A Study on Customers' Satisfaction towards Wireless Broadband Services with Special Reference to Coimbatore City

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CHAPTER I
INTRODUCTION

Communication is required in every field of life. Communication is the process of sharing information and ideas between two or more parties. Effective communication occurs only if the sender and receiver understand the exact information or an idea that is intended for transmission. Information spreads more widely and more rapidly than ever before. In modern days technologies change the life style of the people in various fields. Broadband internet connection has provided new dimensions to life. Internet connection enables us a great source to search for information about anything on earth. It made communication across the borders absolutely hackle free and cheap. Now we can talk to or chat with a person sitting thousands of miles away. Necessary information flow has also become very easy, all due to the internet.

In 1980's Internet was accessed using dial-up modem with the use of ordinary telephone lines. This was a weak and slow service, only capable to send text and small images. But with the rise of the new millennium, the wireless broadband service (data card) was introduced. Wireless broadband service (data card) is a new technology that enables high-speed Internet access, at a speed of 3.1mbps and the service can be accessed within a distance of 50 km from the main tower. It was nearly 40 times faster than the dial-up Internet.

Wireless broadband access the Internet without having connection to telephone. As well, many devices such as mobile phones, laptops and desktops PCs are now able to connect to the Internet using a wireless broadband system that functions over cell phone carrier waves. Various types of technologies such as LMDS, MMDS, ISM band as well as WiMAX technology are used in providing wireless broadband services. Facilities like PC cards, Laptop cards, and USB equipment are used to connect to both laptops and desktop. The most widely used in the market are Reliance USB modem, Airtel data card, Reliance USB data card and many more at variable prices. This enabled transfer of large volume of data such as songs, movies, etc. It allowed interactive gaming and brought numerous business opportunities front. A wireless broadband service offers the promise of access to "data anytime anywhere". Data anytime and anywhere means that it can access at any moment through e-mail, corporate networks. Internet information can be accessed whether in the airport, at home, or in the office. The awareness and demand for wireless Internet connectivity is increasing rapidly and with laptop and PC sales showing exponential growth, there is a huge demand for wireless high-speed Internet access. Wireless

broadband service allows the customers to be connected not only for mails, but also for downloads, large files uploads, photo sharing, etc. It also allows users to send and receive SMS and is compatible with both laptops and desktop PCs.

In India there are many telecommunication sectors that act as a service provider in the market by providing the broadband facility. Most Internet providers offer a wireless broadband service (Data card) as part of a start-up package for a customer, and it is typically available for either rental or purchase. One can get a wireless broadband connection either by acquiring license or without license. Licensed connection enables to have access to private spectrum. Licensing is pretty costly, thus it is generally availed by big organizations. Personal connections are generally unlicensed.

Airtel, Reliance, BSNL, Tata Indicom, Idea, MTS and Vodafone are the famous service providers. These service providers play a vital role in the wireless broadband markets. They provide various plans such as pre-paid and post-paid plans. A wireless broadband service has many advantages, which include low cost, greater availability, satisfactory services and excellent speed.

1.1 CUSTOMER SATISFACTION

Customer satisfaction relates to customer's sense of satisfaction. Customer satisfaction has been a matter of concern and attention for business nowadays. The situation can be noticed by the increasing number of customer service centers set up by various organizations to provide assistance to their customers.

The customer satisfaction is the result of the customer's perception of the value perceived in a transaction or relationship. In other words customer satisfaction is a measure of whether their expectations are being met or not met. Wireless broadband service providers will need to meet the same standards and customer experience will determine the success or failure in the adoption rate of wireless broadband services. Customer care groups have a multitude of issues today like dropped connections, slow speed, different handsets, laptops, mobile personal devices etc. Satisfaction is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what the customer anticipates and what they actually receive, as far as the fulfillment of some need, goal and desire is concerned. It means the service provider deliver the service as per customer's approval. Service providers want to know if customers are delighted and willing to come back and

so on. It would be wise to measure customer satisfaction regularly, because the main key to customer retention is customer satisfaction.

1.2 STATEMENT OF THE PROBLEM

Internet plays an important role in day-to-day activities. While in first (1g) and second (2g) generation, the internets were accessed using dial-up modems with the use of ordinary telephone lines. This was a weak and slow service, only capable to send text and small images. Hence to overcome these difficulties the telecom sectors introduced wireless broadband services (Data card).

The evolution of wireless broadband made a tremendous impact on lifestyle around the world. This factor has changed the way people communicate news, electronic messaging, e-mail, music, movies and games are now available at anytime and from anywhere. Telecom sectors as a service provider plays an important role in wireless broadband markets. Service providers work for their customer's benefits. Customer's requirements move towards the convenience, through the quality, quantity and decreased price, which leads to customer satisfaction.

