CUSTOMER PERCEPTION OF TECHNOLOGY IN LCD TELEVISION AMONG THE BRANDS OF SONY, LG AND SAMSUNG, AT COIMBATORE

By

P.R.CHITHAMBARAN

Roll No.0701MBA0064

Reg. No.68107100319

A PROJECT REPORT

Submitted to the

FACULTY OF MANAGEMENT SCIENCES

In partial fulfillment for the award of the degree

Of

MASTER OF BUSINESS ADMINISTRATION

CENTRE FOR DISTANCE EDUCATION

ANNA UNIVERSITY CHENNAI

CHENNAI 600 025

April 2009

BONAFIDE CERTIFICATE

Certified that the Project report titled **CUSTOMER PERCEPTION OF TECHNOLOGY IN LCDTELEVISION AMONG THE BRANDS OF SONY, LG AND SAMSUNG, AT COIMBATORE** is the bonafide work of Mr. P.R.CHITHAMBARAN who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Signature of student
Name: P.R.CHITHAMBARAN
Roll No. : 0701MBA0064
Reg. No. : 68107100319

Signature of Guide
Name: Dr.S.V.DEVANATHAN
Designation: PROFESSOR & DIRECTOR
Address:
KCT BUSINESS SCHOOL
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE

Signature of Project-in-charge
Name: Dr.S.V.DEVANATHAN
Designation: PROFESSOR & DIRECTOR

DIRECTOR
KCT BUSINESS SCHOOL

Address:
KCT BUSINESS SCHOOL
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE

CERTIFICATE OF VIVA-VOCE-EXAMINATION

This is to certify that Thiru. P.R.CHITHAMBARAN
(Roll No. 0701MBA0064; Register No.68107100319) has been subjected
to Viva-voce-Examination on ..10-5-2009.. at ..... at the
Study centre KCT BUSINESS SCHOOL, KUMARAGURU COLLEGE OF TECHNOLOGY,
COIMBATORE

Internal Examiner
Name: Dr. S. V. DEVANATHAN
Designation: PROF & DIRECTOR
Address: K.C.T. BUSINESS SCHOOL

External Examiner
Name: Dr. K. RAMAMOORTHY
Designation: PROF & HEAD
Address: DEPT. OF M.B.A
COIMBATORE INSTITUTE OF
MANAGEMENT & TECHNOLOGY

Coordinator
Study centre: **Kumaraguru College of Technology**
Name: **Dr.S.SADASIVAM,**
Designation: **Dean (Academic)**
Address: **Kumaraguru College of Technology, Coimbatore**
Date :

CO-ORDINATOR
KCT STUDY CENTRE
CDE ANNA UNIVERSITY CHENNAI
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE

ABSTRACT

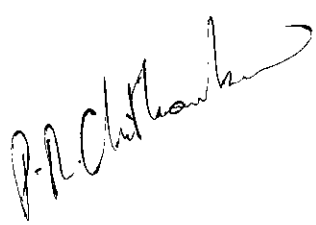
The growing LCD TV market in India has encouraged many consumer Electronics company, to open an arena for producing LCD TV's in India. LCD TV's, are a good replacement to the dominant CRT TV market of India, with respect to its technology, aesthetics and creative slim fit design.

Almost , many digital TV networks have started emerging out and LCD technology in TV industry, has gained a significant importance .Many companies have started producing LCD TV's.

Out of which Sony , Samsung and LG, lead the industry. Owing to the increasing demands for LCD TV , the companies , compete with introducing incremental changes in technology , they build.Many of these technology is common, but some deviations are there in each brand, which may be unique to the brand to some extent. This has raised a technological competition in the consumer market.

In this scenario, to study the level of perception of technology, in the consumer market, among the Brands of Sony , Samsung and LG LCD TV's, this study was initiated. Coimbatore, being a dominant industrial and economic hub and a middle order city in India, it was taken for this study. This study thus concentrates on level of technology perception of Coimbatore consumers, in the LCD technology in TV, among Sony , Samsung, LG brands.

The impact of Advertisements and information's from friends and families, were also taken in to account, in order to meter the real technological understanding of consumers.



ACKNOWLEDGEMENT

I thank the **Director, Centre for Distance Education, Anna University**-Chennai, for giving me a chance to conduct and present my study as a project work and also, for guiding us in the initial stages in providing overall assistance for carrying out my project work.

I thank Dr.S.SADASIVAM, **Dean (Academic), Kumaraguru College of Technology, Coimbatore** and Coordinator, KCT Study Centre, Coimbatore, for his dynamic leadership in allocation of resources and in providing excellent faculty in getting aid and guidance, for the project work.

I thank **Mr.A.SENTHIL KUMAR, Faculty-Finance, KCT Business School, Kumaraguru College of Technology, Coimbatore and Counselor - MBA Programme, KCT Study Centre, Coimbatore**, for his excellent support and guidance, and the constant encouragement provided by him, throughout the course duration and also in carrying out the project work.

