devoted little specific attention to factors that determine choice of brand of mobile phones. It is against this background that this study was undertaken to examine the factors that determine students brand choice of mobile phones in a tertiary institution.

2. Method

2.1. Study Context

The University for Development Studies (UDS) was established in May 1992 by PNDC Law 279 to blend the academic world with that of the community in order to provide constructive and meaningful interaction between the two for the total Development of Northern Ghana, in particular, and Ghana as whole. It began academic work in September 1993 with the first batch of thirty-nine (39) students admitted into the Faculty of Agriculture, Nyankpala in Tamale

The University's principal objective is to address and find solutions to the environmental problems and socio-economic deprivations that have characterized northern Ghana in particular and are also found in some rural areas throughout the rest of the country including the Faculty of Applied Sciences, Faculty of Mathematical Sciences Navrongo Campus this study area.

2.2. Research Design

The research was a cross-sectional design with 300 students. The researchers employed face to face administration of questionnaires to collect the data. English language was employed as the medium of communication with the students.

2.3. Sampling Technique

The students were obtained using stratified random sampling. A random sample from each stratum was taken in proportional to the stratum's size when compared to the population. These subsets of the strata were then pooled to form a random sample. The researchers employed this technique because the study population is mainly students in Navrongo campus which are in levels.

2.4. Data Analysis

The statistical Package for Social Sciences version 20 was used to analyze the data and presented in the form of frequency tables and histograms. Data was further analyzed using regression, chi-square and factor analysis.

3. Results

For the 300 respondents surveyed, 182 (60.7%) were males and 118 (39.3%) were females in Table 1.

Table 1. Gender of respondent.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	182	60.7	60.7	60.7
	Female	118	39.3	39.3	100.0
	Total	300	100.0	100.0	

3.1. Prices of Mobile Phones

The prices of mobile phones ranged from GHC 50 and below to GHC 301 and above. The greater number of the respondents owned phones that ranged from GHC151-200. For cost of a phone below GHC50 and above GHC301, 8% of each was owned by the respondents' details in figure 1.

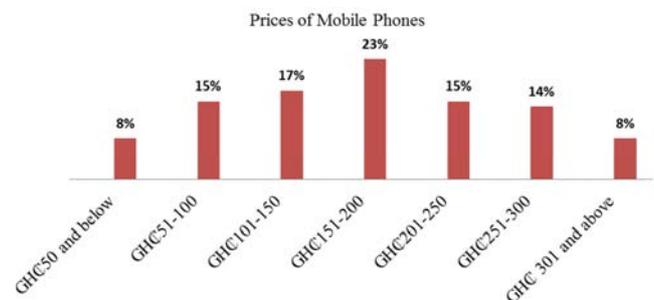


Figure 1. Prices of Mobile Phones.

3.2. Brands of Mobile Phone Used and Preference

Among all the mobile phone brands, the most used brand among the respondents was Nokia 31% followed by Samsung 25%. Samsung was the most preferred brand 61% followed by Nokia 45%. The least used mobile phone brand was Motorola accounting for 3% of the students' phone ownership in the University Details in figure 2.

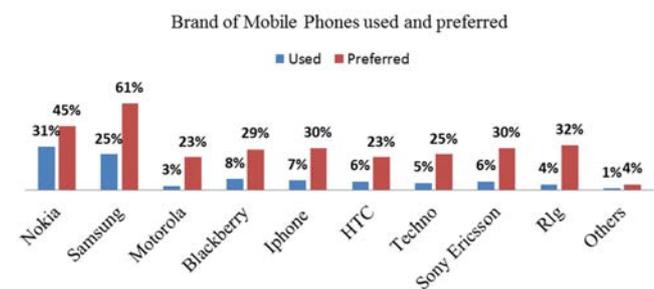


Figure 2. Brands of mobile phone used and preferred.

3.3. Relationship Between Mobile Phone Brand and Gender

The results showed that there was a relationship between mobile phone brand and gender ($P=0.000$). Thus, a person use of a brand of mobile phone depends on his/her gender. Details in table 2.

Table 2. Cross-tabulation of mobile phone brand against gender.

