

# A Factor Analysis Approach in Identifying Influential Factors in the Selection of a Mobile Service Provider: A Case of Students from Bolgatanga Polytechnic.

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## Abstract

This study was carried out with the aim of identifying factors that are considered important to students of Bolgatanga Polytechnic in selecting a particular mobile service provider and classifying these factors under broad umbrella names using Factor Analysis. Five factors emerged in the study in order of importance with the umbrella names Affordability, Visibility, Service quality, Support schemes and Acquaintances as the major factors considered significant to students of Bolgatanga Polytechnic in deciding on a mobile service provider. The second ranking factor which is Visibility provides a justification for the spending patterns of mobile operators on adverts, promotional activities and sponsorships in Ghana.

**Keywords:** Factor Analysis, Communality, Unique Factor, Mobile Service Provider, Affordability, Visibility, Service Quality, Support schemes, Acquaintances.

## 1. Introduction

The telecom industry is one of the biggest industries providing various kinds of services to millions of people across the globe. In today's world the development of communication technology ignores the global border and makes the world a "global village" (McLuhan 1964). The emergence and proliferation of the mobile phone has come to make life much easier by improving communications between relations, promoting businesses and facilitating information inquiry. According to Melody (2003), reform of the communication technology has since been expanded to include the transformation of the traditional voice telecom network into an expanded and enhanced information infrastructure, which is capable of communicating all forms of information content. Obviously, the functions of the mobile phone have gone beyond the primary function of communication.

According to Beard & Hartmann (1999), the telecommunication sector currently is experiencing phenomenal global change with the liberalization and privatization of the sector. This has resulted in the sector experiencing a continuous wave of growth and innovations spicing human endeavours. In the last two decades, as at 1992, there were less than 200 mobile operators around the world, however, due to the liberalization of the telecommunication sector, the number of operators had increased to about 600 operators by 2001 (EPZA 2005). Similarly, the number of mobile phone subscribers has ballooned over the years. According to EPZA (2005), mobile cellular subscribers around the world stood at 940 million compared to just over one billion fixed telephone lines.

The mobile phone market is said to be reaching saturation levels in developed countries with an average penetration rate of 116% as at the end of 2010 amounting to a marginal growth of 1.6% for 2009-2010 period. Relatively, the developing world increased its share of mobile subscriptions from an average of 53% of total mobile subscriptions at the end of 2005 to an average of 68% at the end of 2010. The penetration rate in Africa is 41% compared to the global average of 76% (ITU 2010). A report released by the ITU (2014) revealed that, the number of mobile/cellular phone service subscriptions worldwide had reached 6.9 billion as of mid-2014 with the actual number of individuals holding the subscriptions estimated to be about 5.7 billion. Suffice to say as many people hold more than one subscription.

In Ghana, the story is not different from what is reported happening around the globe as far as liberalization of the telecom industry is concerned. The liberalization and deregulation of the telecom industry in the country have injected fresh energy into the industry. The telecom sector has experienced massive transformation

spanning from an increase in the number of industry players, to improved quality of service, to improved and enhanced packages, to the number of users as well as geographical coverage. It is important to also point out that, the industry serves as one of the major sectors of the economy providing employment to majority of the populace. Businesses and human engagements have also been tremendously enhanced.

Statistics from the quarterly report of the National Communications Authority (NCA) of Ghana revealed that the number of mobile voice subscribers increased from 35,780,667 in the first quarter of 2017 to 37,445,048 in the third of the same year resulting in a 4.65% increment. Mobile penetration rate was estimated to be 130.9% as at the end of the third quarter of 2017. Similarly, mobile data subscription grew from 21,419,477 in the first quarter of 2017 to 22,865,821 in the third quarter of the same year accounting for a growth rate of 6.75%. Mobile data penetration rate was estimated to be 79.94% (NCA, 2017).