I thank **Dr.S.V.DEVANATHAN, PROFESSER AND DIRECTOR KCT Business School, Kumaraguru College of Technology, Coimbatore**, for his great words of advice and guidance, and for being a source of inspiration for various young minds like me, and for his constant support and guidance in this project work

I would also extend my thanks, **to all my friends and family members**, who helped in carrying out this project work and also to the people of Coimbatore, who have provided their views and responded to my questions, to carryout the project successfully.

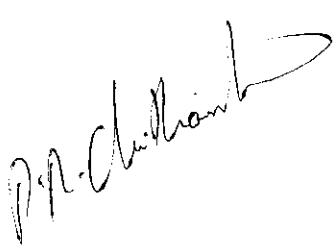


TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 – INTRODUCTION

1.1 Research Background – Description of specific industry/ general scenario of industry

Display Search - An online Magazine, has released a new topical report called *India TV Market: TV's Emerging Land of Opportunity* that analyses the trends and opportunities within the India market and predicts that by 2012, LCD TV shipments will surpass those of CRT TVs in India. ndia has the second largest population in the world and an annual GDP growth rate of more than 8 per cent from 2002 to 2012, with a TV market that is projected to be 1.3 crore (13 million) units in 2008.

CRT TV accounts for 92.9 per cent of those units in 2008, followed by LCD TV with 6.6 per cent and PDP TV with 0.5 per cent. However, Display Search - An online Magazine, finds that the India flat panel TV market is just at the beginning of a real growth curve, with Y/Y growth of more than 100 per cent expected for each of the next five years. Growth will be driven by enhanced purchasing power, the digital broadcast (DTH, IPTV, STB cable) transition as well as consumer awareness and affordability of flat panel TVs. India's growing upper middle class is projected to be the greatest source of LCD TV purchasing power.

Display Search - An online Magazine, analyses the favorable demographics where more than 23M Indians—greater than the entire population of Australia—will enter this demographic in the next five years. Thailand has a special FTA (Free Trade Agreement) with India on duty benefits. Therefore, companies like Sony and Panasonic are making LCD TVs in Thailand and then shipping them to India. In 2007, the leading India LCD TV brands were Samsung, with more than 30 per cent share, followed by Sony (19 per cent), and LG (16 per cent). The leading PDP TV brands are LGE, Samsung and Panasonic. LGE also leads the CRT TV market in

India with more than 25 per cent market share, followed by Samsung and Videocon.

Among the imports of LCD TV into India, approximately 25 per cent were imported in as CBU (Complete Built Unit) and 75 per cent were imported as SKD (Semi-Knock Down) or CKD (Complete Knock Down).In 2008, the share of 32" will be more than 45 per cent in India LCD TV market, followed by 20-26" with 31 per cent share. 40-47" accounts for only 15 per cent in India LCD TV market. The growing LCD TV market in India has encouraged many consumer Electronics company, to open an arena for producing LCD TV's in India. Indian company Videocon group to set up a TFT LCD panel manufacturing fab. Thus, a research on LCD TV market could be more useful to increase the sales of LCD TV's in India. Hence the following pages will carry you to locate some facts and figures on LCD TV technology and the market share built on these technologies.

1.2 Identified Problem

A study on customer perception of technology in LCD Television among the brands of SONY, LG and Samsung, at Coimbatore

1.3 Need for Study

Major brands like Samsung, LGE, Sony and Philips and Indian local brands like Videocon and Onida are all focusing promotional efforts around LCD TV rather than CRT TV's. Several Chinese brands are also targeting India with their first exports.

The growing LCD TV market in India has encouraged many consumer Electronics company, to open an arena for producing LCD TV's in India. Indian company Videocon group to set up a TFT LCD panel manufacturing fab. There are still some concerns about India's LCD TV market growth: poor power supply; vague progress towards India digital TV broadcasting; a complex TV import-duty

structure; and regulations that are very complicated and very inefficient as well as poor reach of the advantages and technology of LCD TV's.

In this Scenario, this project study focuses its needs on the technology prevailing among the Top 3 Giants of LCD TV market namely SONY, SAMSUNG & LG and the technology perception level by the respective consumers, which makes them to choose their respective brand.

It also focuses on the studying the reach of the unique technologies, that these companies have embedded in LCD TV's, among its consumers and try to come out with a report indicating the level of technology perception among the consumers of Coimbatore in LCD TV's and a forecast of the DO's and Donts in increasing the LCD tv markets in Coimbatore.

1.4 Objectives:

- **To study** the technology behind the LCD TV's of SONY, Samsung and LG.
- **To study** the level of perception and understanding of the technologies behind LCD TV's among the consumers of Coimbatore, among the brands Sony, Samsung and LG
- **To analyze** the Key technologies that had facilitated an increase in sales in LCD TV segment among the above mentioned brands among the consumers of Coimbatore.

1.5 Scope:

- This study can be used by television sales Dealers and companies to understand the Depth of Reach of technologies owing to LCD TV's among the consumers of Coimbatore.
- This can be used as a platform, for identifying the strength and weakness of the respective brands, in marketing the technologies of LCD TV's among the consumers of Coimbatore.