Market research is essential on a timely basis as there has been an attitude change from individual to individual from time to time. Service providers have challenges in meeting the customer needs, in delivering the products at right time, creating awareness, and promoting the product, which stabilizes in the market. Analysis of the market gives clear direction for the service providers to distribute the product by understanding the customers' need. These perceptions of personality influence the customer decision-making process while purchasing. Customers select a brand that is acceptable to them. Thus Customers satisfaction and retention become more important because competition has increased among providers.

The best way of surviving and prospering in the competitive environment is through providing customer services at a reasonable cost. Thus measuring the importance of brand is likely to provide marketers and researchers the key insights into what aspects of a brand influences on consumption and ultimately increases brand loyalty.

Hence the present study entitled "A Study on Customers' Satisfaction towards Wireless Broadband Services with Special Reference to Coimbatore City" has been undertaken.

1.3 SCOPE OF THE STUDY

The present study is made to find out the perception and expectation of the customers from service provider. It also aims at analyzing the extent of satisfaction level of the customers with respect to selected wireless broadband services providers in Coimbatore city. The study also provides suggestions to the service providers, which would help to retain their customers in the market.

1.4 OBJECTIVES

1. To find out the perception and Satisfaction level of customers towards the usage of wireless broadband services (Data card).

1.5 NEED FOR THE STUDY

In today's scenario, communication has become much faster day by day through telephones, internet, media etc. In the internet era wireless broadband service has enabled communication easier. A wireless broadband service is one which access internet without any connection to telephones lines or cables.

Wireless broadband services can be used anywhere which is not possible by its counterpart (i.e.) dial up internet. The awareness and demand for wireless broadband is increasing rapidly. The study analyses the customer perception, satisfaction on wireless broadband service and the factors which influenced the customer to purchase a particular brand of data card. Day by day many new competitors enter the market by providing additional facilities, adding new features to existing ones and reducing the tariff etc. Hence it is important to study the customers' satisfaction towards wireless broadband service and the service provided by the service providers.

1.6 LIMITATIONS OF THE STUDY

1. The results and findings are based on the opinion of the respondents of Coimbatore city, and it cannot be generalized.

2. The sample size has been restricted to 250 respondents.

3. The respondent's views and opinions may hold good for the time being and may vary in future.

1.7 RESEARCH METHODOLOGY

Methodology is a way of systematically solving a research problem. It may be understood as a science of studying how research is done scientifically. It explains various steps that are generally adopted by a researcher in studying the research problem.

Research methodology is involved in developing a survey to obtain customers' satisfaction and perception on various factors impacting the use of wireless broadband services and service provided by service providers.

- **Sources of Data**

  The data was collected directly from the respondents through the questionnaire; Secondary data was also collected from journals, magazines and websites.

- **Study Area:** The area selected for the study is Coimbatore city.

- **Sampling Design**

  The primary data used for the study, which was collected from customers of Wireless Broadband (Data Card) Services. 250 respondents were selected for the study. For this study snowball sampling technique was used.

- **Period of the Study**

  The study was conducted between April 2011 – September 2011.

- **Tools Used**

  The following statistical tools were used to analyze and interpret the data.

- ANOVA

CHAPTER II
REVIEW OF LITERATURE

It is essential for a research scholar to do a review on the related literature for his study to have a comprehensive knowledge about the research. It helps the researcher to take the initial step of fixing the problem on which the study is to be done. The review of literature gives the researcher, a broader outlook on the background and situations under which the study has been conducted.

This chapter makes a brief view of the literature relevant to wireless broadband services and customer satisfaction. The review of literature would enable the researcher to have a comprehensive knowledge of concepts used in earlier studies, which helps to formulate conceptual framework and draw meaningful conclusion. The researcher has made an attempt to present a brief review of literature available, which consists of articles published in Journals and Projects in the related areas.

Thomas.J (1996)[1] in his article "Interactive Broadband Service and PCS Network", found that interactive broadband services including video, data and the Internet are currently emerging and in some cases, they are growing rapidly. In addition, wireless services also experiencing rapid growth, are expanding even with the introduction of Personal Communication Services (PCS). Both wire line and wireless segments of telecommunication services are having a significant effect on public networks. So it was suggested that network providers need to provide these services and design the appropriate criteria associated with each one.

Gerald R. Faulhaber and Christian Hogendorn (2000)[2] conducted a study on "The Market Structure of Broadband Telecommunications", and they found that competition in the provision of interactive broadband infrastructure to metropolitan area households is likely, if the market is unfettered. While this market is not perfectly competitive, it would appear that two or three firms could offer in fiber infrastructure at higher demand level and survive in the market.

