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Effectiveness of Push (SMS) Service: A Study on Grameenphone and Airtel Subscribers of Bangladesh

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Keywords: push marketing, sms, grameenphone, airtel, medium of advertising.

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Keywords: push marketing, sms, grameenphone, airtel, medium of advertising.

I. Introduction

Over the last few years, the number of mobile subscribers in Bangladesh has been more than or close to more than doubling on an annual basis. The subscriber base had reached 119.623 million at the end of November 2014and is continuing to grow at a fast rate. Individually, Bangladesh's leading mobile operator, Grameenphone, has 51.119 Million customers, Banglalink has 30.681 Million, Robi has 25.251 Million and Airtel has 7.468 Million subscribers. On the other side, City cell, Bangladesh oldest mobile operator, has added 1.306 Million subscribers and finally Government phone company Tele talk has 3.805 Million subscribers.

	Operator	Subscriber(in million)
1.	GP	51.112
2.	Bangla Link	30.681
3.	Robi	25.251
4.	Airtel	7.468
5.	Citycell	1.306
6.	Teletalk	3.805

Source: www. Btrc.gov.bd/content/mobile phone_ subscribers (November 2014)

Bangladeshi Mobile Phone Company takes these huge mobile phone subscribers as the source or medium to reach the enormous people to conduct Mobile marketing. Mobile advertisers can deliver timely phone message service (SMS) ads to consumers based on their demographic characteristics and geographic information. Worldwide, wireless advertisers have already integrated SMS into the media mix. As the mobiles are in high use, advertising companies are also running after people who use mobile phones. Mobiles were invented for the purpose of communications only but on the way they have got a new dimension. This dimension is that mobiles are used for advertisement. Most of the companies have started sending promotional messages in the form of SMS to people because of today mobile marketing is one of the cheapest means of advertisements. Mobile marketing can be done through SMS, MMS, Voice call etc. Also, people keep mobiles with them, and hence, as soon as people get messages on their cell phones they instantly check their messages. Moreover, mobile marketing saves much time.

Companies through push marketing can make people to read their promotional messages. Grameenphone is the leading mobile phone company

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as well as Airtel is the growing mobile phone company in Bangladesh. Both companies conduct their push marketing activity to their subscribers. Although today pull marketing is the new concept in the market but both push Marketing &pull marketing are used by those company. The effectiveness of push Marketing varies from company to company. This paper will show the comparative effectiveness of push marketing between Grameenphone and Airtel mobile company. Hence, Present study emphasizes and tries to measure the Effectiveness of push Marketing of GP and Airtel Company towards the customers.

a) Research Problem

The present study is basically a customer survey, conducted with the objective of knowing the customer opinion about the effectiveness of push marketing of cellular phone service providers. Today there is a stiff competition prevailing among the cellular phone service providers. Hence under this scenario, it is important to know the factors that impact on the push marketing towards potential customer as well as to know the effectiveness of push (SMS) Marketing of selected mobile phone company(GP and Airtel) which are the leading and growing mobile phone operator of telecom service in Bangladesh.

b) Significance of the Study

This paper will help the telecom industry to know the current scenario of customer opinion about their push service as well as it helps to understand them assess their comparative position in context of push marketing.

c) Objectives of the Study

The general objective of this research is to assess the effectiveness of push marketing toward potential customer of GP and Airtel.

Specifically, the study is aimed at the following objectives:

- To know about the overview of Grameenphone and Airtel company.
- To determine and compare the perception of mobile phone users in Bangladesh about push service in respect of selected variables with regard to GP and Airtel.
- To know about the level of Performance & Effectiveness of GP and Airtel regarding the push service.
- To make a comparison between Grameenphone and Airtel in the context of push service by analyzing customer opinion and experience.
- To evaluate the overall position and measure the effectiveness of push services for both companies.
- To provide some recommendations to increase the effectiveness of push service of Grameenphone and Airtel Company in regard to the selected variables.

d) Scope of the Study

The scope of the research is based on two mobile phone companies and it throws light on the effectiveness of push marketing with respect to Grameenphone and Airtel Company. The report is written from the point of view of Grameenphone & Airtel users of Pabna city from Bangladesh. This report will represent the overall condition of effectiveness of push service of mobile phone subscribers based on the survey conducted over 100 mobile phone users.

e) Limitations of the Study

- The study concentrates only on the customers of GP and Airtel of Pabna city in Bangladesh.
- Due to time constraints it is not possible to cover vast area. So that survey has limited scope for application in wide market.
- Few customers are hesitate to deliver some information's due to the time wasted in the providing the same.
- Cost constraints leads to reduction in number of respondents.

II. Organizational Overview

a) Overview of Grameenphone

Grameenphone Ltd., the largest telecommunications service provider in Bangladesh received its operating license in November, 1996 and started its operations from March 26, 1997, the Independence Day of Bangladesh. Grameenphone was also the first operator to introduce the pre-paid service in September 1999. Today, Grameenphone is the leading telecommunications service provider in Bangladesh with more than 51.112 million subscribers as of November 2014 (http://www.btrc.gov.bd). It is a joint venture enterprise between Telenor and Grameen Telecom Corporation, a non-profit sister concern of the internationally acclaimed microfinance organization and community development bank Grameen Bank. Telenor, the largest telecommunications company in Norway, owns 55.8% shares of Grameenphone; Grameen Telecom owns 34.2% and the remaining 10% is publicly held.

Since its inception Grameenphone has built the largest cellular network in the country with over 13,000 base stations in more than 7000 locations. Presently, nearly 98 percent of the country's population is within the coverage area of the It established the first 24-Hour Call Center, introduced value-added services such as VMS, SMS, fax and data transmission services, international roaming service, WAP, SMS-based *Push-pull* services, EDGE,3G, personal ring back tone and many other products and services.

Grameenphone at a Glance

The full name:	Grameenphone Ltd
Head Office:	Clebration Point, Plot # 3&5, Rode # 113/A, Gulshan-2,Dhaka - 1212,Bangladesh
Date of incorporation:	November 28, 1996
Service Launched:	March 26, 1997
Product & Services:	More than 50 products, services, promotions and features, Grameenphone customer centers in 6 Divisional cities, 600 Service Desk all over the country.
No of divisions:	11
No of Subscribers:	51.112 millions
Shareholders:	Telenor (62%), Grameen telecom (38%)
Vision:	We're here to help (This vision crystallizes customer focus as the Cornerstone of everything they do: helping customers get the full benefit of communications in their daily life.
Values:	Make it Easy; Keep Promises, Be Inspiring, Be Respectful
Website	http://www.Grameenphone.com

Source: (http://www.Grameenphone.com)

i. *Grameen Phone's Value Added Services*

SMS (Phone Message Service), SMS Push-Pull Services: By using people can enjoy more than 160 contents (Ex: Sports news, Emergency numbers, Restaurants. Airline and Railway timing, Travel info etc.), Voice Mail Service (VMS), Fax and Data, Wireless Application Protocol (WAP), News Service Event Based sports Update (2002), Iftar and Sehri Timings (1515), Bangla SMS, Apps & Gams, Lifestyle Content, Financial services.

b) Overview of Airtel

Airtel, formerly known as Warid Telecom, is a *GSM* and *3G* based cellular operator in *Bangladesh*. Airtel is the sixth mobile phone carrier to enter the Bangladesh market, and originally launched commercial operations under the brand name Warid on May 10, 2007. In 2010, *Bharti Airtel* bought out majority share of the company. As of August 2013, Airtel Bangladesh has 7.97 million subscribers with 7.3% of market share. Warid Telecom International, an Abu Dhabi based consortium, sold a majority 70% stake in the company to India's Bharti Airtel Limited. Bharti Airtel is making a fresh investment of USD 300 million to rapidly expand the operations of Warid Telecom. This is the largest investment in Bangladesh by an Indian company. This is Bharti Airtel's second operation outside of India. Dhabi Group continues as a strategic partner retaining 30% shareholding and has its nominees on the Board of the Company. Bharti Airtel Limited took management control of the company and its board, and rebranded the company's services under its own Airtel brand from December 20, 2010. The Bangladesh Telecommunication Regulatory Commission approved the deal on Jan 4, 2010. The company offers a wide array of innovative mobile services, including voice, value added services, data and m-commerce products and is focused on expanding its state-of-the-art mobile network both for coverage and capacity.

With a customer base of more than 7.468 million (www.btrc.gov.bd), Airtel Bangladesh is the most preferred youth brand of the country that thrives on excellent data service. And data experience with Airtel will only be better when the company will introduce its array of 3G services. To make customers' lives easier Airtel Bangladesh has Doorstep Service by which customers can enjoy all kinds of service at their preferred place. M-Commerce opened a new Horizon in money transfer that gives Airtel customers the freedom to send money to their dear ones instantly from their mobile. Through M-health, customers can now reach professional doctors over phone 24/7 and get basic treatment. To enrich the lives of the customers Airtel has 7 Airtel Experience Centers (AEC) and 77 Airtel Relationship Centers (ARC) across the country and our corporate office is situated in Banani (House 34, Road 19/A), Dhaka 1213, Bangladesh.

Airtel Bangladesh Ltd. at a Glance

Type:	Private
Industry:	Telecommunication
Founded:	December 1, 2010 (Registration date)
Headquarters:	House 34, Road 19/A, Banani, Dhaka 1213, Bangladesh
Products:	Telephony, mobile telephony
Total subscriber:	7.468 million (November 2014)
Website:	http://www.bd.airtel.com

Source: www. bd. Airtel.com

i. *Airtel's Value Added Services*

Voice Mail Service (VMS), Short Message Service (SMS), Multimedia Message Service(MMS), Tunes, Data service, Sports, News update, Astrology, Travel, Finance, Information service, Location based service, Research & bill pay service.

III. Review of Related Literature and Origin of Push Marketing

a) Mobile Advertising

Traditionally, the purpose of advertising has been to communicate brand messages to consumers in order to understand the communication process behind advertising [Shannon's (1948)]. Advertising, in today's business world is the most prioritize filed that a business normally concentrate and put large emphasize on that. During recent years, the popularity of text messaging (SMS) has grown exponentially, which has led to the rise of the mobile advertising phenomenon [James, 2004]. Chang and Villegas (2008) argue that the mobile phone has tremendous potential for delivering advertisements because of its high penetration rate.

b) SMS Advertising

In this competitive world, where in each step you will find competition. In order to have win-win position in this competitive world there should be some strong weapons to be used to have winning edge. One of the strong weapons is advertising through SMS. In the current scenario people are lacking time, there is a very urgent need for quick and effective communication system. Bulk SMS Solutions are considered as the safest and quickest mode of communication. The marketer shave found a new way of advertising to reach the consumers with the growth in the cellular market. Millions of SMS or more are sent in a month. SMS advertising has emerged as the most suitable and effective medium for advertising due addiction towards SMS and its popularity among youths. According to the GSM association, the cellular phone users send 10 million or more SMS in a month. The addiction towards SMS and its popularity among youths has contributed to SMS advertising to emerge as the most suitable and effective medium for advertising. The SMS has emerged as marketing communication phenomenon for the advertisers to reach their clients anywhere, anytime. One can use SMS gateways to generate the maximum awareness in client's mind with the minimum possible costs. The SMS gateway can also be used for brand recalling. According to the research the text message advertisements have found to boost the clients' inclination to purchase by 36% which explains its popularity among marketers. This is perhaps because SMS advertising is the most popular form of mobile advertising [Scharl, 2005].

c) Origin of Push Marketing

Actually push marketing concept comes from mobile advertising or mobile marketing. Mobile marketing is can be defined as "Using interactive wireless media to provide customers with time and location sensitive, personalized information that promotes goods, services and ideas, thereby generating value for all stakeholders" This definition includes an important concept of adding value not just for the marketing party, but also for the consumer.