			Gender of respondent		Total
			Male	Female	
Brand of mobile phone	Nokia	Count	68	27	95
		Expected Count	57.6	37.4	95.0
	Samsung	Count	28	46	74
		Expected Count	44.9	29.1	74.0
	Motorola	Count	6	4	10
		Expected Count	6.1	3.9	10.0
	Blackberry	Count	17	7	24
		Expected Count	14.6	9.4	24.0
	Iphone	Count	15	7	22
		Expected Count	13.3	8.7	22.0
	HTC	Count	9	8	17
		Expected Count	10.3	6.7	17.0
	Techno	Count	12	3	15
		Expected Count	9.1	5.9	15.0
	Sony Ericsson	Count	8	11	19
		Expected Count	11.5	7.5	19.0
	Rlg	Count	10	3	13
		Expected Count	7.9	5.1	13.0
	Others	Count	9	2	11
		Expected Count	6.7	4.3	11.0
Total	Count	182	118	300	
	Expected Count	182.0	118.0	300.0	

=31.485 df= 9 p-value = 0.000.

There existed no association between price and age of students ($P=0.400$). Thus, either a student is above the age of 30 years or between 18 to 21 years had nothing to do with the affordability of a brand of a mobile phone in Table 3.

Table 3. Cross-tabulation of price of phone against Age of respondent.

			Age of respondent				Total
			18-21	22-25	26-29	30 and above	
Price GHC	50 and below	Count	7	4	11	4	26
		Expected Count	5.2	7.7	8.0	5.1	26.0
	51-100	Count	7	11	17	10	45
		Expected Count	9.0	13.4	13.8	8.8	45.0
	101-150	Count	12	14	15	10	51
		Expected Count	10.2	15.1	15.6	10.0	51.0
	151-200	Count	12	22	23	13	70
		Expected Count	14.0	20.8	21.5	13.8	70.0
	201-250	Count	6	14	14	10	44
		Expected Count	8.8	13.1	13.5	8.7	44.0
	251-300	Count	10	19	4	8	41
		Expected Count	8.2	12.2	12.6	8.1	41.0
	300 and above	Count	6	5	8	4	23
		Expected Count	4.6	6.8	7.1	4.5	23.0
	Total	Count	60	89	92	59	300
		Expected Count	60.0	89.0	92.0	59.0	300.0

Chi-square = 18.864 DF =18 P- value = 0.400.

3.4. Factors That Influence the Choice of Brand of Mobile Phone

We performed factor analysis to determine factors that influence choice of brand of mobile phones. The analysis consisted of six variables: Age, Price, More Features, Fashionable, Portability and durability. A correlation

coefficient of 0.7 or greater was considered as being high. There is high correlation between the variables such as fashionable and more features (0.887) shown in table 4. Thus, a mobile phone tends to be fashionable, if only it has more features.

Table 4. Correlation Matrix^a.

	Age	Price	More features	Fashionable	Portability	Durability
Age	1.000	-.433	.439	.498	.011	.763
Price	-.433	1.000	-.027	-.033	-.002	.083
More features	.439	-.027	1.000	.877	-.085	-.121
Fashionable	.498	-.033	.877	1.000	-.156	-.169
Portability	.011	-.002	-.085	-.156	1.000	.397
Durability	.763	.083	-.121	-.169	.397	1.000

Table 5. KMO and Bartlett's Test for factor of Mobile Phones.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.605
Bartlett's Test of Sphericity	Approx. Chi-Square	63.225
	Df	21
	Sig.	.000

3.5. Factor Analysis

In table 5, when Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.605 and Bartlett's test of Sphericity

approximate Chi-Square value of 63.225 are statistically significant at 5% level in Table 5.

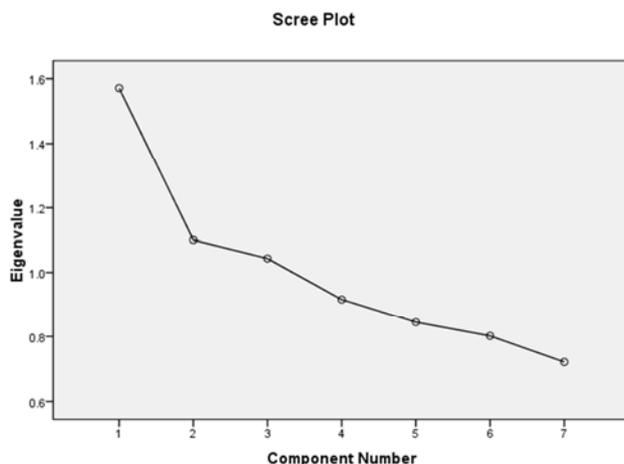
Also, using the criterion of retaining only factors with Eigen values of 1 or greater, the first three factors out of the six factors were retained for Principal Component analysis as given in table 6. These three factors accounted for 22.468%, 15.722% and 14.906% respectively of the total variance. 53.096% of the total variance was attributable to these three factors. The remaining four factors together accounted for 46.904% of the total variance in table 6.