Today due to the liberalization of the telecommunication industry in Ghana, the number of service providers currently stands at six notably MTN, Vodafone, Tigo, Airtel, Expresso and Glo. The increased number of players in the Ghanaian telecom industry has resulted in the expansion of the telecommunication infrastructure to cover almost every part of the country. Today, the mobile phone is no more a preserve of the urban cities but has transcended into rural communities linking rural indigenes to their relations in the big cities as well as providing micro business opportunities to them.

The mobile phone has become an important gadget in the life of mankind. The benefits of the mobile phone in today's global world cannot be ignored. The huge numbers of mobile subscribers with a corresponding increase in the penetration rates all lend credence to the importance of the mobile phone. The telecommunication industry is one sector that is always in fierce competition for subscribers and the retention of subscribers by service providers. Alshurideh (2014) points out that, a large number of Mobile Service Providers are currently facing great pressure regarding existing customer loss. The nature of the competition today in the global telecommunications industry seems to centre on market activities that are aimed at gaining competitive advantages through strategic combinations of resources and presences in multiple products and geographical areas (Chan-Olmsted & Jamison 2001). Mobile phone operators face two main difficulties. The first issue is how mobile phone firms acquire new subscribers and then how to retain them. The second is about operators having to evaluate what types of mobile services should be provided, and then determine how to provide them (Alshurideh 2010; Alshurideh et al. 2015). In the UK for example Andic (2006) noted that major mobile network operators lost over a third of their youth subscribers to rival providers. The success of telecommunication industry depends on prudent efforts and feasible investments. In a competitive market, service providers are expected to compete on both price and quality of services and also it is necessary for the service providers to meet the consumers' requirements and expectations in price and service quality (Melody 2001).

According to Clow & Baack (2004), there are several factors that affect consumers buying decision process, (the process has five stages; problem recognition, information search, alternative evaluation, buying decision, and evaluation after buying decision). Individual factors like motivation, personality, perception, learning, values, beliefs, attitudes and lifestyle affect the process. Social factors that contribute to the process are personal influence, reference group, family influence, social class and culture. For instance, buying behaviour of consumers from same culture or social group are similar to each other because they have similar lifestyles, their learning, perception and motivation are close to each other (Rani 2014).

In a competitive telecommunication industry, one of the fundamental concerns of service operators is how to retain and attract new customers. In order to achieve this objective, service providers have the odious task of providing customers with satisfactory and enticing packages. Globally mobile service operators have not relented on the path of innovation and visibility. Strategic investments with the potential of wooing customers are continuously being undertaken by operators. It is a common phenomenon to see some of these investments in the area of infrastructure expansion to broaden network coverage, improve network quality, image branding of service providers, running of promotional packages among others. In a study carried out by Wang & Lo (2002) on comprehensive integrated framework for service quality, customer value, and customer satisfaction and behavioural intentions of customers in China's mobile phone sector, they observed that competition between two mobile phone service providers is more intense than ever which is not only in ensuring network quality by a large amount of investment in network extension and upgrading but also in customer acquisition and retention by direct and indirect price reduction efforts. Publications from Herrmann et al. (2007); Kollmann (2000) acknowledges the vital role of price in the telecommunication market especially for the mobile telecommunication service providers.

Considering the huge investments made by operators of the telecom industry, it is important to assess the extent to which these areas of investments are crucial to the subscriber. According to Hennig-Thurau & Klee (1997), satisfaction of customers with products and services of a company is often considered the key to a company's success and long-term competitiveness. In the context of relationship marketing, customer satisfaction is often viewed as a central determinant of customer retention. Similarly, Deng et al. (2009) stated that, the ability of a service provider to create high degree of satisfaction is crucial for product differentiation and developing strong relationship with the user. According to Hanif et al. (2010), user satisfaction makes the phone users loyal to one telecommunication service provider. Satisfaction of the user can help the brands to build long and profitable relationships with their users (Eshghi et al. 2007).