Rao, Bharat, (2003)[3], conducted a study on **"**Wireless Broadband Networks: The U.S. Experience", and they found that rise and acceptance of the 802.11b standard (Wi-Fi) in the United States, wireless local area

networks (WLANs) that offer high-speed Internet access at numerous locations in markets that cover education, health care, manufacturing, retail, hospitality, government, and transportation are experiencing rapid growth. There has also been an active establishment of innovative business models to tap into the general demand for high-speed Internet access by creating wireless broadband networks based on clusters of WLANs.

S.M.Smith (2003)[4] in his study "Economic Impact of Broadband Penetration of the South Dundas Township Fibre Network," found that the term broadband penetration refers to the amount of the internet access market that high speed or broadband internet has captured. Broadband tends to be faster more efficient and less problem laden than other access methods such as dial-up. As online content grows more brand width intensive, broadband allows internet users to load content quickly. Many telecommunication companies also try to increase their broadband penetration by offering it as part of broadband phone, internet, and /or cable services. Combining this with low prices makes broadband appeal to low income subscribers 70% of internet subscribers in western nations were expected to adopt broadband by 2010 according to analysts in 2003.

Joseph (2005)[5] conducted a study on "Converged Wire line and Wireless network Evolution: Opportunities and Challenges", and found that wire line and wireless convergence has become an important trend in the telecommunication industry, as service providers look for ways to increase average revenue per user and continue to reduce costs. Most of the service providers believe that they can expand their customer base efficiently by offering integrated services that are convenient for end users and that allow them increase their productivity.

Fang. Mei Tsang (2006)[6] conducted a study on "Influencing Factors of Consumer Choice of Broadband Services between the Dialup and ASDL Internet", and found that upload speed, connection stability, usage fees, download speed, service quality of provider and static IP address, awareness of the provider are the factors which influenced the consumer choice of broadband services. The study concluded that if the usage fees of broadband services fall, the dialup users would switch over to ASDL or Cable Internet.

Yogesh. K (2006)[7] conducted a study on "Investigating Factors Influencing Adoption of Broadband in the Household". The objective was to examine the household consumers and to study the factors influencing broadband adoption. The study was conducted by using a mail survey on 172 household consumers. It

concluded that broadband adoption in the household is driven by faster access, the uses of broadband for work purposes and for entertainment purpose.

Jain, Smith, (2008)[8], conducted a study on "Municipal Broadband Wireless Networks", and found that MWNs are an additional option for providing broadband access to the Internet, especially for people in developing countries that are not as technologically advanced as individuals in more industrialized countries. MWNs are needed because private sector Internet service providers tend to focus their services toward the markets and consumers with the most money, thus ignoring certain sectors. Wireless Internet service benefits poor people because it can increase the potential for new technological innovations and societal benefits.

N.Mohammed Nizar (2009)[9] conducted a study on "Consumer Perception of Airtel Broadband Services among Small and Medium enterprises in Cochin". The objectives were to examine the perception of airtel broadband customers and to offer suitable suggestions. He found out that 70% of the customer's expectations were fulfilled by airtel broadband services. So it was suggested that existing short falls in the current networking should be rectified to increase customer base.

G.Thiyagarajan, (2009)[10] conducted a study on "Mediating Effects of Broadband Consumers Behavior in India". The main objective was to identify the factors affecting broadband consumer behavior. To capture these effects they construct and develop a normative model. The model is tested by using structural equation modeling technique. A survey was carried out with 150 broadband users of BSNL and it seeks to explore the relationship between attitudes, awareness and consumer behavior. This model has proved that the attitudes have to be factored for successful adoption of broadband services. So it was suggested that broadband users' expectation need to be satisfied for successful adoption of broadband usage.

Vishal Matur (2009)[11] in his article "Broadband Technology Overview" WP 6321, White Paper, Demographic Profile Report, has discussed various issues on selecting the plan of broadband, using broadband services providers complexity, choosing the right plan and suggested measures to overcome the feature hold for home broadband by improving ISP to fast and furious and to alter the rates to get a bear effect and providing better value added services to get connected with customer at anytime to take off broadband penetration into household PCs.

Greenstein (2009)[12] conducted a study on "Economic and Business Dimensions: The Broadband price is not right"**.** The main objectives were to examine the US Internet subscribers and to study that price paid by subscriber at the time of shifting from use of dial-up connections to that of broadband connections. So it was suggested that the federal communications commission should use a broadband price index that takes the improvement or upgrading of service into consideration.