Mobile marketing can be categorized into two types one is push marketing and other is pull marketing.

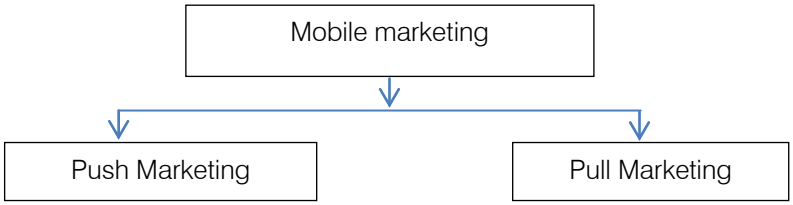


Figure 1 : Types of mobile Marketing

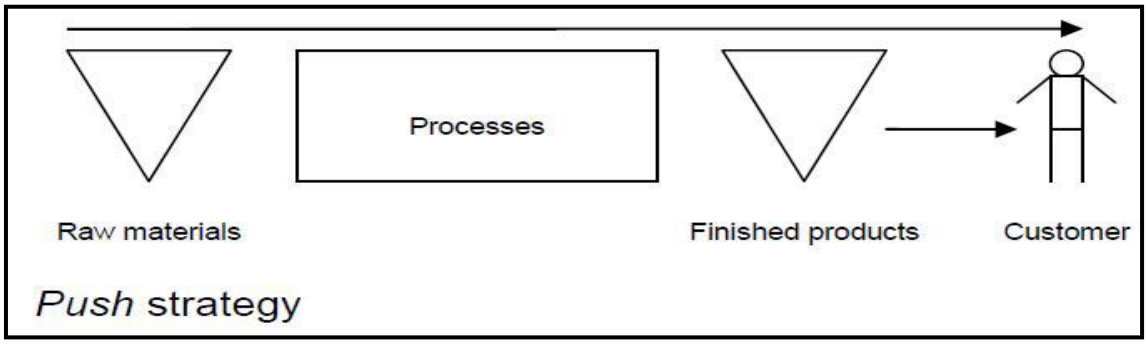
d) Push-Pull Marketing

Mobile advertising can be categorized into two basic types: Push and Pull [Wallace et al., 2002?].Providers can take the form of pull-based (user request information and services based on their locations) or Push-based (location-sensitive content is automatically sent to users based on their location) advertising. Push advertising without any filtering is something like spam e-mail which might be perceived as annoying or irritating. Lawer and Knox (2006) describe Push marketing as company centric marketing strategies that push the benefits of company offerings to specific marketing segments. When defining mobile marketing a further distinction can be made between push and pull marketing campaigns. Lawer and Knox (2006) describe Push marketing as company centric marketing strategies that push the benefits of company offerings to specific marketing segments.

i. *Push Marketing*

Push marketing focuses on taking the product to the customer, and putting the product in front of the customer at the point of purchase. This type of marketing strategy hopes to minimize the amount of time between a customer discovering a product and buying that product. To accomplish this, companies use aggressive and wide-reaching ads to make the biggest and most immediate impact they can on customers. Node performs order planning for succeeding node. Like stated by Bonney et al. (1999) control information flow is in the same direction of goods flow. Push Marketing sounds much more aggressive than it actually is It creates a situation within the retail environment

where the manufacturer and the retailer work together to promote one specific product model or entire product line. This strategy makes use of a company's sales force, trade promotion activities, and promotional relationships to create consumer demand for a product (i.e. sales incentives/spiffs, coupons or discounts, and heavy product training for retail staff).With a Push strategy, the producer (1) promotes the product to wholesalers, the wholesalers to the retailers, and the retailers to the consumers, and (2) sets production levels based on the wholesalers and/or retailers' historical ordering patterns and product sales, and forecasted demand. Often it takes time for Push-based supply to respond to changes in demand, as they are basing their inventory on historical data.



Source : Elaboration of A. by P. G. Brabazon, B. Mac Carthy, Order Fulfillment Models from the Catalog Mode of Mass Customization –A Review, in T. Blecker, G. Friedrich (eds.), Mass Customization: Challenges and Solutions, Springer, New York, 2006, pp. 211-231, p. 214.

Fig. 3 : Push strategies

Often manufacturers look at incorporating a Push strategy into their overall marketing efforts when:

- Consumers do not know their product's brand, benefits or How to use it and therefore need to be educated;
- Consumers are price sensitive;
- They are competing with an industry leader that has a large marketing budget; or when their goal is to inspire trial with the hope of building long-term product loyalty.

ii. *PULL Marketing*

Pull marketing, on the other hand, takes the opposite approach. The goal of pull marketing is to get the customers to come to you, hence the term pull, where marketers are attempting to push customers in. Common sales tactics used for push marketing include mass media promotions, word-of-mouth referrals and advertised sales promotions. From a business perspective, pull marketing attempts to create brand loyalty and keep customers coming back, whereas push marketing is more concerned with phone-term sales. Pull Marketing creates a situation in which consumers knowingly request a branded product and "pull" it through the distribution channel. For this strategy to work, manufacturers must build consumer demand through heavy (and often expensive) advertising and promotional campaigns. A pull strategy could arguably be more effective than a push strategy because it is easier to sell to a consumer who has a strong positive view of the product. However, creating this positive impression often requires a high amount of exposure over a long period of time.

Often manufacturers look to use mediums such as:

- Mass advertising
- Word of mouth or buzz marketing
- Image advertising
- In-store advertising, sampling, demonstrations
- Viral marketing (getting decision makers and influencers to become advocates)

Although this sounds easy, it often takes considerable time and resources to build awareness for a product to the point where it is identifiable by consumers. Often manufacturers will look at incorporating a push strategy when:

- Consumers want to purchase the product because of a strong affiliation to the brand.
- They have created a product that is easily differentiated and identifiable from competitor products.
- They have adequate funds to support a large advertising campaign.

e) Short Message Service (SMS)

SMS is a text messaging service component of phone, Web, or mobile communication systems. It uses standardized communications protocols to allow fixed line or mobile phone devices to exchange phone text messages. SMS was the most widely used data application, with an estimated 3.5 billion active users, or about 80% of all mobile phone subscribers at the end of 2010. The term "SMS" is used for both the user activity and all types of phone text messaging in many parts of

the world. SMS is also employed in direct marketing, known as SMS marketing. SMS in subscriber mobile acts like an advanced pager. Subscriber can send and receive text messages of up to 160 characters. Subscriber can use your mobile phone attached to a computer to send faxes or transfer date, even they need not to be connected with a fixed line.

f) Voice Mail Service (VMS)

VMS is a unique answering machine. It provides subscriber with a personal electronic mail box in our voice mail center. When subscriber is not available or outside the coverage area or simply busy even switch off his or her cell phone, the caller can leave a message in subscriber's voice mailbox, which subscriber may listen or retrieve at subscriber's convenience. It provides 24- Hour automatic secretarial service makes one available to his calling person anytime. When users are unreachable or unable to answer any call within 20 s, the service will automatically divert the call to voice mail. User will receive a SMS notifying us that we have a message and we may retrieve it at a convenient time.

g) Multimedia Message Service (MMS)

Multimedia message service (MMS) on the other hand, provides more visual and active messages. Marketers can benefit from use of photos, music, logos and animation, videos in advertising to consumers' mobile phones. SMS and MMS advertising are expected to achieve higher response rates compared to e-mail or television advertising, because all advertisements can be sent personally [Zabadi, Shura & Elsayed, 2012]. MMS mobile marketing can contain a timed slideshow of images, text, audio and video. This mobile content is delivered via MMS (Multimedia Message Service). Nearly all new phones produced with a color screen are capable of sending and receiving standard MMS message. Brands are able to both send (mobile terminated) and receive (mobile originated) rich content through MMS A2P (application-to-person) mobile networks to mobile subscribers. MMS mobile marketing can contain a timed slideshow of images, text, audio and video. This mobile content is delivered via MMS (Multimedia Message Service). Nearly all new phones produced with a color screen are capable of sending and receiving standard MMS message. Brands are able to both send (mobile terminated) and receive (mobile originated) rich content through MMS A2P (application-to-person) mobile networks to mobile subscribers. In some networks, brands are also able to sponsor messages that are sent P2P (person-to-person).

h) Voice Call

Actually voice call is a service provide by mobile phone operator that enables people to communicate and exchange their voice by using transmission frequency. The 3GPP has defined the Voice Call Continuity (VCC) specifications in order to describe how a voice call can be persisted, as a mobile phone moves between circuit switched and packet switched radio domains.

i) Voice SMS

A voice SMS is a text message that people can send that includes a message (usually 30 seconds or less) that the other person can hear in the text message. Save time and personalize subscribes message through a voice SMS. This service provides user the flexibility to record up to 120 s of audio; so even if user desired number is unreachable, message will reach out live!

j) Service Quality

Service quality was defined differently through the view of many researchers. For example: Bitner, Booms and Mohr (1994) defined service quality as 'the consumer's overall impression of the relative inferiority / superiority of the organization and its services'. Therefore, service quality is the key of survival to all servicing companies. Cronin and Taylor (1994) viewed service quality as a form of attitude representing a long-run overall evaluation. Maintaining service quality at certain level and improving service quality must be life-time efforts to those companies who desire life-time prosperity in customers' heart. Parasuraman, Zeithaml and Berry (1985) defined service quality as 'a function of the differences between expectation and performance along the quality dimensions' [Likewise, Roest and Pieters' (1997)]. The same definition that service quality is a relativistic and cognitive discrepancy between experiences based norms and performance concerning service benefits. Service quality is a critical element of customer perceptions. Service quality will be the dominant element in customers' evaluations. Service quality may also be very critical in determining customer satisfaction.

k) Customers Perception and Evaluation

Customer perception of services refers how they assess whether they have experienced quality service, and whether they are satisfied. Perceptions are always considered relative to expectations.