Consumers of products and services of the telecom industry vary and so are their needs, tastes and expectations. According to Swait & Adamowicz (2001), a lot of decision behavior exercised by purchasers can be different from one individual to another because customers may use different approaches to make their choices rather than only using mathematical modeling. This point to the fact that, knowing from the perspective of the consumers what will influence their decision to choose a particular Mobile Service Provider is vital in a competitive market. In a study of choice of a service provider in Bangladesh by Haque et al. 2010, price came out as the most important among respondents followed by service quality, product quality and promotion. Also, Olatokun & Nwonne (2012) conducted a study on determinants of users' choice of Mobile Service Providers in Nigeria using Ibadan as the case study. The findings of the work of Olatokun & Nwonne (2012) was that, paths to call rate, service quality and service availability were more significant in the selection criteria of the user than promotion and brand image. Matej & Nevenka (2011) sought to empirically identify factors that users took into account when choosing their mobile operator in Slovenia. Two sets of factors were tested with conditional logit model, characteristics of mobile operators and then characteristics of users. They discovered that two characteristics of operators, the number of their subscribers and their market shares, have a positive impact on the probability of choosing a mobile operator. Among the characteristics of users, monthly income showed a significant impact on the choice of a mobile operator. Rahman et al. (2010) assessed the factors that play a significant role in the selection of a telecommunication service provider in Malaysia. They found out that, price or call rate is the first factor of consideration followed by service quality, then service availability and lastly promotion. Solomon (2012) in his study of factors affecting consumer choice of multiple mobile services in Ghana concluded that, unreliability of service, different call rate for different operators, and reference group influence are some of the factors affecting choice of multiple services.

A study by Sukumar (2007), using a sample of 104 mobile phone subscribers, measured the mobile phone users' preferences for selection of an operator. The result of the study found important dimensions as brand image, customer care, services availability, credit facility for connection, deposit amount, and prices in that order of priority.

Alshurideh (2016) carried out a study to investigate the main factors affecting a consumer's choice of mobile phone service provider contracts, and to determine which of these factors are important in a consumer's decision-making process. He realized from his study that, the main factor affecting consumer choices was "contract features", with a relative importance of 41%. After a set of mobile phone contract hypotheses were identified and tested, it was found that contract price, with about 15% relative importance, was the main contract feature that affected consumer choices, followed by the size of data that were related to the number of minutes and/or number of messages offered within the mobile service contract package. In addition, "company factors", with about 18% relative importance, were found to affect consumer choice of service provider contracts. The study also revealed that, the principal issue affecting consumer choice decisions was "switching cost", which was the highest relative important element of company interrelated factors and found to influence mobile subscriber contracts choice significantly. However, other company factors like signal strength and sales outlet availability had no significant impact on consumer choices and ranked less for consumer-choice priority. Also, Kim & Yoon (2004) investigated whether the factors of call quality, brand image, handset, income level and subscription duration had an effect on subscriber choices in Korea. They built a binomial model based on discrete choice theory to explain the behavior in situations where decision makers must select from a finite set of alternatives. Based on a phone survey of subscribers to various telephone carriers, Kim & Yoon (2004) concluded that, call quality and price were the most important and could directly affect consumer choice. They also noted that the handset type was significant in attracting customers and that brand image was also important, but it could be affected by other factors such as call quality and handsets.

Interestingly, in Ghana there is very limited research in the use of Factor Analysis in identifying the factors that play significant roles in consumers' decisions of choosing a mobile service operator. In view of this observed gap, this research seeks to contribute to the plethora of existing literature in this area from the Ghanaian perspective. As suggested by Drucker (1954) successful marketing involves seeing the business from the customer's point of view.