Marselo Grosco (2009)[13] revealed that "Determinants of broadband penetration in OECD nations" International Telecommunication Union (ITU) 2009 Statistics and analysis. The main objective was to identify the different factors which influence broadband penetration such as the effects on installation, determining the brand of using broadband elasticity. Variables and models (age, sex, income) has been taken into account and models like Herfindahl-Hirschman index, real GDP, unbundled local loop dummy variables were applied to find out the penetration strategies and the result findings were tested at 10.5 percentage levels of significance stated that the penetration levels is highly positive on broadband.

N.V.Vibitha (2010)[14] conducted a study on "Impact of Promotional Activities of airtel Broadband Services for Mysore East". The objectives were to examine the promotional activities adopted by the company and its effects on the sales. She found out that airtel is one of the powerful brands and it has been successful in increasing a strong impression on the consumer's minds with its varied products and offering to consumers on a huge scale. So it was suggested that customer's perception and satisfaction which helps the company to encourage more people to be the customers of airtel.

N.R.M.Suradi (2010)[15] conducted a study on "Measuring Broadband Service Quality- Engineering Students Perspective". The objectives were to examine the engineering student's requirements and satisfaction on broadband service in four areas such as quality of network, application of Internet service, facilities and others. He found that the respondents have less satisfaction towards broadband service quality ratio. So it was suggested that a lot of things need to be done in order to enhance the customer satisfaction on broadband services.

CHAPTER III
INDIAN TELECOM SECTOR

3.1 ABOUT

Indian telecom sector, like any other industrial sector in the country, has gone through many phases of growth and diversification. Starting from telegraphic and telephonic systems in the 19th century the field of telephonic communication has now expanded to make use of advanced technologies like GSM, CDMA and WLL to the great 3G technologies in mobile phones. Day to day, both the public players and the private players are putting in their resources and efforts to improve the telecommunication technology so as to give the maximum to their customers.

The Indian telecommunication industry is the world's fastest growing industry with 791.38 million mobile phone subscribers as of February 2011. It is also the second largest telecommunication network in the world in terms of number of wireless connections after China. As the fastest growing telecommunications industry in the world, it is projected that India will have 1.159 billion mobile subscribers by 2013. Furthermore, projections by several leading global consultancies indicate that the total number of subscribers in India will exceed the total subscriber count in China by 2013. The industry is expected to reach a size of 344,921 crore (US$76.57 billion) by 2012 at a growth rate of over 26 per cent, and generate employment opportunities for about 10 million people during the same period. The sector would create direct employment for 2.8 million people and for 7 million indirectly. In 2008-09 the overall telecom equipments revenue in India stood at 136,833 crore (US$30.38 billion) during the fiscal, as against 115,382 crore (US$25.61 billion) a year before.

3.2 ABOUT WIRELESS BROADBAND INTERNET SERVICES (DATA CARD)

The broadband internet has revolutionized the way live and work as never before. Broadband internet is like a wide highway that allows for speedy and smooth traffic for thousands of vehicles running in many directions

round the clock. Broadband internet has been facilitated by satellite transmission of data containing lengthy files of texts, photographs, music, video, graphics and different kinds of pictures. Broadband internet enables to transfer the data 10 to 20 times faster. Through broadband internet the data can be transferred in the speed range of 256 kbps.

3.3 PERCEPTION

Perception is the cognitive impression that is formed of "reality" which in turn influence the individual's actions and behavior towards that object and the way in which individuals analyze and interpret incoming information and make sense of it. It varies from person to person. Perception is the process of selecting, organizing and interpreting or attaching meaning to events happening in environment.

3.4 CUSTOMER PERCEPTION

Customer's perception of the quality of a service and their overall satisfaction has some observable indicators. Customer**s** may smile when they talk about product and service. They may say good things about the product or service. Either these actions are manifestations or indicators of an underlying concept that might be called as customer satisfaction. The terms customer satisfaction and perception of quality are labels used to summarize a set of observable actions related to the product and /or service.

3.5 NEED TO MEASURE CUSTOMER PERCEPTION

With better understanding of customer's perceptions, companies can determine the actions required to meet the customer's needs. They can identify their own strengths and weaknesses, where they stand in comparison to their competitors, chart out path for future progress and improved customer satisfaction which helps to promote an increased focus on customer outcomes and stimulate improvements in the work practices and processes used within the company.

3.6 DRIVING GROWTH OF WIRELESS BROADBAND SERVICES

Growing businesses in all segments, necessity to access emails and corporate applications during urgent business trips and the urge for some entertainment while on the move are some drivers increasing the demand for data card usage. It is very easy to install and use at any place and time.