IV. Methodology and Hypotheses Development

The business research used in this report is descriptive nature. Through this descriptive research this report seeks to determine the answers the research questions of the GP and Airtel Bangladesh Ltd. The users of GP and Airtel were the population of this study. This study was mainly based on primary data that were collected by using a structured survey questionnaire and secondary data that were collected from journal, books, website etc. Some data and other necessary information were collected by the website of GP and Airtel.

This study included Total 100 respondents as the sample (50 customers of Grameenphone and 50 customers of Airtel) were surveyed through the random

sampling method with structured questionnaire from July to December 2014. After collection of primary data, hypotheses were formulated and T-test, Z test, one-way ANOVA analysis, frequency analysis, and descriptive analysis ware used to test the hypotheses with 0.05 level of statistical significance. The statistical computer package SPSS version 17.0 was used to analyze the data. Out of 100 respondents, 21 were service holders and 79 were students.

a) Population and Sample

Sampling Size–100 respondents, Convenient Sampling method is used for the study.

b) Sources of Data

This study is based on both primary and secondary data. Primary data were collected through a structured questionnaire survey. Secondary data were collected from the published official statistics, report documents, laws, ordinance, books, articles, annual reports of concerned cell phone operators, ministry of posts & telecommunications, websites etc.

c) Data Collection Methods

Primary data has been used by me in the form of Questionnaire & Observation, which are the two basic methods of collecting primary data, which suffices all research objectives. Secondary data sources like website of the company & some articles with reference to web-sites.

d) Data Analysis Methods

A five-point Likert type scale statements were used to measure the variables where 1 stands for strongly disagreed and 5 stands for strongly agreed effect on the statements [(Luthans, 2002)]. After collection of primary data, hypotheses were formulated and paired samples t-test, Frequency analysis, and regression analysis ware used to test the hypotheses with 0.05 level of statistical significance. The statistical computer package SPSS version 17.0 was used to analyze the data.

e) Questionnaire Design

The primary data were collected from relative mobile phone companies' customers from Pabna city. Total 100 customers (50 customers of Grameenphone and 50 customers of Airtel) were surveyed through the convenience sampling method with questionnaire from July to December 2014.

f) Hypotheses Formulation

Research hypothesis is an unproven statement, which helps the researcher to draw the suggestion on his hypothetical assumption whether it is true or false based on some specific statistical test (Alam and Neger, 2009). For the convenience of the study the following hypotheses are developed which are to be tested.

i. *Hypotheses Formulation (For comparing effectiveness of push service between GP and Airtel)*

Hypothesis 1:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel in terms of *Service Charge.*

Hypothesis 2:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel regarding *Language of SMS*.

Hypothesis 3:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel on the subject of *Contents of SMS*.

Hypothesis 4:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel in *context of irritation.*

Hypothesis 5:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel with regard to *annoying SMS*.

Hypothesis 6:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel in terms of *Update information about product & service.*

Hypothesis 7:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel regarding *Information about service activation & deactivation.*

Hypothesis 8:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel on the subject of *Customer satisfaction of Push service.*

Hypothesis 9:
Ho: μ MG = μ MA
Ha: μ MG $\neq$ μ MA

Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel in context of

Push SMS about social, educational and govt. information.

Hypothesis 10:
Ho: μ MG = μ MA
Ha: μ MG ≠ μ MA
Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel with regard to Contents those *relevant to customers' lifestyle.*

Hypothesis 11:
Ho: μ MG = μ MA
Ha: μ MG ≠ μ MA
Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel on the subject of *Special offers to customers.*

Hypothesis 12:
Ho: μ MG = μ MA
Ha: μ MG ≠ μ MA
Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel in context of *Advance permission to provide SMS.*

Hypothesis 13:
Ho: μ MG = μ MA
Ha: μ MG ≠ μ MA
Where, Ho: There is no significant difference between Mean of GP and Mean of Airtel with regard to *Service of customer care center about Push service.*

ii. *Hypotheses Formulation (For overall evaluation and to test the effectiveness of push service for both companies)*

Hypothesis 1:
H_0: Both companies (GP and Airtel) have satisfactory service charge to the customers.
Ha: Both companies (GP and Airtel) have not satisfactory service charge to the customers.

Hypothesis 2:
H_0: Language of push SMS of GP and Airtel is easily readable to the customers.
Ha: Language of push SMS of GP and Airtel is not easily readable to the customers.

Hypothesis 3:
H_0: Contents of push SMS of GP and Airtel are phone and to the point.
Ha: Contents of push SMS of GP and Airtel are not phone and to the point.

Hypothesis 4:
H_0: Respondents of both companies are irritated when they receive push SMS.
Ha: Respondents of both companies are not irritated when they receive push SMS.

Hypothesis 5:
H_0: Contents of push SMS of GP and Airtel are often annoying to the customers.
Ha: Contents of push SMS of GP and Airtel are not often annoying to the customers.

Hypothesis 6:
H_0: Both companies provide update information about their products & services to the customers through push SMS.
Ha: Both companies do not provide update information about their products & services to the customers through push SMS.

Hypothesis 7:
H_0: Both companies provide information about activation and deactivation of push service through push SMS.
Ha: Both companies do not provide information about activation and deactivation of push service through push SMS.

Hypothesis 8:
H_0: Respondents of both companies are satisfied on getting the push service.
Ha: Respondents of both companies are not satisfied on getting the push service.

Hypothesis 9:
H_0: Both companies provide available push SMS to customers about social, educational, govt. info.
Ha: Both companies do not provide available push SMS to customers about social, educational, govt. info.

Hypothesis 10:
H_0: Push SMS are relevant to customers' life style.
Ha: Push SMS are not relevant to customers' life style.

Hypothesis 11:
H_0: Both companies provide special offers to customers through push SMS.
Ha: Both companies do not provide special offers to customers through push SMS.

Hypothesis 12:
H_0: Both companies take the permission from respondents in advance to provide push SMS.
Ha: Both companies do not take the permission from respondents in advance to provide push SMS.

Hypothesis 13:
H_0: Services of customer care center of GP and Airtel regarding push service are in satisfactory level.
Ha: Services of customer care center of GP and Airtel regarding push service are not in satisfactory level.

V. Data Analysis, Hypotheses Testing and Findings

An analysis is generated from the questionnaire to achieve the objectives of the study. In order to analyze the collected data a 5-point Likert type scale has been used, where 5 stands for highly satisfied (Strongly Agreed) customers, 4 stands for satisfied (Agreed) customers, 3 stands for neutral customers, 2 stands for dissatisfied (Disagreed) customers, and 1 stands for highly dissatisfied (Highly Disagreed) customers. Several judgments were made from the responses of customers to validate the objectives of the study. The results of different tests are presented below:

a) Demographic Characteristics of the Respondents

Table 01 : Respondents Demographics (N*=100)

		Frequency	Percent	Cumulative Percent
Occupation	Service Holder	21	21.0	21.0
	Student	79	79.0	100.0
	Total	100	100.0	
Education Level	Below SSC	1	1.0	1.0
	SSC	3	3.0	4.0
	HSC	14	14.0	18.0
	Bachelor	76	76.0	94.0
	Master	5	5.0	99.0
	PhD	1	1.0	100.0
	Total	100	100.0	
Age	Below 20	19	19.0	19.0
	20 to 40	80	80.0	99.0
	Above 40	1	1.0	100.0
	Total	100	100.0	
Gender	Male	75	75.0	75.0
	Female	25	25.0	100.0
	Total	100	100.0	
Operator	GP	50	50.0	50.0
	Airtel	50	50.0	100.0
	Total	100	100.0	

Source: Questionnaire Survey, July to December 2014
*Note:*N = Total frequency = 100*

Table 1 reveals that respondents involved in this study were Students and Service Holders in Pabna city. Number of Student respondents is 79% where service Holders are 29%. It reveals that 1% of the respondents are educated below SSC, 3% of the respondents belong to SSC, 14% of the respondents are HSC, 76% of the respondents are Bachelor, 5% of the respondents are Master and 1% of the respondents are PhD.

Most of the respondents came from the age group of 20-40 years (80%), because it is a typical age of most Institutional students in Pabna and this is due to the more acceptability of push (SMS) advertising in the age group of 20 to 40 years. Other respondents were in the age group of below 20 years (19%), above 40 years (1%).Table 1 reveals that 75% of the respondents are males and 25% of the respondents are females. It is concluded that majority of respondents are males.

It also reveals that 50%of the respondents use GP and 50% of the respondents use Airtel from the total 100 of respondents.

b) Customer Opinion about SMS, MMS and Voice SMS

Customer opinion about SMS, MMS, and Voice SMS is an important factor to the customers. They give more emphasis in this particular point in receiving the PUSH SMS.

Table 2 : Customer opinion about SMS, MMS, Voice SMS(N*=100)

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
Options	SMS	38	40	76.0	80.0
	MMS	1	2	2.0	4.0
	Voice SMS	11	8	22.0	16.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.46	1.36		
Standard Deviation (SD)		.838	.749		
Coefficient of variation (CV)		.702	.562		

Source: Questionnaire Survey, July to December 2014
*Note:*N = Total frequency = 100*

Table 2 reveals that, out of 100 respondents 76% respondents of GP are comforts to receive SMS where 80 % respondents of Airtel are comfort to receive SMS. 2% respondents of GP are comfort to receive MMS where 4 % respondents of Airtel are comfort to receive MMS. On the other hand, 22% respondents of GP are comfort to receive Voice SMS where 16 % respondents of Airtel are comfort to receive Voice SMS. Here mean value of GP and Airtel respondents regarding customer choice about SMS, MMS, Voice

SMS are respectively 1.46 and 1.36, Standard Deviation are respectively .838 and .749 and the coefficient of variation are respectively .702 and .562, which indicate that GP is in a very strong position than Airtel in context of push Marketing. So, GP need to provide Voice SMS as a way of push Marketing to increase the effectiveness of push Marketing because 22 % customer are comfort to receive the Voice SMS. On the other hand Airtel should give more concern about the SMS because 80% respondents prefer to accept SMS as a way of push service.

c) Attractiveness of push SMS to Customer

Customer incentive is the strong factor to determine the effectiveness of push service. Customers always expect that their operators will give some incentive to them regularly. The operators, who are providing incentive to customers, are getting more customers. Table 3 reveals that about 44% respondents of GP receive the incentive where 38% respondents of Airtel receive the incentive.

Table 3 : Attractiveness of push SMS to customer

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
SMS attractiveness (Incentives)	Yes	22	19	44.0	38.0
	No	28	31	56.0	62.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.56	1.62		
Standard Deviation (SD)		.501	.490		
Coefficient of variation (CV)		.251	.240		

Source: Field Survey, July to December 2014.

Here the frequency about "Yes" of GP and Airtel respondents regarding incentive to the customers are respectively 22 and 19the frequency about "No" of GP and Airtel respondents regarding incentive to the customers are respectively 28 and 31. It indicates that GP is in a better position than Airtel in case of providing incentive to the customers.

d) Necessary Push SMS Received and Read by Customer

It is possible to compare the effectiveness of push service between GP and Airtel by analyzing the frequency of push SMS reception and amount of SMS reading. Customer will read the SMS if it contains more attractive and necessary element for what the customer will wait.