A common feature of the telecom industry in Ghana is that it is saturated with adverts, sponsorships and promotions from service providers which come at great cost to the service providers. What is not clear is the role these adverts, sponsorships and promotions significantly influence subscribers' choice of selecting a network provider. As pontificated by Rust & Oliver (1994), companies need to measure consumers' satisfaction with their products and services. Again this study will establish if there is any empirical basis for telecom operators to spend huge sums of money on adverts, promotions and sponsorships by considering students of Bolgatanga Polytechnic as the study subjects.

## 2. Research Methodology

The sampling design of this research was based on generating primary data from a population of students from Bolgatanga Polytechnic. A likert scale based questionnaire covering potential variables that could influence subscriber's decision to choose a particular Mobile Service Provider was developed and piloted on 50 students to indicate the extent to which they concurred with the statements or disagreed with the statements on the questionnaire with (1=Strongly Agree, 2=Agree, 3=Not Certain, 4=Disagree and 5=Strongly Disagree) Based on the pilot survey, some questions were dropped and others modified. The pilot survey also provided vital information for the actual sample size determination for the study. For example through the pilot survey, the proportion of students using mobile phones was estimated to be 0.7 and the response rate was also estimated to be 60%. On the basis of results from the pilot survey, an actual sample size of 413 was determined but for purposes of convenience, a round figure was preferred and therefore 420 students were selected from a total student population of 1,058 and the finalized questionnaire administered to them. Simple random sampling was then used to select respondents. Out of the 420 questionnaires administered, 412 were completed and successfully retrieved for the data analysis. This represents a 98.10% response rate which is very high and good for the study. A reliability test for internal consistency of the entire questionnaire was done and a Cronbach's Alpha value of 0.773 was realized. This is a good indicator for what the study seeks to investigate. According to Hair et al. (1995), a coefficient of less than 0.6 indicates marginal to low internal consistency and a value of 0.6 or more indicates satisfactory internal consistency reliability (Churchill 1979). Factor Analysis was used to analyze the data collected to identify which factors played significant roles in the students' decision. According to Hair et al. (1992), factor analysis represents an analytical process of transforming statistical data (as measurements) into linear combinations of variables, it is a meaningful statistical method used for combining a large number of data into a considerably smaller number of factors with a minimum loss of information.

### 2.1 Sample Size Determination

The initial sample size was obtained using the formula below:

$$n_1 = \frac{n_0}{1 + \frac{n_0}{N}}$$

where

$$n_0 = \frac{t^2 pq}{d^2}$$

$$N = 1058, t = 1.96, p = 0.7, q = 0.3, d = 0.05$$

$N$  – Total population

$n_0$  – is the initial sample size

$n_1$  – is the unadjusted sample size

$n$  – is the adjusted sample size

$p$  – is the estimated proportion of students using mobile phones

$t$  –  $t$  value at the 95% confidence interval

$d$  – desired margin of error

$$n_0 = \frac{(1.96)^2(0.7)(0.3)}{(0.05)^2}$$

$$n_0 = 323$$

$$n_1 = \frac{323}{1 + \frac{323}{1058}}$$

$$n_1 = 248$$

$$\text{Adjusted sample size for nonresponse } (n) = \frac{n_1}{r\%}$$

For a response rate of 60%, the actual sample size ( $n$ ) is:

$$n = \frac{248}{0.6}$$

$$n = 413$$

The sample size  $n = 413$  was adjusted to  $n = 420$  and this was used for the study.

## 2.2 Model Description

The model for the  $K$  – Factor can be stated as:

$$\begin{aligned} x_{ij} &= \mu_j + (\lambda_{j1}z_{i1} + \lambda_{j2}z_{i2} + \dots + \lambda_{jk}z_{ik}) + 1u_{ij} \\ &= \text{Mean} + \text{Common Factor} + \text{Unique factor portion} \end{aligned}$$

where

$x_{ij}$  is the score for person  $i$  on manifest variable  $j$

$\mu_j$  is the mean of manifest variable  $j$

$z_{ik}$  is the common factor score for person  $i$  on factor  $k$

$\lambda_{jk}$  is the factor loading of test  $j$  on factor  $k$

$u_{ij}$  is the factor score for person  $i$  on unique factor  $j$

## 4. Presentation of Data Analysis

Data collected was entered in Census and Survey Processing System (CSPro) and then exported to SPSS for the analysis. Results of the data analysis are presented below.