Data cards offering convenient access to the Internet, a number of companies have started to tie up with service providers to avail bulk network connections for their employees on the go and allow them to utilize their time during business travels. Since data cards can be used with desktop also, it cuts down the office infrastructure costs as well. SP Shukla, President, Personal Business, says that faster surfing and higher download speeds, convenience of surfing the Internet while on the move, simple to use, and affordable tariffs are among the key reasons for the data card growth, in both the laptop and desktop segments.

3.7 COMPARISON OF WIRELESS DATA CARDS WITH WIRED BROADBAND

- Wired LANs use Ethernet cables and network adapters. There are an increasing number of Wi-Fi hotspots to use wireless connection (and technologies emerging such as WiMax to extend the range). Although two computers can be directly wired to each other using an Ethernet crossover cable, wired LANs generally also require central devices like hubs, switches, or routers to accommodate more computers. Wireless Broadband is a technology that provides high-speed wireless internet and data network access over a wide area. Wireless internet is based on Wi-Fi (Wireless Fidelity) technology which operates through radio frequencies. Airtel Wireless Internet is an easy way to access the internet without the need for a landline. It allows you to stay in touch whilst being on the move.

- For any wired LAN connection, firewalls are first important consideration according to the security point. Wired LANs offer superior performance. According to the 802.16 standard, broadband means 'having instantaneous bandwidth greater than around 1 MHz and supporting data rates greater than about 1.5 Mbit/s. Wireless broadband works by using short-range radio waves to create a small area where computers can be networked without wires – most wireless networks are no bigger than a house, although larger ones are possible. In order for wireless broadband to work, a wireless router must be connected to the modem. Wireless is able to support all applications while offering the entire bandwidth for balancing upstream and downstream packet traffic.

3.8 WIRELESS BROADBAND TECHNOLOGY EVOLUTION

Technology is growing at an incredible speed, with one important technology being the speed of information. Few wireless internet service providers provide download speed of over 100 mbit/s; most broadband wireless access service are estimated to have a range of 50km (30 miles) from a tower. Wireless broadband technologies are commonly referred by the generation (G) of their technology:

- **First Generation**

1G technology was a major innovation and it was first developed in the 1980s using analogy technology. But it was inefficiently used the range and capacity of available frequencies, and it was prone to problems with speed, quality of transmissions, and security.

- **Second Generation**

2G network were introduced in 1992 with digital circuit-switched technology, which used the spectrum much more efficiently.2G network supported Global system for mobile communication users and offered high quality service at lower network operating costs, and improved security and speed.

Global packet radio service (GPRS) is a 2.5G digital technology that adds packet- data service to existing 2G networks. EDGE (enhanced data rates for global evolution) is a software/hardware enhancement for GPRS network that is designed to provide higher data rates to enhance the delivery of multimedia and other broadband programs for wireless devices.

- **Third Generation**

3G network, launched in 2004, deliver high peak data transmission rates, greater system capacity, and improved spectrum efficiency, among other capabilities.3G broadband packet- switched networks provide speeds that can enable a range of features, from mobile email to large file transfers.

- **Fourth Generation**

4G is the fourth generation of cellular wireless standards. It is a successor to the 3G and 2G families of standards. 4G technology is being applied to emerging technologies that promise higher speed wireless networks focused on data and multimedia streaming.

3.9 LICENSING

A wireless connection can be either licensed or unlicensed. In the US, licensed connections use a private spectrum. The user has secured rights from the Federal Communications Commission (FCC). In other countries, spectrum is licensed from the country's national radio communications authority. Licensing is usually expensive and often reserved for large companies who wish to guarantee private access to spectrum for use in point to point communication. Because of this, most wireless ISP's use unlicensed spectrum which is publicly shared.

3.10 AIRTEL WIRELESS BROADBAND SERVICES (DATA CARD)

Bharti Airtel is one of the leading companies in broadband and telecom sector. The industry is very fast growing and has a good goodwill in the market.Airtel Data card is the superior personal computer Data card which delivers wireless internet capabilities to laptops and desktops, by providing EDGE and GPRS technologies in a single PC card package. The Airtel wireless broadband gives a good range of internet facilities to their customers.

Airtel wireless broadband (data card) service is an easy way to access the internet without the need of landline. Airtel USB modem is simple and easy to plug into both the desktop and laptop for an instant internet connection and it allows staying in touch whilst being on the move. Airtel wireless broadband service provides an offer for prepaid and post paid plans. The unlimited plan offer is the good speed and with low tariff package. The limited plan is comparatively attractive which gives the customer to keep a check on their unpredictable expenditure towards broadband expenses and the usage of broadband connection through the customer care executive.