Table 4 : Necessary push SMS receive and read by customer

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
SMS receive (per day)	Below 3	10	20	20.0	40.0
	3 to 5	34	21	68.0	42.0
	above 5	6	9	12.0	18.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.92	1.78		
Standard Deviation (SD)		.566	.737		
Coefficient of variation (CV)		.320	.542		
SMS read (per day)	None	14	10	28.0	20.0
	Only one	6	9	12.0	18.0
	3 to 5	3	17	6.0	34.0
	All of them	27	14	54.0	28.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		2.86	1.78		
Standard Deviation (SD)		1.340	.737		
Coefficient of variation (CV)		1.796	.542		

Source: Field Survey, July to December 2014.

From the above table, it is found that 20% respondents of GP receive below 3 push SMS per day where 40% respondents of Airtel receive below 3 push SMS per day.68% respondents of GP receive 3 to 5push SMS per day where 42% respondents of Airtel receive 3 to 5 push SMS per day. On the other hand, 12%

respondents of GP receive above 5 push SMS per day where 18% respondents of Airtel receive above 5push SMS per day. On the other side within 50 respondent 28% respondent of GP do not read anyone SMS where 20% respondent among 50 Airtel respondents do not read anyone SMS.12% respondent of GP read only one SMS where 18% respondent of Airtel read only one SMS. 54% respondent of GP read all of them SMS where 28% respondent of Airtel read all of them SMS. Mean value of GP is 2.86 and Airtel is 1.78 which indicate that content of GP's push SMS is more acceptable and attractive as well as effectiveness of push service of GP is high than Airtel.

e) Medium of Communication (Language of push SMS)

Language of push SMS is the imperative variable to determine the effectiveness of push service. Table 5 shows that 66% respondents of GP get Bangla by English spelling SMS where 58% respondents of Airtel get Bangla by English spelling SMS.

0% respondents of GP get Bangla SMS where 2% respondents of Airtel get Bangla SMS. 17% respondents of GP get English SMS where 19% respondents of Airtel get English SMS.

Table 5 : Medium of communication

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
Language of PUSH SMS	Bangla by English Spelling	33	29	66.0	58.0
	Bangla	--	2	0.0	4.0
	English	17	19	34.0	38.0
Total		50	50	100	100
Mean value ($\overline{X}$)		1.68	1.80		
Standard Deviation (SD)		.957	.969		
Coefficient of variation (CV)		.916	.939		

Source: Field Survey, July to December 2014.

Mean value of GP (1.68) is lower than of Airtel (1.80) which refer Airtel in good position than GP because it provides 3 categories of SMS that match among categories of respondents. Sometime Bangla by English spelling SMS is ambiguous so respondents will be more comfortable to read the Bangla SMS. If both companies increase the amount of Bangla SMS than effectiveness of PUSH service will be high.

f) Number of Necessary push SMS Reception and Activation

It is possible to measure the effectiveness of push service between GP and Airtel by analyzing the number of necessary push SMS to the respondents and the number of service activation also the sign of measuring effectiveness.

Table 6 reveals that, out of 50 respondents of GP 18% respondents are argue that they receive 1 necessary push SMS within one month where out of 50 respondents of Airtel 10% respondents are argue that they receive 1 necessary push SMS within one month. 24%, 10%, 14%, 10%, 24% of GP 's respondent argue that they receive respectively 2, 3, 4, 5, and above 5 necessary push SMS within one month where 22%, 40%, 2%, 8%, 18% of Airtel's respondent argue that they receive respectively 2, 3, 4, 5, and above 5 necessary push SMS within one month. The mean value (3.46) and CV (3.519) of GP is higher than the mean value (3.30) and CV (2.541) of Airtel in context reception of necessary push SMS. It indicates that GP's push SMS match more with respondent's demand than of Airtel and effectiveness of push service of GP is high than of Airtel.

Table 6 : Number of necessary PUSH SMS reception and activation

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
Necessary PUSH SMS	1	9	5	18.0	10.0
	2	12	11	24.0	22.0
	3	5	20	10.0	40.0
	4	7	1	14.0	2.0
	5	5	4	10.0	8.0
	above 5	12	9	24.0	18.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		3.46	3.30		
Standard Deviation (SD)		1.876	1.594		
Coefficient of variation (CV)		3.519	2.541		
Number of service Activation	1	31	42	62.0	84.0
	2	12	4	24.0	8.0
	3	6	4	12.0	8.0
	4	1	--	2.0	--
	5	--	--	--	--
	above 5	--	--	--	--
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.54	1.24		
Standard Deviation (SD)		.788	.591		
Coefficient of variation (CV)		.621	.349		

Source: Field Survey, July to December 2014.

From the table- 6 it is clear that number of service activation is more in respect of Airtel subscribers. 84% of Airtel's subscribers activate minimum one service within one month where 62% of GP's subscribers activate minimum one service within one month.SD of Airtel is lower than of GP which refer that effectiveness of push SMS of Airtel is high than of GP. It is possible because of attractive power of that push SMS higher than of GP.

g) Time of PUSH SMS Reception and Preference of Customers' Push SMS Reception

If the service provider able to provide the push SMS to the subscriber mobile phone at the right time it means when the customer prefer to receive than the effectiveness of push SMS will be high. Table- 7 Shows that 68% of GP's subscribers get push SMS when they are busy where 82% respondents of Airtel are get push SMS when they are busy. Both companies should find out the customers busy time and avoid sending the push SMS in their busy time because 38% of GP's respondents prefer to receive push SMS in the relax time as well as 34% of Airtel's respondents prefer to receive push SMS in the relax time. Airtel should more concern to provide push SMS than GP to increase the effectiveness of push service.

Table 7 : Time of push SMS reception and preference of customers' push SMS reception

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
Time of PUSH SMS reception	in your busy time	34	41	68.0	82.0
	in morning	6	3	12.0	6.0
	relax time	7	4	14.0	8.0
	mid night	3	2	6.0	4.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.58	1.34		
Standard Deviation (SD)		.950	.798		
Coefficient of variation (CV)		.902	.637		
Sixteen	in your busy time	--	--	--	--
	in morning	3	5	6.0	10.0
	relax time	38	34	76.0	68.0
	mid night	9	11	18.0	22.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		3.12	3.12		
Standard Deviation (SD)		.480	.558		
Coefficient of variation (CV)		.230	.312		

Source: Field Survey, July to December 2014.

h) Satisfaction Level of Customer (Regarding Push SMS Reception)

It is needed to know about the level of customer satisfaction regarding the push SMS reception to enhance the effectiveness of push service. The table-8 states the overall satisfaction level of the respondents' views towards the push SMS reception from their service provider.

Table 8 : Satisfaction Level

		Frequency	
		GP	Airtel
Satisfaction Level of customer	Highly dissatisfied (1)	14	1
	Dissatisfied (2)	12	21
	Neutral (3)	10	10
	Satisfied (4)	14	18
	Highly satisfied (5)	--	--
Total		**50**	**50**
Mean value ($\overline{X}$)		2.48	2.90
Standard Deviation (SD)		1.182	.931
Coefficient of variation (CV)		1.398	.867

Source: Field Survey, July to December 2014.

From the table-8, it is found that 12 respondents of GP are dissatisfied, 14 respondents are satisfied and no highly satisfied respondent towards the level of satisfaction on getting push SMS and its service.14 respondents of GP are highly dissatisfied and 10 respondents showed their neutrality on getting push SMS and its service. On the other hand, no respondents of Airtel are highly satisfied, 1 respondent of Airtel is highly dissatisfied and 18 respondents are satisfied 21 respondents are dissatisfied and 10 respondents showed their neutrality regarding push SMS reception. Here mean value of GP and Airtel respondents regarding push SMS reception from their service provider are respectively 4.48 and 2.90 and the coefficient of variation are respectively 1.398 and .867, which indicate that Airtel is in a very strong position than GP. Respondents of GP as well as Airtel are significantly satisfied but respondents are not highly satisfied for both companies so both companies should increase the quality and attractiveness of push SMS and service to reach the optimum position of effectiveness to their push service.

i) Service Charge of Push Service

Service charge of push service is the vigorous factor to determine the customer evaluation towards push service and service charge has a prodigious impact to the effectiveness of push service. Respondents of GP and Airtel have comment on their own service provider's service charge of push service.

Table -9 indicates that service charge to the 48% respondents of GP is not important at all it means they are not at all happy where service charge to the 38% respondents of Airtel is not important at all. 38% respondents of GP said, service charge is not bad where 56% respondents of Airtel said, service charge is not bad. 6% respondents of GP said, service charge is extremely important to them it means they are highly satisfied where only 2% respondents of Airtel said, service charge is extremely important to them.

Table 9 : Service charge

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
Comment on service Charge	Not important at all	24	19	48.0	38.0
	Not bad	19	28	38.0	56.0
	Important	3	1	6.0	2.0
	Vary important	1	1	2.0	2.0
	Extremely important	3	1	6.0	2.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		1.80	1.74		
Standard Deviation (SD)		1.069	.777		
Coefficient of variation (CV)		1.143	.604		

Source: Field Survey, July to December 2014.

Here the mean of GP is 1.80 and Airtel is 1.74 which refer subscribers are not satisfied about their service charge. Both companies should set their service charge at minimum level it means important level so that customer's can be satisfied.

j) Respondents' Opinion about Time Chosen for Push SMS

Sending time and receiving time of push SMS has a great effect on the effectiveness of push service.

Table 10 : Satisfaction Level

		Frequency	
		GP	Airtel
I like to receive PUSH SMS in which it's receiving time chosen by myself	Strongly disagree (1)	1	--
	Disagree(2)	4	1
	Neutral (3)	9	7
	Agree (4)	21	23
	Strongly agree (5)	15	19
Total		**50**	**50**
Mean value ($\overline{X}$)		3.90	4.20
Standard Deviation (SD)		.995	.756
Coefficient of variation (CV)		.990	.571

Source: Field Survey, July to December 2014.

Table- 10 presents that 15 and 21 respondents of GP among 50 respondents are respectively strongly agree and agree to receive the push SMS in which it's receiving time chosen by themselves where 19 and 23respondents of Airtel among 50 respondents are respectively strongly agree and agree to receive the push SMS in which it's receiving time chosen by themselves. Only 4 respondents of GP and 1 respondent of Airtel are disagreeing about this statement. Most of the respondents of GP and Airtel are eager to choose the time by themselves for receiving Push SMS from their service provider. So the both companies gather the data from the subscribers about their preference time to provide push SMS so that their push service will be effective.

k) Customers' Perception and Sensation about Existing Push SMS and Intent towards Future

Is the push SMS service effective or not, it is possible to measure by analyzing the respondent's opinion regarding push SMS reception. In present customer are more sensitive and awareness as well their demand is changing. For the rivalry among existing mobile phone company the communication strategy has been changing. Customers also comfort to accept the service in their convenient way and time. It is possible to measure the existing perception and future perception about push SMS by analyzing the following questions and answers.