**Table 1. KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.807
Bartlett's Test of Sphericity	Approx. Chi-Square	1201.096
	d.f	120
	Sig.	.000
Determinant		0.051

The value of the Determinant of 0.051 differs from zero which confirms the absence of multicollinearity. Secondly the Bartlett's Test of Sphericity of  $p = 0.000$  indicates that our variables have patterned relationships. In other words, the  $p$  – value (0.000) for the Bartlett's Test of Sphericity rejects the null hypothesis that, the correlation matrix is an identity matrix. Finally, the KMO which is the measure of sampling adequacy stands at 0.807, a value high enough to warrant the application of factor analysis to the data. The large KMO value suggests that the correlation between pairs of variables can be explained by other variables.

**Table 2. Communalities**

	Initial	Extraction
Quality of Voice Call	1.000	.621
Network Coverage	1.000	.549
Cost of Internet Service	1.000	.480
Promptness of Network Provider to attend to Customer Concerns	1.000	.369
Cost of Credit	1.000	.619
Number of Contacts	1.000	.764
Cost of Internet Bundles/Packages	1.000	.481
Customer Relation	1.000	.503
Adverts Being Ran	1.000	.526
Sim Cards Availability	1.000	.596
Internet Connectivity Quality	1.000	.501
Cost of Calls	1.000	.582
Popularity of Network Provider	1.000	.524
Brand Image	1.000	.609
Offering Sponsorship	1.000	.615
Voice Call Packages	1.000	.713

**Extraction Method: Principal Component Analysis.**

Table 2 gives details of the proportion of variance explained by the common factors associated with the various variables. The third column of Table 2 headed as Extraction reveals that, the least percentage contribution of variation in a variable (Promptness of Network Provider to attend to Customer Concerns) by the observed common factors is 36.9%. The high values recorded in column 3 of Table 2 are good for the analysis.

**Table 3. Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.714	23.213	23.213	3.714	23.213	23.213
2	2.046	12.786	35.999	2.046	12.786	35.999
3	1.175	7.343	43.341	1.175	7.343	43.341
4	1.066	6.662	50.003	1.066	6.662	50.003
5	1.053	6.584	56.587	1.053	6.584	56.587
6	.820	5.124	61.711			
7	.805	5.029	66.741			
8	.758	4.741	71.481			
9	.726	4.540	76.021			
10	.660	4.126	80.147			
11	.593	3.706	83.853			
12	.566	3.538	87.390			
13	.548	3.428	90.818			
14	.524	3.274	94.092			
15	.511	3.192	97.284			
16	.435	2.716	100.000			

**Extraction Method: Principal Component Analysis.**

The results of Table 3 reveal that, five factors were considered significant and important to the analysis based on their individual eigenvalues being greater than 1. The criterion for retaining the five factors is based on the Kaiser's criterion which is a rule of thumb. The criterion suggests retaining all factors that are above the eigenvalue of 1 (Kaiser 1960). Factors with eigenvalues less than 1 do not have enough total variance explained to represent a unique factor and therefore discarded. These five factors are therefore retained and collectively explain approximately 56.59% of the total variance which is above half of the total variance.