- **Tariff Plan For Airtel Wireless Broadband (Data Card) Services As Follows**:

1. For instance the monthly rental for 1 Mbps speed wireless connection of Rs 2,999 has been reduced to 1,699 and it also offers some free valued added services of Rs.500.

2. For 512 Kpbs speed the charges have been reduced by 31 percent. Now instead of Rs. 1,599 one has to pay Rs. 1,099 and both these plans offer unlimited download capacity

3. Airtel data card rental for standard plan start from Rs 49 up to Rs 599 and for unlimited Rs 999.

4. Free bundled usage for plan I and II start from 500MB and 1GB usage.

5. Additional data usage (per MB) from Rs 0.10P/10KB and for Plan I and Plan II Rs 5 and Rs 3.

- **Features**

  1. Most widespread presence
  2. Easy to plug and play
  3. Dedicated customer support
  4. Superior internet browsing on airtel edge network
  5. Attractive device prices and tariff plans.

3.11 RELIANCE WIRELESS BROADBAND SERVICES (DATA CARD)

Reliance Data card is the superior data card delivering wireless broadband capability to laptop and desktop. The wireless coverage speed is nearly 3.1 Mbps which is excellent and can download large files in very less time and also and upload speed of 1.8Mbps. There is no fluctuation of speed as in case of other USB data card of other network. Hi-speed Reliance Net connect data card is very efficient device. While are on move, can access the internet at a speed which is four times faster than dial up connection or other data cards. For both laptop and desktop can connect a direct USB connector without the need of adaptor or cable, just plug and play. And also no need to install drivers, simply connect and surf using the windows dialer.

- **Tariff Plan for Reliance Wireless Broadband (Data Card) Service as Follows:-**
    1. Up to Rs 800 per month for 3 GB
    2. Rs 1100 for 10 GB
    3. Rs 1500 for 15 GB

- **Features of Reliance Net Connects Broadband + Which Are As Follows**:-

    1. Wireless Broadband for laptop & desktop.

2. 20 times faster with speed up to 3.1Mbps in Reliance Broadband + Network.

3. Fastest uploads at a speed of up to 1.8 Mbps

4. Downward compatible with Reliance High Speed connectivity across 20000 towns & 5 lakh villages, as well as along major highways, railway routes, airport lounges and remote locations in India.

5. Optimized for running rich media / heavy applications such as video conferencing, video streaming, electronic surveillance, online multiplayer gaming and heavy file transfers.

6. Simply plug & play.

3.12 BSNL WIRELESS BROADBAND SERVICES (DATA CARD)

India's National Telecom Backbone and leading telecom operator Bharat Sanchar Nigam Ltd (BSNL) provide high-speed wireless data card to the user of laptops and desktops. BSNL is using EVDO technology to provide high-speed wireless internet services. BSNL also providing PCMCIA as well as USB type of EVDO and Network interface card at a 2.4 mbps and 144 kbps and therefore can enjoy the high speed connection through their desktop and laptops.

- **BSNL Data Card Tariff Plan**

    1. Unlimited download plan is around 400Rs/month - 750Rs/month for speeds up to 2.4Mbps, it is based on the different cities.

    2. Prepaid plans can make use of the services by going for unlimited plans Rs.349 and for limited plans Rs. 150 as that would cost them around 50 paisa per 1 Mb of download.

BSNL broadband service allows customers to be connected not only for mails, but also for downloads, large files uploads, photo sharing, etc.

3.13 TATA INDICOM

Tata-Indicom is currently at a leading position in wireless data card market in India. Tata Teleservices' Tata-Indicom data card sales have exceeded the 100,000 subscribers' milestone. Using CDMA 1x technology, Tata-Indicom data cards offer wireless internet access. Tata Indicom introduces its High-Speed Internet Access called Tata Photon plus, which is a new Broadband wireless service for the business users and technology enthusiasts across India. Tata Photon is basically an improved name of Evolution Data Optimized (EVDO). At present this service is available in the limited cities and in addition to this it is reliant on the service signals of Proton+. Tata Photon is Tata Indicom's Wireless Broadband facility, which offers great Internet wireless connectivity solutions.

Tata Indicom Photon Plug 2 Surf provides a speed of up to 3.1 Mbps and can access broadband friendly connection for desktops and laptops where the user can browse broadband while traveling to any part of India with speed varying from 153 kbps to 20kbps.

Tata Indicom provides higher user friendly GUI (Graphic User Interface) that is self-explanatory and thereby easy to operate. Tata Photon+ Data Card is having a Price of Rs.3599 but currently it's available at Rs.1849/- (Inclusive of Taxes).