Table 11 : Customers' existing & future sensation about push SMS

		Frequency		Percent (%)	
		GP	Airtel	GP	Airtel
I get irritated when I receive PUSH SMS	Strongly disagree (1)	--	--	--	--
	Disagree(2)	6	3	12.0	6.0
	Neutral (3)	7	6	14.0	12.0
	Agree (4)	16	19	32.0	38.0
	Strongly agree (5)	21	22	42.0	44.0
Total		**50**	**50**	**100**	**100**
Mean value ($\overline{X}$)		4.04	4.20		
Standard Deviation (SD)		1.029	.881		
Coefficient of variation (CV)		1.060	.776		
I have an intention to receive PUSH SMS in future	Strongly disagree (1)	13	8	26.0	16.0
	Disagree(2)	13	18	26.0	36.0
	Neutral (3)	9	7	18.0	14.0
	Agree (4)	13	15	26.0	30.0
	Strongly agree (5)	2	2	4.0	4.0
Total		**50**	**50**	**100**	**100**
Mean ($\overline{X}$)		2.56	2.70		
Standard Deviation (SD)		1.248	1.182		
Coefficient of Variation (CV)		1.558	1.398		

Source: Field Survey, July to December 2014.

Table-11shows 42% respondents of GP are strongly agree that they are irritated when they receive push SMS from their service provider where only 12% respondents of GP disagree about this statement. On the other hand 44%42% respondents of Airtel are strongly agree that they are irritated when they receive push SMS in their cell phone where narrowly 6% respondents of Airtel disagree about this statement. Mean of GP and Airtel for current perception of respondents are respectively 4.04 and 4.20 that means

negative effect is high here. In context of future push SMS reception, 26%respondents of GP strongly disagree and also 26% respondents of GP disagree to receive push SMS in future where only 4% strongly agree and 26% agree to receive push SMS in future. On the other hand 16%respondents of Airtel strongly disagree and 36% respondents of Airtel disagree to receive push SMS in future. Although 30% respondents of Airtel are agree to receive the push SMS in future. Mean (2.70) of Airtel is higher than the mean(2.56) of GP. It means the number of respondents of Airtel is more than of GP to receive the push SMS in future. Although the position of Airtel is good than GP in context of future push SMS reception but most of the respondents for both companies would not like to receive the push SMS in future.

So it is clear that, here the effectiveness of push service is very low. Both companies should take another strategy like push SMS service, door to door advertising, seasonal campaign etc. to communicate with customers.

l) Customers' Overall Evaluation as a Whole towards the Push Service of Grameen Phone and Airtel

It is possible to determine the effectiveness of push service by analyzing the following factors in respect of GP and Airtel mobile phone Company. Table-12 shows the GP's and Airtel's frequency, mean, standard deviation and variance in respect of related variables. From analyzing the result of GP and Airtel, we can measure the overall and comparative effectiveness of push service.

Factor 1 reveals that Airtel's mean(1.62) is higher than GP's mean(1.56) as well SD(.501)of GP is higher than SD(.490) of Airtel it means the position of Airtel is higher than GP in context of providing incentive SMS.

Factor 2 reveals that the mean (2.86) of GP is higher than the mean (2.70) of Airtel and variance (1.796) of GP is higher than the variance (1.194) of Airtel that means the condition of GP is higher than of Airtel regarding push SMS read by respondents. So the effectiveness of push service is high of GP.

Factor 3 shows that the mean (3.46) of GP is higher than the mean (3.30) of Airtel and variance (3.519) of GP is higher than the variance (2.541) of Airtel that means the condition of GP is higher than of Airtel regarding the necessary push SMS received by respondents. So the effectiveness of push service of GP is higher than of Airtel.

Table 12 : Push SMS Service of GP and Airtel

		Gp				Airtel			
Factors	Options	Frequency	Mean	Std. Deviation	Variance	Frequency	Mean	Std. Deviation	Variance
1.Incentive	Yes	22				19			
	No	28	1.56	.501	.251	31	1.62	.490	.240
	Total	**50**				**50**			
2.SMS read	None	14				10			
	Only one	6				9			
	3 to 5	3	2.86	1.340	1.796	17	2.70	1.093	1.194
	All of them	27				14			
	Total	**50**				**50**			
3.SMS receive	1	9				5			
	2	12				11			
	3	5				20			
	4	7	3.46	1.867	3.519	1	3.30	1.594	2.541
	5	5				4			
	above 5	12				9			
	Total	**50**				**50**			
4.Service activation	1	31				42			
	2	12				4			
	3	6				4			
	4 5	1 0	1.54	.788	.621	0 0	1.24	.591	.349
	Above 5	0				0			
	Total	**50**				**50**			
	Highly Dissatisfied	14				1			
	Dissatisfied	12				21			
	Neutral	10	2.48	1.182	1.398	10	2.90	.931	.867

5.Satisfaction level	Satisfied	14				18			
	Highly Satisfied	0				0			
	Total	**50**				**50**			
6.Service charge	Not important at all	24				19			
	Not bad	19				28			
	Important	3	1.80	1.069	1.143	1	1.74	.777	.604
	Vary important	1				1			
	Extremely important	3				1			
	Total	**50**				**50**			
7.Language	Strongly Disagree	3				0			
	Disagree	8				22			
	Neutral	8	3.48	1.111	1.234	10	3.04	1.087	1.182
	Agree	24				12			
	Strongly Agree	7				6			
	Total	**50**				**50**			
8.Contents	Strongly Disagree	0				0			
	Disagree	11				11			
	Neutral	8	3.54	.994	.988	15	3.40	.990	.980
	Agree	24				17			
	Strongly Agree	7				7			
	Total	**50**				50			
9.Information About product And Service	Strongly Disagree	9				2			
	Disagree	16				10			
	Neutral	12	2.62	1.141	1.302	15	3.26	1.006	1.013
	Agree	11				19			
	Strongly Agree	2				4			
	Total	**50**				**50**			
10.Information About Service activation & deactivation process	Strongly Disagree	8				8			
	Disagree	13				14			
	Neutral	0	3.10	1.344	1.806	1	3.20	1.498	2.245
	Agree	24				14			
	Strongly Agree	5				13			
	Total	**50**				**50**			
11.Service Activation Deactivation Method	Strongly Disagree	3				2			
	Disagree	16				18			
	Neutral	7	3.20	1.229	1.510	9	3.20	1.262	1.592
	Agree	16				10			
	Strongly Agree	8				11			
	Total	**50**				**50**			
12.Social, Educational, Govt. info SMS	Strongly Disagree	1				2			
	Disagree	5				19			
	Neutral	8	3.86	1.010	1.021	3	3.16	1.167	1.362
	Agree	22				21			

	Strongly Agree	14				5			
	Total	**50**				**50**			
13.Relevancy to Customers' Life style	Strongly Disagree	7				9			
	Disagree	21				16			
	Neutral	12	2.56	1.091	1.190	8	2.80	1.340	1.796
	Agree	7				10			
	Strongly Agree	3				7			
	Total	**50**				**50**			
14.Special Offer to Customers	Strongly Disagree	12				2			
	Disagree	9				20			
	Neutral	6	2.86	1.340	1.796	10	2.94	1.058	1.119
	Agree	20				15			
	Strongly Agree	3				3			
	Total	**50**				**50**			

Source: Field Survey, July to December 2014.

Factor 4 shows that the mean (1.54) of GP is higher than the mean (1.24) of Airtel and variance (.621) of GP is higher than the variance (.349) of Airtel that means the condition of GP is higher than of Airtel regarding the service activation after reading PUSH SMS by respondents. So the effectiveness of push service of GP is higher than of Airtel.

Factor 5 reveals that, out of 50 respondents of GP 14 respondents are highly dissatisfied and 12 respondents are dissatisfied where out of 50 respondents of Airtel only 1 respondent is highly dissatisfied and 21 respondents are dissatisfied. On the other hand 14 respondents of GP are satisfied where 18 respondents of Airtel are satisfied. The mean (2.90) of Airtel is higher than the mean (2.48) of GP that indicate the customers of Airtel are more satisfy towards Airtel than of GP regarding push SMS reception from their operator.

Factor 6indicates that the mean of GP is 1.80 and Airtel is 1.74 which refer subscribers are not satisfied about their service charge. Both companies should set their service charge at minimum level it means important level so that customer s can be satisfied.

Factor 7shows that the mean (3.48) of GP is higher than the mean (3.04) of Airtel and variance (1.234) of GP is higher than the variance (1.182) of Airtel that means the condition of GP is higher than of Airtel regarding the language of Push SMS. So the effectiveness of push service of GP is higher than of Airtel.

Factor 8 exposes that the mean (3.54) of GP is higher than the mean (3.40) of Airtel and variance (.988) of GP is higher than the variance (.980) of Airtel that directs the condition of GP is higher than of Airtel concerning the contents of push SMS. So the effectiveness of push service of GP is higher than of Airtel.

Factor 9 reveals that the mean (3.26) of Airtel is higher than the mean (2.62) of GP and SD (1.006) of Airtel is lower than the SD (1.141) of GP that directs the condition of Airtel is higher than of GP in relation to the information about products and services through push SMS. So the effectiveness of push service of Airtel is higher than of GP.

Factor 10 discloses that the mean (3.20) of Airtel is higher than the mean (3.10) of GP and variance (2.245) of Airtel is higher than the variance (1.141) of GP that directs the condition of Airtel is higher than of GP regarding the information about service activation and deactivation process. Subsequently the effectiveness of push service of Airtel is higher than of GP.

Factor 11unveils that the mean (3.20) of GP is equal the mean (3.20) of Airtel but SD (1.229) of GP is lower than the SD (1.262) of Airtel that leads the condition of GP is higher than of Airtel regarding service activation and deactivation method. Afterward the effectiveness of push service of Airtel is higher than of GP.

Factor 12 exposes that the mean (3.86) of GP is higher than the mean (3.16) of Airtel and SD(1.010) of GP is lower than the SD (1.167) of Airtel that directs the condition of GP is higher than of Airtel regarding the push SMS reception about social awareness, educational and govt. info. So it is clear that effectiveness of push service of GP is higher than of Airtel.

Factor 13 divulges that the mean (2.80) of Airtel is higher than the mean (2.56) of GP and variance (1.796) of Airtel is higher than the variance (1.141) of GP that directs that the condition of Airtel is higher than of GP in relation to relevancy of push SMS to subscribers' lifestyle. So the effectiveness of push service of Airtel is higher than of GP.