**Table 4. Component Matrix**

	Component				
	1	2	3	4	5
Customer Relation	.573	-.069	-.152	-.056	-.379
Promptness of Network Provider to attend to Customer Concerns	.557	-.163	.051	-.063	-.160
Cost of Internet Bundles/Packages	.557	-.349	.210	.072	.000
Cost of Calls	.542	-.372	.186	-.322	-.106
Cost of Internet Service	.536	-.295	.278	-.086	-.143
Offering Sponsorship	.513	.244	-.167	-.463	.225
Cost of Credit	.513	-.347	.399	-.096	.260
Quality of Voice Call	.510	-.068	-.450	.365	.143
Adverts Being Ran	.482	.434	.163	.177	-.217
Internet Connectivity Quality	.465	-.263	-.339	.216	-.232
Network Coverage	.429	-.327	-.345	.351	.125
Popularity of Network Provider	.383	.606	-.089	- .032	-.045
Sim Cards Availability	.397	.602	.228	.135	-.077
Brand Image	.448	.559	-.175	-.228	-.118
Number of Contacts	.325	.275	.444	.509	.357
Voice Call Packages	.392	.040	-.235	-.233	.670

Table 4 is the Unrotated Component Matrix which presents the values used in computing the communalities in Table 2 and the eigenvalues in Table 3. The sum of the squared loadings over factors for a given variable gives the communality for that variable. On the other hand, the sum of the squared loadings for a given factor shows the variance accounted for by that factor.

**Table 5. Rotated Component Matrix**

	Component				
	1	2	3	4	5
Cost of Calls	<b>.734</b>				
Cost of Internet Service	<b>.680</b>				
Cost of Credit	<b>.676</b>				
Cost of Internet Bundles/Packages	<b>.622</b>				
Promptness of Network Provider to attend to Customer Concerns					
Customer Relation					
Brand Image		<b>.719</b>			
Sim Cards Availability		<b>.706</b>			
Popularity of Network Provider		<b>.697</b>			
Adverts Being Ran		<b>.653</b>			
Quality of Voice Call			<b>.740</b>		
Network Coverage			<b>.696</b>		
Internet Connectivity Quality			<b>.625</b>		
Voice Call Packages				<b>.811</b>	
Offering Sponsorship				<b>.612</b>	
Number of Contacts/family & friends					<b>.826</b>

**Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.**

The Rotated Component Matrix reports the factor loadings for each variable on the components or factors after the rotation. It gives a clear indication how each variable correlates with each factor. Values less than 0.5 were suppressed in our results. From the Rotated Component Matrix, four variables (Cost of Calls, Cost of Internet Service, Cost of Credit and then Cost of Internet Bundles) loaded on Factor 1. An examination of these variables relates with “Affordability”. Variables like (Brand Image, Sim Cards Availability, Popularity of Network Provider and Adverts Being Ran) loaded on Factor 2. These variables are associated with “Visibility”. On the other hand, variables like (Quality of Voice Call, Network Coverage and Internet Connectivity Quality) loaded on Factor 3. These variables can be classified under the umbrella name “Service Quality”. For Factor 4, two variables (Voice Call Packages and Offering Sponsorships) loaded on it. A carefully inspection of these variables connotes “Support Schemes”. Lastly, only one variable (Number of Contacts) loaded high on Factor 5. This can be captured as “Acquaintances”.

## 5. Discussion

Data collected from this study was subjected to Factor Analysis using the Principal Component Analysis. The data was generated using questionnaires containing 16 variables assessed to be relevant in playing a role in the decision of selecting a Mobile Service Provider by students of Bolgatanga Polytechnic.

Using Kaiser (1960) criterion for the retention of factors, 5 factors with eigenvalues greater than one were retained. These factors accounted for 56.59% of the total explained variance with the remaining 11 factors accounting for 43.41% of the total variance unexplained.

Out of the 5 factors retained, Factor 1 which comprised of the following variables (Cost of Calls, Cost of Internet Service, Cost of Credit and then Cost of Internet Bundles) can best be termed as “Affordability”. Factor 1 clearly shows that, students of Bolgatanga Polytechnic place a lot of premium on Cost of Services rendered by a mobile service provider before deciding on which provider to hook up with. Literatures from Kollman (2000); Draganska & Jain (2003); Haque et al. (2010); Kotler & Armstrong (2010) have all pointed out the importance of pricing to consumers of mobile services. Mobile Service Providers are therefore advised to continue to take steps to make their services affordable.