- **Tata Indicom Photo Plus Tariff Plans**
  1. Starting from Rs.500/Month to Rs.1500/Month the rental of USB router per month is Rs 99 based on duration of usage and downloads.
  2. Up to 1500 for 15 GB only 50 Paisa per mb beyond fair use limit.

 USB data card is a very easy to use – plug and play device. Everything is inbuilt into this small device. No CD or DVD is required. Just plug the data card into USB drive of laptop or desktop.

- **FEATURES OF TATA PHOTON**

  1. It is very convenient to handle
  2. Quick installation and activation is possible
  3. It supports Win Vista, Win XP and Win 2000
  4. It is compatible with Laptop and Desktop PC
  5. It is 20-times faster than the prevailing wireless technology.
  6. It offers a downlink speed of 3.1 MBPS, depending upon the day time and network strength. Also it offers an average-speed of 300 to 700 KBPS.

CHAPTER IV

ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In this chapter, the analysis and interpretation of "A Study on Customers' Satisfaction towards Wireless Broadband Services with Special Reference to Coimbatore City" based on a sample size of 250 respondents selected from Coimbatore city through a questionnaire comprising of 31 questions is presented. The collected data are classified and tabulated and further the following statistical measures are also employed in fulfilling the objectives of the study.

- ANOVA

Necessary hypotheses are framed and tests are carried out.

- **ANOVA (ONE WAY)**

ANOVA test has been used to study the significant difference among the mean score of various aspects taken for the study with respect to perception & satisfaction score of wireless broadband service provider.
Following is the formula to find the F-ratio.
F=larger estimate of variance/ smaller estimate of variance.
It is concluded that most of the respondents are satisfied with the courtesy of service provider.

4.2 ANALYSIS USING ANOVA

- **ANOVA (ONE WAY)**

ANOVA is to test the significant difference among the mean score of various aspects taken for the study with respect to perception and satisfaction score on service provider.
The different personal factors considered are

- Age (years) groups of the respondents

- Educational qualification

- Occupation

- Family income per month

The different study factors considered are

- Brand preference

- Monthly outlay on wireless broadband services

- Period of usage

- Frequency of usage

- Expectation from service provider

Each of the factors is tested against the perception & satisfaction score of wireless broadband service provider and tested its significance at 1% and 5% level. The results are presented in the following tables with suitable hypothesis and relevant interpretations.

4.3 PERCEPTION SCORE ON SERVICE PROVIDER AND FREQUENCY OF USAGE

The table 44 describes the mean difference among frequency of usage and the perception score on services provider.

- **HYPOTHESIS**

The perception score on service provider do not differ significantly among frequency of usage of the respondents.

Table 01

Particulars		Perception score on service provider		
		Mean	S.D	No.
Frequency of usage	Once a day	51.21	6.64	68
	Twice a day	53.15	7.19	84
	Irregular interval	52.43	8.48	98

| TOTAL | 52.34 | 7.59 | 250 |

ANOVA for Perception score on service provider

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	143.994	2	71.997	1.251	Ns
Within Groups	14216.106	247	57.555		
Total	14360.100	249			

One-way ANOVA has been applied to find whether the mean perception score on wireless broadband services differ significantly among often connected groups of the respondents. The ANOVA results show that the calculated F-ratio value is 1.251, which is less than the table value 3.032 at 5% level of significance. Since the calculated value is less than the table value, it is inferred that the perception score on service provider do not differ significantly among frequency of usage of the respondents.Therefore the hypothesis is accepted.

4.4 PERCEPTION SCORE ON SERVICE PROVIDER AND EXPECTATIONS FROM SERVICE PROVIDER

The table 45 describes the mean difference among expectations from service provider and the perception score on services provider.

- **HYPOTHESIS**

The perception score on service provider do not differ significantly among expectations from service provider.

Table 02

Particulars			Perception score on service provider		
			Mean	S.D	No.
Expectations from service provider		Low Price	51.96	6.79	52
		Easy Handling	53.86	7.64	44
		Net Speed	51.12	7.89	78
		Tariff Plan Rating	54.06	9.75	31
		Offer/ Discount	51.61	5.82	31
		Download Time	53.57	6.10	14
TOTAL			52.34	7.59	250

ANOVA for Perception score on service provider

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	356.379	5	71.276	1.242	Ns
Within Groups	14003.721	244	57.392		
Total	14360.100	249			

One-way ANOVA has been applied to find whether the mean perception score on wireless broadband services differ significantly among expectation from service provider of the respondents. The ANOVA results show that the calculated F-ratio value is 1.242, which is less than the table value 2.251 at 5% level of significance. Since the calculated value is less than the table value, it is inferred that the perception score on service provider do not differ significantly among expectations from service provider. Therefore the hypothesis is accepted.