Factor 14 exposes that the mean (2.94) of Airtel is higher than the mean (2.86) of GP and SD (1.058) of

Airtel is lower than the SD (1.340) of GP that directs the condition of Airtel is higher than of GP regarding special offers to customers'. So it is clear that effectiveness of push service of Airtel is higher than of GP.

m) Effectiveness of Push Service in Respect of Following Interrelated Variables (A Comparative Presentation between GP and Airtel)

Table -13 represent the total frequency, number of respondents, Mean, Standard deviation and variance of selected factors that present the comparative picture of effectiveness of push service between GP and Airtel.

Table 13 : Comparative presentation of effectiveness of push service for GP and Airtel

S.N	Key Issue	Name of company	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Total N	Mean	Std. Deviation (SD)	Variance (var.)
1	Service charge	GP	3	1	3	19	24	50	1.80	1.069	1.143
		Airtel	1	1	1	28	19	50	1.74	.777	.604
2	Ambiguous SMS	GP	9	18	4	15	4	50	3.26	1.291	1.666
		Airtel	3	32	6	5	4	50	3.50	1.035	1.071
3	Language of SMS	GP	7	24	8	8	3	50	3.48	1.111	1.234
		Airtel	6	12	10	22	0	50	3.04	1.087	1.182
4	Contents of SMS	GP	7	24	8	11	0	50	3.54	.994	.988
		Airtel	7	17	15	11	0	50	3.40	.990	.980
5	Perception About offer	GP	10	18	7	11	4	50	3.38	1.260	1.587
		Airtel	10	17	16	5	2	50	3.56	1.053	1.109
6	Irritation	GP	21	16	7	6	0	50	4.04	1.029	1.060
		Airtel	22	19	6	3	0	50	4.20	.881	.776
7	Annoying SMS	GP	19	20	3	6	2	50	3.96	1.142	1.304
		Airtel	24	16	8	2	0	50	4.24	.870	.758
8	SMS Restriction	GP	28	14	7	1	0	50	4.38	.805	.649
		Airtel	31	13	1	5	0	50	4.40	.948	.898
9	Service Information	GP	2	11	12	16	9	50	2.62	1.141	1.302
		Airtel	4	19	15	10	2	50	3.26	1.006	1.013
10	Prior Permission	GP	22	11	9	6	2	50	3.90	1.216	1.480
		Airtel	26	12	7	3	2	50	4.14	1.125	1.266
11	Activation & deactivation Information	GP	5	24	0	13	8	50	3.10	1.344	1.806
		Airtel	13	14	1	14	8	50	3.20	1.498	2.245
12	Activation & deactivation Method	GP	8	16	7	16	3	50	3.20	1.229	1.510
		Airtel	11	10	9	18	2	50	3.20	1.262	1.592
13	Intention to receive Information	GP	4	20	9	13	4	50	3.14	1.143	1.307
		Airtel	7	21	10	8	4	50	3.38	1.159	1.342
14	Customers Satisfaction	GP	2	14	6	19	9	50	2.62	1.193	1.424
		Airtel	2	13	18	12	5	50	2.90	1.035	1.071
15	Push SMS about social welfare, educational & govt. info	GP	14	22	8	5	1	50	3.86	1.010	1.021
		Airtel	5	21	3	19	2	50	3.16	1.167	1.362
16	Contents of SMS are Relevant to life style	GP	3	7	12	21	7	50	2.56	1.091	1.190
		Airtel	7	10	8	16	9	50	2.80	1.340	1.796
17	Special offers to customers	GP	3	20	6	9	12	50	2.86	1.340	1.796
		Airtel	3	15	10	20	2	50	2.94	1.058	1.119
18	Time chosen for PUSH SMS	GP	15	21	9	4	1	50	3.90	.995	.990
		Airtel	19	23	7	1	0	50	4.20	.756	.571
19	Advance permission to provide SMS	GP	4	8	3	9	26	50	2.10	1.403	1.969
		Airtel	3	8	7	10	22	50	2.20	1.325	1.755

20	Service of customer care center	GP	6	30	8	4	2	50	3.68	.935	.875
		Airtel	4	24	10	9	3	50	3.34	1.062	1.127

Source: Field Survey, July to December 2014.

This table show, in case of service charge the mean (1.80) value of GP is higher than the mean (1.74) value of Airtel. So it indicates that GP is in good position than of Airtel. In case of ambiguous SMS, most of the respondents of Airtel agree to receive the ambiguous SMS and the mean (3.50) value of Airtel is higher than the mean (3.26) value of GP. It impact negatively so it refers that GP is in good position than of Airtel.

In case of language of SMS the mean (3.48) value of GP is higher than the mean (3.04) value of Airtel. So it indicates that GP is in good position than of Airtel.

In case of contents of SMS the mean (3.54) value of GP is higher than the mean (3.40) value of Airtel. So it specifies that GP is in good position than of Airtel. In case of perception about offer the mean (3.38) value of GP is lower than the mean (3.56) value of Airtel. It refers most of the respondents of GP disagree that offers of push SMS are misleading in nature. So it states that regarding effectiveness of push service GP is in then good position than of Airtel. In case of Irritation most of the respondents of Airtel is agree and strongly agree that they are irritated when they receive the push SMS. The mean (4.20) value of Airtel is higher than the mean (4.04) value of GP that negatively present this statement that specifies Airtel is in the poor position than GP. In case of Annoying SMS most of the respondents of Airtel is agree and strongly agree that they are Annoyed when they receive the push SMS. The mean (4.24) value of Airtel is higher than the mean (3.96) value of GP that negatively impacts this statement that specifies Airtel is in the poor position than GP regarding Push service. In case of SMS restriction, the mean (4.40) value of Airtel is higher than the mean (4.38) value of GP. That indicates the position of Airtel is good than GP. In case of Service information, the mean (3.26) value of Airtel is higher than the mean (2.62) value of GP. That states the effectiveness of Push service of Airtel is higher than of GP. In case of prior permission most of the respondents of Airtel agree and strongly agree that prion permission is necessary to send push SMS. GP's mean is 3.90 and Airtel's mean is 4.14. so it is negatively refers that Airtel should take prior permission than of GP. In case of information about activation and deactivation of service, the mean (3.20) value of Airtel is higher than the mean (3.10) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of activation and deactivation method of service, the mean (3.20) value of Airtel is equal the mean (3.20) value of GP but the SD (1.229) of GP is lower than the SD (1.262) of Airtel that indicates the effectiveness of push service of GP is Higher than of Airtel. In case of intention to receive more information about products, services by push SMS, the mean (3.38) value of Airtel is higher than the mean (3.14) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of customers' satisfaction regarding push service, the mean (2.90) value of Airtel is higher than the mean (2.62) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of push SMS about social welfare, Educational & govt. information the mean (3.86) value of GP is higher than the mean (3.16) value of Airtel. That specifies the effectiveness of push service of GP is higher than of Airtel. In case of "Contents of SMS are Relevancy to life style" the mean (2.80) value of Airtel is higher than the mean (2.56) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of special offer to customers, the mean (2.94) value of Airtel is higher than the mean (2.86) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of Time chosen for push SMS, most of the respondents of Airtel want to choose the time for receiving the push SMS than of GP. Mean of GP is 3.90 and mean of Airtel is 4.20. This mean negatively impact the statement so the effectiveness of push service of Airtel is lower than of GP. In case of advance permission to provide SMS, the mean (2.20) value of Airtel is higher than the mean (2.10) value of GP. That indicates the effectiveness of push service of Airtel is higher than of GP. In case of service of customer care center, the mean (3.68) value of GP is higher than the mean (3.34) value of GP. That indicates the effectiveness of push service of GP is higher than of Airtel.

n) Hypotheses testing

(For comparing effectiveness of push service between GP and Airtel)

Data were analyzed with a Likert type 5-point scale ranging from highly dissatisfied (1) to highly satisfied (5). Z-test is done to test hypotheses 1 to 13.

Test of hypotheses and results have been presented in the below table 14 by the help of the statistical package SPSS version 17.0. The interpretations of the hypotheses testing have been given after the table 14.

Table 14 : Hypotheses testing and Comparative evaluation of GP & Airtel

Key factors	GP		Airtel		Calculated Z value	5% level of significance Critical z Value	Result (Ho)
	Mean	SD	Mean	SD			
1. Service charge	1.80	1.069	1.74	.777	0.31227	1.96	Accepted
2. Language of SMS	3.48	1.111	3.04	1.087	2.84256	1.96	Rejected
3. Contents of SMS	3.54	.994	3.40	.990	0.70282	1.96	Accepted
4. Irritation	4.04	1.029	4.20	.881	-0.81863	-1.96	Rejected
5. Annoying SMS	3.96	1.142	4.24	.870	-1.39582	-1.96	Rejected
6. Update information about products& services	2.62	1.141	3.26	1.006	-3.08851	-1.96	Accepted
7. Information about service activation & deactivation	3.10	1.344	3.20	1.498	-0.41944	-1.96	Rejected
8. Customer satisfaction of PUSH service	2.62	1.193	2.90	1.035	-1.32643	-1.96	Rejected
9. Push SMS about social, educational and govt. information	3.86	1.010	3.16	1.167	3.35470	1.96	Rejected
10. Contents of lifestyle relevant to lifestyle	2.56	1.091	2.80	1.340	-1.08844	-1.96	Rejected
11. Special offers to customers	2.86	1.340	2.94	1.058	-0.36530	-1.96	Rejected
12. Advance permission to provide SMS	2.10	1.403	2.20	1.325	-0.42812	-1.96	Rejected
13. Service of customer care center	3.68	.935	3.34	1.062	1.70128	1.96	Accepted

Source: SPSS output.

From the above table (Table: 14) the hypotheses are tested by using differences between the two means of GP and Airtel. At 5% level of significance, the critical value of z for two tailed test is = ± 1.96. If the computed value of Z is greater than +1.96 or less than -1.96, then reject Ho, otherwise accept Ha.

According to the test statistics, calculated Z value of *'Service charge'* is 0.31227 which are lower than our critical value 1.96. Hence, we may accept the null hypothesis. That means Ha is rejected.

According to the test statistics, calculated Z value of *'Language of SMS'* is 2.84256 which are greater than our critical value 1.96. So, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Contents of SMS'* is 0.70282 which are lower than our critical value 1.96. Hence, we may accept the null hypothesis. That means Ha is rejected.

According to the test statistics, calculated Z value of *'Irritation'* is -0.81863 which are lower than our critical value -1.96. Hence, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Annoying SMS'* is -1.39582 which are lower than our critical value -1.96. Hence, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'update information about products and services'* is -3.08851 which are higher than our critical value -1.96. Hence, we may accept the null hypothesis. That means Ha is rejected.

According to the test statistics, calculated Z value of *'Information about service activation & deactivation'* is -0.41944 which are lower than our critical value -1.96. Hence, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Customer satisfaction of push service'* is -1.32643 which are lower than our critical value -1.96. So,

we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Push SMS about social, educational and govt. information'* is 3.35470 which are greater than our critical value 1.96. So, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Contents of lifestyle relevant to lifestyle'* is -1.08844 which are lower than our critical value -1.96. So, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Special offers to customers'* is -0.36530 which are lower than our critical value -1.96. So, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Advance permission to provide SMS'* is -0.42812 which are lower than our critical value -1.96. So, we may reject the null hypothesis. That means Ha Accepted.