Factor 2 was made up of variables like (Brand Image, Sim Cards Availability, Popularity of Network Provider and Adverts Being Ran). An inspection of these variables signifies “Visibility”. Factor 2 suggests that students of Bolgatanga Polytechnic are carried away by the visibility of a mobile provider. The more they see a provider the more likely they might want to be associated with it by using its services and products. This finding is therefore in line with previous studies by Freo (2005); Chinnadurai (2006); Kotler & Armstrong (2010) who posited that adopting vibrant promotional strategies was key in customer attraction and retention in the mobile telecom industry. Visibility by way of Branding, Adverts, Network Provider Popularity and Sim Cards Availability is an important determinant of student’s selection criteria. It is therefore in the interest of Mobile Service Providers to position themselves to be visible to the students.

Also Factor 3 was observed to contain the variables (Quality of Voice Call, Network Coverage and Internet Connectivity Quality). These variables talk about “Service Quality”. Service quality is very important to mobile service users and students of Bolgatanga Polytechnic are not an exception for that matter. The importance of Service Quality in the mobile telecom industry is well established in the works of Ranaweera & Neely (2003); Doganouglu & Grzybowski (2003); Gustafsson et al. (2005); Turel & Serenko (2006). In this regard, factors relating to service quality must be attended to with seriousness. As recognized by Yoo & Park (2007), the firm’s ability to create and sustain competitive advantage depends upon the high level of service quality provided by the service provider.

Two variables (Voice Call Packages and Offering Sponsorships) loaded high on Factor 4. These variables are associated with “Support Schemes”. The study indicates that Bolgatanga Polytechnic students pay particular attention to supports offered by Mobile Service Providers. These supports may come in the form of call packages or the Mobile Service Provider offering supports in the form of educational, health or other community service/projects. Support schemes in the form of call packages, sponsorships should be pursued by Mobile Service Providers in order to capture students as this has the potential of swaying students in choosing a Mobile Service Provider. Mobile Service Providers are encouraged to pay particular attention to this factor.

The last factor, Factor 5 contained only one variable (Number of Contacts). These can be regarded as “Acquaintances”. This means that, Bolgatanga Polytechnic students consider the Mobile Service Provider of their close associates before settling on a particular Mobile Service Provider. This is because on-net calls are cheaper as compared to off-net calls in Ghana. Again some packages from Mobile Service Providers allows for only people using the same provider to benefit from it. Studies from Kim & Kwon (2003) allude to this finding in that, they



revealed in their work that consumers prefer operators with a larger number of subscribers, with all other things being equal. They further showed that the intra-network call discount and quality signal effects are likely to be sources of size effects. Similarly, Birke & Swann (2006) also established that an individual's choice of an operator is influenced by each operator's total number of subscribers, but a much stronger effect stems from the choice of operator made by the consumer's household members. To buttress the issue of family and friends as a key determinant in mobile network selection, Birke & Sawnn (2006) also discovered that friends were more than twice as likely to have the same operators as two randomly picked students. The work of Ofwona (2007) suggests that, the family as a primary reference group may exert more influence on the choice of mobile network provider because of calling habits.

## 5. Conclusion

In this study we discovered that factors like "Affordability", "Visibility", "Service Quality", "Support Schemes" and "Acquaintances" in order of importance are considered very critical in influencing students of Bolgatanga Polytechnic in choosing a Mobile Service Provider. The study has confirmed with empirical evidence the basis upon which Mobile Service Providers in Ghana spend so much on adverts, sponsorships and other promotional activities.

We round up our work by alerting Mobile Service Providers to pay a holistic attention to the five (5) factors identified to be significant determinants to students' selection criteria if they want to survive the tough competition currently prevailing in the mobile communication industry in Ghana.

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