4.5 SATISFACTION SCORE ON SERVICE PROVIDER AND FREQUENCY OF USAGE

The table 53 describes the mean difference among frequency of usage and the satisfaction score on service provider

- **HYPOTHESIS**

The satisfaction score on service provider do not differ significantly among frequency of usage of the respondents

Table 03

Particulars		Satisfaction score on service provider		
		Mean	S.D	No.
Frequency of usage	Once a day	37.12	6.30	68
	Twice a day	40.11	4.40	84
	Irregular interval	38.42	5.44	98
TOTAL		38.63	5.48	250

ANOVA for Satisfaction score on service provider

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	343.203	2	171.601	5.937	**
Within Groups	7138.941	247	28.903		
Total	7482.144	249			

One-way ANOVA has been applied to find whether the mean satisfaction score on wireless broadband services differ significantly among often connected groups of the respondents. The ANOVA results show that the calculated F-ratio value is 5.937, which is less than the table value 4.692 at 1% level of significance. Since the calculated value is less than the table value, it is inferred that the satisfaction score on service provider differ significantly among frequency of usage of the respondents Therefore the hypothesis is rejected.

4.5 SATISFACTION SCORE ON SERVICE PROVIDER AND EXPECTATION FROM SERVICE PROVIDER

The table 54 describes the mean difference among expectation from service provider and the satisfaction score on service provider.

- **HYPOTHESIS**

The satisfaction score on service provider do not differ significantly among expectation of the respondents.

Table 04

Particulars		Satisfaction score on service provider		
		Mean	S.D	No.
Expectations from service provider	Low Price	37.56	6.32	52
	Easy Handling	40.61	4.77	44
	Net Speed	37.62	4.95	78
	Tariff Plan Rating	39.65	6.25	31
	Offer/ Discount	40.39	4.14	31
	Download Time	35.93	5.21	14
TOTAL		38.63	5.48	250

ANOVA for Satisfaction score on service provider

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	543.044	5	108.609	3.819	**
Within Groups	6939.100	244	28.439		
Total	7482.144	249			

One-way ANOVA was applied to find whether the mean satisfaction score on wireless broadband services differ significantly among expectation from service provider of the respondents. The ANOVA results show that the calculated F-ratio value is 3.819, which is less than the table value 3.093 at 1% level of significance. Since the calculated value is less than the table value, it is inferred that the satisfaction score on service provider differ significantly among expectation of the respondents. Therefore the hypothesis is rejected.

4.6 FINDINGS

The following are the important findings of "A Study on Customers' Satisfaction towards Wireless Broadband Services with Special Reference to Coimbatore City".

- **Analysis Using ANOVA (One Way)**

1. The perception score on service provider do not differ significantly among frequency of usage of the respondents. But the satisfaction score on service provider differ significantly among frequency of usage.

2. The perception score on service provider do not differ significantly among expectations from service provider. But the satisfaction score on service provider differ significantly among expectation from service provider.

4.7 SUGGESTIONS

- Quality of service is the most relevant factor and hence the service providers should maintain quality in their service and also should make improvement in future.

- Some customers are planning to discontinue because of high billing and very poor after sale services. So the customer support services have to improve especially the clarity in billing and after sales service.

- Any complaint given by the customers should be dealt quickly. This will reduce the chance for dissatisfaction.

- Lake of awareness about the plans is high among customers. So the company must provide an awareness program about the specialized plans for them.

- Priority for net speed/safety, price and tariff plan should be given by the service provider to sustain in the market.

- Wireless broadband service provider has to increase the awareness level among the public by giving emphasis to advertisements through all media and hence to have a competitive edge over other brands.

CHAPTER V

CONCLUSION

Wireless are playing important role in creating the "broadband society". Wireless Broadband service has changed our lives, both in quality and quantity. Communication via email and instant messaging has transcended geographical boundaries. We can share everything be it images, videos and notes all with one click. Wireless broadband is the new oxygen. It opens up a large box of information with a single click of a button. The wireless broadband service is excellent and it helps to download large files in very less time.

This survey conducted shows clearly that the wireless broadband service highly satisfies the customers and it has established its uniqueness in the market. BSNL broadband service is highly preferred by the customers when compared to other brands. The other service providers can look upon some measures to decrease the tariff, improve the quality of service and to create a strong impression on the customer minds with its varied plans and offers to deliver its customers the best. Thus wireless broadband service providers can serve their customers by giving a good range of internet facilities and improve their technologies to enable users to connect with each other and access ocean of information.

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