According to the test statistics, calculated Z value of *'Service of customer care center'* is 1.70128 which is lower than our critical value 1.96. So, we may accept the null hypothesis. That means Ha is rejected.

o) Summary of findings

(Comparing effectiveness between GP and Airtel in case of push services)

The above table represents that 4 variables are accepted whereas rest of the 9 variables are rejected i.e. there is a significant difference in terms of the 9 variables whereas, there are no significant differences in terms of the 4 variables (service charge, contents of SMS, update information about products and services, service of customer care center).

- It leads us to the decision that here is no significant difference between Mean of GP and Mean of Airtel in terms of service charge. Which refer, subscribers are not satisfied about their service charge.
- It is found that here is significant difference between Mean of GP and Mean of Airtel regarding language of SMS. So, it is refers that the opinion of the customers of GP is less scattered than Airtel that indicates GP is in good position than of Airtel in context of language.
- It leads us to the decision that there is no significant difference between GP and Airtel regarding contents of SMS.
- It is observed that GP is in a better position than Airtel. Customers of Airtel are more irritated than of GP.
- It is observed that GP is in a better position than Airtel. Customers of Airtel are more annoyed when they get Push SMS than of GP.
- It leads us to the decision that there is no significant difference between GP and Airtel regarding up to date information about their products & services through Push SMS.
- It is observed that Airtel is in a better position than GP in providing information about activation and deactivation of Push services through Push SMS.
- Customers of Airtel are more satisfied about of PUSH service than of GP. So in this subject GP is in weak compared to Airtel.
- Customers of GP receive more Push SMS about social, educational and govt. information than of Airtel. It is observed that GP is in a better position than Airtel.
- It is observed that GP is in a better position than Airtel in providing push SMS that is relevant to customers' lifestyle. It is found that the opinion of the customers of GP is less scattered than Airtel.
- It is observed that Airtel is in a better position than GP in providing special offers to the customers.
- Although there is a very little significant regarding advance permission to send push SMS therefore Airtel is better position than of GP.
- It is found that there is no significant difference between GP and Airtel regarding Service of customer care center. The customers of both the operators are satisfied in case Service of customer care center.

p) Hypotheses Testing

(For overall evaluation and test the effectiveness of push service for both companies)

Data were analyzed with a Likert type 5-point scale ranging from highly dissatisfied (1) to highly satisfied (5). In this study weighted average value of 3.50 (test value) has been considered as the optimum level for every case. One-sample t-test is done to test hypotheses 1to13.

Table 15 : Table One-Sample t Test

		Test Value = 3.5					
						95% Confidence Interval of the Difference	
S.N	Factors	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
1	Service charge	-18.593	99	.000	-1.730	-1.91	-1.55
2	Language of push SMS is easily understandable to me	-2.151	99	.034	-.240	-.46	-.02
3	Contents of SMS are phone and to the point	-.303	99	.762	-.030	-.23	.17
4	I get irritated when I receive push SMS	6.482	99	.000	.620	.43	.81
5	Contents in push SMS are often annoying	5.882	99	.000	.600	.40	.80
6	My network provider keeps me up to date about product & service by push SMS	-5.011	99	.000	-.560	-.78	-.34
7	My network provider provide information about Activation & deactivation of Push service	-2.470	99	.015	-.350	-.63	-.07
8	Customer satisfaction level	-6.606	99	.000	-.740	-.96	-.52
9	Receptions of available push SMS about social welfare, educational, govt. info.	.088	99	.930	.010	-.22	.24
10	Contents of Push SMS are relevant to my lifestyle	-6.712	99	.000	-.820	-1.06	-.58
11	Special offer to customers	-4.992	99	.000	-.600	-.84	-.36
12	My network provider obtain my permission in advance to provide push SMS to me	-9.936	99	.000	-1.350	-1.62	-1.08
13	Customer care provides relative solutions related the push SMS service	.099	99	.921	.010	-.19	.21

Source: SPSS output.

The test statistic table 15 shows the results of the one-sample t test. The t column displays the observed t statistic for each sample, calculated as the ratio of the mean difference divided by the standard error of the sample mean. The 95% confidence interval of the difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples of the factors (13 factors) in the test.

Since, for the factor "Both companies (GP and Airtel) have satisfactory service charge to the customers" confidence interval lies entirely below 0. Hence H_0 is rejected that is Ha is accepted.

Hence, for the factor "Language of push SMS of GP and Airtel is easily readable to the customers" confidence interval lies entirely below 0. Thus, H_0 is rejected and Ha is accepted.

Therefore, in support of the factor "Contents of push SMS of GP and Airtel are phone and to the point" confidence interval lies entirely below 0. As a result, H_0 is rejected that is Ha is accepted.

Therefore, in support of the factor "Respondents of both companies are irritated when they receive push SMS" confidence interval lies entirely above 0. As a result, H_0 Holds true. That means, H_0 is accepted and Ha is rejected.

Hence, for the factor "Contents of push SMS of GP and Airtel are often annoying to the customers" confidence interval lies entirely above 0. As a result, H_0 Holds true. That means, H_0 is accepted and Ha is rejected.

Consequently, in favor of the factor "Both companies provide update information about their products & services to the customers through push SMS" confidence interval lies entirely below 0. Thus, H_0 is rejected and Ha is accepted.

Hence, for the factor "Both companies provide information about activation and deactivation of push service through push SMS" confidence interval lies entirely below 0. Thus, H_0 is rejected and Ha is accepted.

Hence, in support of the factor "Respondents of both companies are satisfied on getting the push service" confidence interval lies entirely below 0. As a result, H_0 is rejected and Ha is accepted.

Therefore, in support of the factor "Both companies provide available push SMS to customers about social, educational, govt. info" confidence interval

lies entirely above 0. As a result, H_0 Holds true. That means, H_0 is accepted and Ha is rejected.

Consequently, in favor of the factor "push SMS are relevant to customers' life style" confidence interval lies entirely below 0. As a result, H_0 is rejected that is Ha is accepted.

Hence, for the factor "Both companies provide special offers to customers through push SMS" confidence interval lies entirely below 0. As a result, H_0 is rejected that is Ha is accepted.

Consequently, in favor of the factor "Both companies take the permission from respondents in advance to provide push SMS" confidence interval lies entirely below 0. As a result, H_0 is rejected that is Ha is accepted.

Consequently, in favor of the factor "Services of customer care center of GP and Airtel regarding push service are in satisfactory level." confidence interval lies entirely above 0. Thus, H_0 is accepted and Ha is rejected.

q) Summary of Findings

(Overall evaluation for both companies in case of effectiveness of push services)

- It can be concluded that both companies (GP and Airtel) have not satisfactory service charge to the customers.
- It can be decided that the Language of push SMS of GP and Airtel is not satisfactory level to read the SMS easily.
- It can be concluded that Contents of push SMS of GP and Airtel are not phone and to the point.
- It can be concluded that Respondents of both companies are irritated when they receive push SMS.
- It can be established that Contents of push SMS of GP and Airtel are often annoying to the customers.
- It can be concluded that both companies do not provide update information about their products & services to the customers through push SMS.
- It can be concluded that both companies do not provide information about activation and deactivation of push service through push SMS.
- It can be decided that the Respondents of both companies are dissatisfied on getting the push service.
- It can be concluded that both companies provide available push SMS to customers about social, educational, govt. info.
- It can be concluded that push SMS are not relevant to customers' life style.
- It can be settled that both companies do not provide special offers to customers through push SMS.
- It can be determined that both companies do not take the permission from respondents in advance to provide push SMS.
- Finally, it can be concluded that Services of customer care center of GP and Airtel regarding push service are in satisfactory level.

VI. Recommendations and Conclusion

a) Recommendations for Grameenphone

This study suggested some recommendations for improving the effectiveness of push service for Grameenphone are as follows-

i. The authority of Grameenphone should reduce its higher Service charge so that the customers can be satisfied to activate their services.
ii. It should provide push SMS which contents will be phone and to the point.
iii. The Company should Provide update information about their products and services to increase the effectiveness of push service.
iv. GP should provide information about activation and deactivation of Push services through Push SMS so that customers can easily activate as well deactivate the push service.
v. GP should increase their quality and attractiveness of push service to make satisfy their customers.
vi. The authority of GP should give more concern for providing special offer to customers.
vii. In case of push service GP should take advance permission to provide push SMS to the phone of customers to increase the effectiveness of push service.

So, if GP takes initiative to remove or reduce these drawbacks as well enhance the effectiveness of push service to customers then it will be more successful in the telecommunications industry of Bangladesh.

b) Recommendations for Airtel

The following are the provided recommendations by this study to improve the effectiveness of push service of Airtel-

i. Customers are not more satisfy about the service charge. So, Airtel should set a service charge in affordable level so that customers can activate their services frequently.
ii. Airtel should ensure that the language of push SMS should be easy and understandable to the customers.
iii. The authority of Airtel should give more concern about the contents of SMS. Content of SMS should be phone and to the point.
iv. Customers are irritated when they get push SMS. So Airtel should enhance the attractiveness of push SMS or take another way to enhance the effectiveness of push service like PULL SMS, door to door to campaign etc.

v. Customers are more Annoy when they get push SMS. So, Airtel should take another strategy to communicate with customer.

vi. Airtel should provide up to date information about their products and services to enhance their effectiveness of push service.

vii. Providing information about activation and deactivation of push services through push SMS.

viii. Airtel should provide Push SMS about social, educational and govt. information to enhance their effectiveness of push service.

ix. Airtel should provide push SMS that is relevant to customers' life style.

x. To enhance the effectiveness and acceptance of push SMS, Airtel may take the advance permission from customers to provide push SMS to their mobile phone.

c) Conclusion

The general objective of this study was to determine the effectiveness of push service and comparing among selected dimensions between Grameen phone and Airtel as well as to evaluate the overall effectiveness of push service of both companies. The research has provided insights like what are positive and negative aspects of both of the operators. In most of the dimensions of push service like language of push SMS, degree of customers' irritation, degree of annoying, social, educational and govt. information, relevancy to customer life style, GP seems to be better than Airtel. Being the young company, Airtel is in the good position regarding information about service activation & deactivation, customer satisfaction level, special offer and advance permission. Although Grameenphone is in a better position in comparison to Airtel but it cannot be said that its services are much attractive to the customers. It has some other problems like lack of providing special offer, advance permission, service activation & deactivation process. It is found that customers are irritated and annoyed when they receive push SMS from their service providers so that it has a negative impact on effectiveness of push service. Irritating SMS are regarded by consumers as unwanted. Also the more frequently consumers are exposed to push SMS the more they become immune and regard these SMS as unwanted. A major finding is that consumers have fairly negative attitudes towards push SMS.