Table 6. Total Variance Explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.421	23.684	23.684	1.421	23.684	23.684	1.385	23.083	23.083
2	1.099	18.313	41.997	1.099	18.313	41.997	1.113	18.552	41.634
3	1.015	16.923	58.920	1.015	16.923	58.920	1.037	17.286	58.920
4	.910	15.169	74.089						
5	.833	13.875	87.964						
6	.722	12.036	100.000						

Extraction Method: Principal Component.

Six factors were extracted on the basis of prior knowledge to describe the relationships among variables in a best way in table 6. Further, the scree plot associated with this analysis is given in figure3. From the cumulative percentage of variance accounted for 58.920% of the variance. The contribution by first component and the second component were 23.083% and 41.634% of the total variance with a distinct break at percent at three factors as shown in figure 3.

**Figure 3. Scree Plot of Eigen value against Number of components.**

3.6. The Component Matrix and Interpretation of Extracted Factors

The Component Matrix below represents the unrotated component analysis factor matrix, and presents the correlations that relate the six variables under study to the extracted factors. In table 7 below, the coefficients, called factor loadings, indicate how closely the variables are related to each factor. The correlation coefficients of 0.5 or greater are considered to be high and otherwise low.

Factor 1 contains four items (fashionable, level, more features and durability) that has coefficient more than 0.5. The above rationalization had justified it to be user-friendly but indications of negative coefficient of three items (durability, portability, and price) shows that it has got no bearing on the user-friendly of the phone. That is, to say no matter how the price, portability and durability nature of the phone it is still considered as user-friendly. Factor 2 also contains two items (age and durability) that has coefficient more than 0.5. This rationale also justified for quality as aged students will buy durable mobile phone not due to mere fashion, portability or more features. The variable in factor three has a higher factor loading of 0.894 which depict customers' choice of brand of phone highly depended on price while portability and fashionable show a negative bearing on the price indicating that it is expensive.

Table 7. Component Matrix^a.

	Component		
	1	2	3
Fashionable	.633	.242	-.100
Level	.579	.083	.304
More features	.567	.092	.001
Durability	-.516	.513	.231
Portability	-.487	.013	-.219
Age	.028	.871	.201
Price	-.107	.064	.894

Extraction Method: Principal Component Analysis.

4. Discussion

This study was conducted to investigate the underlying reasons determining the choice of purchase of a brand of mobile phone(s). The three major factors directly influencing students' choice of brand of mobile phones in this study were user-friendliness, quality and price. Empirical literature on factors affecting mobile phone purchase worldwide has confirmed this finding [4]. Among all the mobile phone brands, the most used brand by the students in the study area was Nokia (31%) and Samsung (25%). Nokia and Samsung together constituted 56 percent of phones used by the students interviewed. While 31 percent of the respondents are using Nokia brand, 25 percent are using Samsung. This is an indication of students' preference for Nokia brand of phones [5].

Among the respondents, 45 percent preferred Nokia while 61 percent preferred Samsung. This means that most respondents are planning to shift to Samsung in the future irrespective of what they are using right now. This means Samsung is likely to be the leading patronized brand in the future with 61% consumers as compared to Nokia 45%. Demand for Nokia has been impressive in the Ghanaian market for some time and seems demand is declining with preference for Samsung brand. The implication is that users of Nokia and Samsung phones may continue to use them if producers and marketers of these phone brands produce and market products that have attributes that meet the taste of their consumers.

The selling price of the brand of the mobile was one of the factors that influenced the decision of students to acquire a brand of a mobile phone in this study area. According to Sata, the price of a product is an important factor that cannot be overlooked in a study of consumer behavior [6]. Most of the respondents indicated price as the main consideration when deciding to buy a mobile phone. For the range of price which varied between GHC 50.00 and GHC 301.00, the majority (23%) purchased a brand of mobile phone which the price ranged between GHC151 and GHC 200. This indicates that price as an important factor influencing the decision and behavior of consumers in deciding to purchase a brand of a mobile phone. This finding is consistent with similar studies elsewhere [7], [8]. The mobile phone feature was also an important factor that influenced the students' decision to buy a brand of mobile phone. This is consistent with other studies [9], [10]. Fashion and durability were factors that correlated and have relationship with the decision to buy brand of

mobile phone(s) with Pearson correlation coefficient of 0.877 and 0.083. Both factors are highly associated with the quality of a given product [11], [12].