The negative attitude toward push SMS implies that marketers have to take lot of strategy and plan to make push SMS and service more attractive. The results indicate that attitude toward push service via mobile devices strongly depends on language, contents and characteristics of message. The message language, contents and characteristics need to be developed carefully. Marketers may use the findings to design mobile push SMS and push service that create positive attitudes and avoid possible negative effects. While push SMS and service offer lots of benefits to subscribers, its low acceptance rate will hinder and effectiveness of push Service will be enhanced. Marketers of GP and Airtel can take a new concept of service that is Pull SMS strategy, advertising campaigns, fair, door to door campaigns and media advertising etc. to enhance their services. The manager of Airtel should improve all the factors and the manager of Grameen phones hold reduce service charge and provide better facilities for the customers of other operator.

References Références Referencias

1. Akterujjaman, S. M., Md Biswas, and Md Siddique. "Performance of Grameenphone and Robi in Telecom. Sector of Bangladesh: A Comparative Study." *Nur-E-Alam, Performance of Grameenphone and Robi in Telecom. Sector of Bangladesh: A Comparative Study (July 20, 2011). ASA University Review* 5.2 (2011).
2. Siddique, Md, S. M. Akterujjaman, and Rumana Perveen. "Customers' Satisfaction towards the Services of Customer Care Centers of Grameenphone: A Study on Dhaka and Khulna Cities." *ASA University Review* 6.2 (2012).
3. Alam, M. J., and M. Neger. "Measuring consumer attitude towards beautification products: A study on some selected brands in Bangladesh." *Journal of Business and Technology (Dhaka)* 4.2 (2009): 61.
4. Barnes, Stuart J. "Wireless digital advertising: nature and implications." *International journal of advertising* 21.3 (2002): 399-420.
5. Bauer, Hans H., et al. "Driving consumer acceptance of mobile marketing: a theoretical framework and empirical study." *Journal of electronic commerce research* 6.3 (2005): 181-192.
6. Sabokwigina, Deo, Gabriel Malima, and Hosea Mpogole. "SMS advertising in Tanzania: Factors affecting consumer attitudes." *IST-Africa Conference and Exhibition (IST-Africa), 2013*. IEEE, 2013.
7. Ewen, Stuart. *Captains of consciousness: Advertising and the social roots of the consumer culture*. Basic Books, 2008.
8. BOSE, TARUN KANTI, et al. "SMS ADVERTISING AND ITS PROSPECTS IN BANGLADESH." *Journal of Theoretical & Applied Information Technology* 11 (2010).
9. Dickinger, Astrid, et al. "An investigation and conceptual model of SMS marketing." *System Sciences, 2004. Proceedings of the 37th Annual Hawaii International Conference on*. IEEE, 2004.
10. Barnes, Stuart J., and Eusebio Scornavacca. "Mobile marketing: the role of permission and acceptance." *International Journal of Mobile Communications* 2.2 (2004): 128-139.

11. Merisavo, Marko, et al. "The effectiveness of targeted mobile advertising in selling mobile services: an empirical study." *International Journal of Mobile Communications* 4.2 (2006): 119-127.
12. Goode, Mark MH, et al. "Determining customer satisfaction from mobile phones: a neural network approach." *Journal of Marketing Management* 21.7-8 (2005): 755-778.
13. Lai, Tung Lai. "Service quality and perceived value's impact on satisfaction, intention and usage of short message service (SMS)." *Information Systems Frontiers* 6.4 (2004): 353-368.
14. Leung, Felix, and Christy Cheung. "Consumer attitude toward mobile advertising." *AMCIS 2004 Proceedings* (2004): 331.
15. Hossain, M. S., et al. "THE DRIVERS OF CUSTOMERS'SATISFACTION OF AIRTEL BANGLADESH LIMITED."
16. Islam, Md Zahidul. "Measuring Customer Satisfaction of Mobile Phone Users: A Comparative Study between Grameen Phone and Teletalk Based on Khulna City, Bangladesh." *European Journal of Business and Management* 3.6 (2011): 20-29.
17. Tsang, Melody M., Shu-Chun Ho, and Ting-Peng Liang. "Consumer attitudes toward mobile advertising: An empirical study." *International Journal of Electronic Commerce* 8.3 (2004): 65-78.
18. Rahman, Muhammad Sabbir. "Service Quality, Corporate Image and Customer's Satisfaction Towards Customers Perception: An Exploratory Study on Telecom Customers in Bangladesh." *Business Intelligence Journal* 5.1 (2012): 56-63.
19. Hossain, Sahadat, and Farhana Islam. "Comparison of Customer Satisfaction Between Grameen Phone Ltd and Robi."
20. Turel, Ofir, Alexander Serenko, and Nick Bontis. "User acceptance of wireless short messaging services: Deconstructing perceived value." *Information & Management* 44.1 (2007): 63-73.
21. Kim, Gil Son, Se-Bum Park, and Jungsuk Oh. "An examination of factors influencing consumer adoption of short message service (SMS)." *Psychology & Marketing* 25.8 (2008): 769-786.
22. Aalto, Lauri, et al. "Bluetooth and WAP push based location-aware mobile advertising system." *Proceedings of the 2nd international conference on Mobile systems, applications, and services*. ACM, 2004.
23. Rahman, Hasebur, et al. "Factors Affecting Customer Satisfaction on Grameenphone Users in Bangladesh." *Global Journal of Management And Business Research* 14.3 (2014).
24. Rahman, Hasebur. "Factors aFFecting customer satisFaction in mobile telecommunication industry in bangladesh." *Business, Management and Education* 1 (2014): 74-93.
25. George E. Belch & Michael A. Belch. 'Advertising and Promotion: An Integrated Marketing Communications Perspective', 7th Edition, McGraw Hill.2006.
26. Kotler, Philip & Keller, Kevin L.; Marketing Management; PP-132-135, 13th Edition; Pearson Education (India); 2010.
27. Lovelock, C. H., Patterson, P. G., and Walker, R. H. 'Services Marketing: An Asia-Pacific Perspective', Australia: prentice Hall (2011).
28. Malhotra, Naresh K.; Marketing Research: An Applied Orientation; PP-203-235, 5th Edition; Prentice-Hall of India; 2011.
29. P. Kotler, G. Amstrong. 'Principles of Marketing', 11th Ed., New Jersey, Pearson Prentice Hall 2006.

Web references

1. BTRC [online] Available: www.btrc.gov.bd [Cited on: January 18, 2015]
2. About Grameenphone [online] Available: http://-www.grameenphone.com/personal/customerservice [Cited on: January 18, 2015]
3. About Grameenphone [online] Available: http://www.grameenphone.com/personal/vas [Cited on: January 18, 2015]
4. About Airtel [online] Available: http://www.-bd.airtel.com/ [Cited on: January 18, 2015]
5. About Airtel [online] Available: http://en.-wikipedia.org/wiki/Airtel_Bangla [Cited on: January 18, 2015]
6. About Airtel [online] Available: https://www.-facebook.com/airtelbuzz?fref=ts [Cited on: January 20, 2015]
7. Telecommunications in Bangladesh [online] Available: http://en.wikipedia.org/wiki/Telecommunications_in_Bangladesh [Cited on: January 18, 2015]
8. About marketing [online] Available: http://www.-marketing-schools.org/[[Cited on: January 19, 2015]

Appendix (1) : List of Abbreviation

01	GP	: Grameenphone
02	GSM	: Global System for Mobile communications
03	SMS	: Short Message Service
04	MMS	: Multimedia Messaging Service
05	VMS	: Voice Mail Service
06	ANOVA	: Analysis of Variance
07	AEC	: Airtel Experience Centers
09	BTRC	: Bangladesh Telecommunication Regulatory Commission
10	df	: Degree of Freedom
11	Sig	: Significant
12	3G	: Third Generation
13	A2P	: Application- to- Person
14	P2P	: Person – to – Person
15	VCC	: Voice Call Community
16	CV	: Coefficient of Variation
17	SD	: Standard Deviation
18	EDGE	: Enhanced Data GSM Environment
19	WAP	: Wireless Application Protocol
20	N	: Number

Appendix (2) : Questionnaire

For each question given below, please tick (√) only one number that best reflects your opinion on the following five point scale:

1	2	3	4	5
☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree

S.N	Question	1	2	3	4	5
1	PUSH SMS of my network provider that I receive is sometime ambiguous (Contents in the SMS ads are sometimes ambiguous)					
2	The language or contents of PUSH SMS that I receive is easily readable/ understandable to me.					
3	Contents of SMS are short and to the point					
4	Offers on SMS ads are often misleading in nature					
5	I get irritated when I receive PUSH SMS from my network provider					
6	Contents in PUSH SMS are often annoying					
7	Number of PUSH SMS should be restricted in a day					
8	My network provider's Mobile marketing (PUSH SMS) helps me keep up-to-date about products and services for which I am interested.					
9	I believe prior permission of the mobile users is necessary for sending push SMS					
10	My service provider provides information about activate & deactivate of a service is specified by the PUSH SMS					
11	It is easy to opt. in(activate) and opt. out (deactivate) my intended service					
12	Most of the SMS that I have received within one month are necessary/effective for me					
13	I like to receive PUSH SMS which revealed(disclose) how I can stop receiving further SMS/ services					
14	I am interested in getting more information concerning the product, service, offer or event mentioned in the PUSH SMS					
15	I fell comfort or I am satisfied by activating and taking services from my service provider					
16	I receive available PUSH SMS about social welfare, social awareness, educational & Govt. info.					
17	Contents of SMS are relevant to my life style					

18	Special offer to customers (I get special offer from my service provider through PUSH SMS)					
19	I am comfortable with accepting the PUSH SMS					
20	In general I am willing to receive my network provider's PUSH SMS in the future(I have an intention to receive PUSH SMS from my service provider)					
21	I like to receive PUSH SMS in which it's receiving time chosen by myself					
22	My network service provider obtain my permission in advance to provide SMS / SMS Service-					
23	After taking Push SMS service I am satisfied					
24	Overall performance of my network provider is high (overall rating on the Services of PUSH SMS)					
25	Customer care provides relative solutions to my objections about the PUSH SMS service					

26. In my opinion my network provider's PUSH SMS is-

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

a.	☐ Positive ☐ Negative (select one option)	☐	☐	☐	☐	☐
b.	☐High quality ☐Low quality (select one option)	☐	☐	☐	☐	☐
c.	☐Valuable ☐Worthless (select one option)	☐	☐	☐	☐	☐

27. I am satisfied with the service of my network provider-

1	2	3	4	5
☐ Strongly Disagree	☐ Disagree	☐ Neutral	☐ Agree	☐ Strongly Agree

** "PUSH SMS"- Which SMS sent by the network provider to the subscriber's mobile device without taking permission of users. Which SMS comes from the network provider to the subscriber's mobile device without informing the users/ without willingness of the users.*

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