Limitations and future studies

With high mobile phone penetration and active mobile phone users in Ghana, the results of our study no doubt might guide other researches yet to be conducted in Ghana and other countries. However, we should bear in mind that the small sample size was due to our inability to study the whole population of University for Development Studies due to limited resources hence our inability to generalize our results. The need for future research using both qualitative and quantitative studies is needed to provide in-depth and better understanding of students Knowledge, attitude and practices to get a broader and deeper understanding of the phenomenon.

5. Conclusions

This study has thrown some light on the preferred brand of mobile phones of a cross section of students in Ghana. Despite the above limitations and future studies needed, our findings suggest that consumers will be more sensitive to fashion and features. The findings thus contribute to the existing literature on consumer behavior in the mobile phone industry. For mobile phone operators, the findings of this study provide an important aspect of students' (consumer) choice of mobile phone brand such as features and fashion than any other consideration. As manufacturers of different mobile brands are working to improve on the quality of the brand, need to take into consideration the modern technological features. These preferences no doubt might eventually guide or influence manufacturers and marketers in the mobile phones industry to be aware of what to produce and sell. Equally, important is that it will also give mobile phone importers in Ghana a fair idea of the kind of mobile phones to import.

References

- [1] Chisenga J. Entua-Mensah C. and Sam J. "Impact of Globalization on the Information needs of Farmers in Ghana: A. Case Study of Small-Scale Poultry Farmers". World Library and Information Congress Conference and Council, Durban, South Africa 2007.
- [2] Nyarko E. and Quartey L. "Liberalizing Ghana's Telecoms Sector: the Positives and the Negatives". PANOS West Africa Institute's LICOM Project, 2009.
- [3] Frimpong GK. "Ghana Telecommunications Sector Performance Review: A. supply side analysis of Policy Outcomes". Science and Technology Policy Research Institute, Ghana, 2007.
- [4] Dziwornu RK. "Factors Affecting Mobile Phone Purchase in the Greater Accra Region of Ghana: A. Binary Logit Model Approach". International Journal of Marketing Studies, Vol. 5, No. 6; 2013.

- [5] Aidoo E. & Nyamedor BA "Study on Factors that determine the Choice of Brands of Mobile Phone: A. Case study in the Kumasi Metropolis". A. Bsc. Dissertation submitted to the Department of Mathematics and Statistics, University of Cape Coast, April, 2008.
- [6] Sata M. "Factors Affecting Consumer Buying Behavior of Mobile Phone Devices". Mediterranean Journal of Social Sciences, Vol 4 No 12, 2013.
- [7] Karjaluoto H, Karvonen J, Pakola J, Pietilä M, Salo J and Svento R. "Exploring consumer motives in mobile phone industry: An investigation of Finnish mobile phone users". Proceedings of the 1st International Conference on Business Economics, Management, and Marketing (Athens, Greece), 2003; 3, 335-342.
- [8] Saif N, Razzaq N, Amad M, Gul S. "Factors Affecting Consumers' Choice of Mobile Phone Selection in Pakistan". European Journal of Business and Management, 4(12), 2012, PP. 16-26.
- [9] Pakola J, Pietilä M Svento R, Karjaluoto H. "An investigation of Consumer Behaviour in Mobile Phone Markets in Finland". Submission to 32rd EMAC Conference, Track: New Technologies and E-Marketing, 2007.
- [10] Malasi JM. "Influence of Product Attributes on Mobile Phone Preference among University Students: A. Case of Undergraduate Students". International Journal of Academic Research and Management Sciences, 1(6), 2012, PP.2226-3624.
- [11] Zhou N, and ShanturkovskaG. "Chinese Consumer Behavior in the Mobile Phone Market: Nokia Case" (Doctoral dissertation, Gotland University, 2011.
- [12] Das D. "An Empirical Study of Factors Influencing Buying Behavior of Youth Consumers towards Mobile Hand Sets: A. Case Study In Coastal District of Odisha", Asian Journal of Research in Business Economics and Management, Vol. 2, No. 4, 2012, pp. 68-82.