- This study can almost be used as a model to understand consumer needs, among cities similar to Coimbatore, which is a growing metropolitan.
- Indian TV manufacturing companies like Videocon can compare themselves with the top 3 brands, taken for this study, and fill the gap accordingly to increase their sales in LCD TV Segment, based on the report from the consumers of Developing city Coimbatore, in the Developing nation India.

1.6 Deliverables

- The degree of perception of the technology, in LCD TV's, among the consumers of Coimbatore.
- The depth of the reach of technology in LCD TV's among the consumers of Coimbatore
- Findings, suggestions, recommendations in providing a better reach of technologies in LCD TV segment which could facilitate sales growth.

CHAPTER 2 – LITERATURE SURVEY

2.1 Review of Literature

Literature review for this study, was carried out from various online journals and information's from SONY, SAMSUNG & LG about LCD TV's, they make. The web links and catalogue numbers can be referred at the Bibliography in the appendix at the end of the project. The technologies prevailing in LCD televisions, among the brands discussed in this project has been projected in the appendix column .Out of which some important reviews have been summed up below.

The Federation of Indian Chambers of Commerce and Industry (FICCI) [1] has carried out a comprehensive Survey of industries in the consumer durable goods sector. The FICCI Survey, based on feedback and interaction with representatives of consumer durables industry, allied industry organizations, associations, Government agencies and public sector undertakings, reveals that sector is poised for a quantum leap due to technological improvements, falling prices due to competition, aggressive marketing and declining import tariffs. The Survey reflects the changing dynamics of consumer behavior – luxury goods are now being perceived as necessities with higher disposable incomes being spent on lifestyle products.

There is a discernible shift in the consumers' preference in favor of higher-end, technologically superior branded products, the demand being spurred by increasing consumer awareness and preference for new models. This shift is also explained by the growing trend of products being manufactured in the organized sector of the economy and the narrow wing down of the price differential between branded and non-branded goods. Competition has forced companies to offer efficient after sales service and support and this, in turn, has swayed customer preference for branded products.

The Survey highlights the positive growth trends in consumer durable segments – white goods and consumer electronics during April-March 2004-05 and points to

sustained growth during 2005-06 because of emerging opportunities and strong fundamentals of the economy. The FICCI Survey offers insights into the dynamics of growth in a competitive market environment. The Survey has identified some of the salient features of developments as follows.

Quality products with superior technology and technology up gradation have helped the industry to achieve higher growth in terms of volume and also in higher realization in value terms. Though CTV segment faced a de-growth in April-June2005 sales of CTVs declining by 5.3 per cent and in value terms by 14.1 per cent due to the Value Added Tax (VAT) regime introduced in April 2005, the flat CTV category achieved a volume growth of 36.2 per cent and value growth of 25.8 per cent in the first quarter of 2005-06. The refrigerator segment also has shown a similar trend with frost-free segment having about 54 growths with about 15 per cent de-growth indirect cool refrigerators There has been qualitative change in consumers preference –going for higher end products. Rate of growth in production has been more in terms of quantity or in volume growth rather than the growth in value terms for a number of products. This has happened because of constantly falling prices over the years due to competition among the major players, aggressive marketing strategies, declining import tariffs.

Because of growth in production in the organized segment and domestic availability of branded products due to lowering of import duties and other liberal measures, the share of unorganized segment has come down sharply to only 8 to 10 per cent from 0 to 50 percent. The production of VCD/DVD has shifted to the organized sector, which has come out with branded DVD players with multi-facilities combined. The price difference between branded and unbranded goods has narrowed down and with branded players providing good after sales services and support consumer prefers to buy branded products.

The consumer durables industry appears to have two clearly differentiated segments. The MNCs have an edge over their Indian counterparts in terms of technology combined with a steady flow of capital. The domestic companies

compete on the basis of their well-acknowledged brands, an extensive distribution network and an insight into local market conditions. Competitive strategies revolve around strong brand differentiation and prices.

Demand is Cyclical and seasonal. Demand is high during festive season and is generally dependent on good monsoons. Purchase necessarily is done only during the harvest, festive and wedding seasons — April to June and October to November in North India and October to February in the South. Rural India, which accounts for nearly 70% of the total number of households, offers plenty of scope and opportunities for the white goods industry. The urban consumer durable market for products including TV is growing annually by 7 to 10 % whereas the rural market is zooming ahead at around 25 %annually.

Increasing consumer awareness and preference for new models have added to the demand. Products like air conditioners are no longer perceived as luxury products but are treated as necessities in the changed socio-economic environment with changed life styles. Attractive consumer loan schemes with reduced interest rates over the years by the financial institutions and commercial banks and the hire-purchase schemes have added to the surge in demand. Besides, the consumer goods companies are themselves coming out with attractive financing schemes to consumers through their extensive dealer network.

The **phenomenal growth of media in India and the flurry of television channels** and the rising penetration of cinemas have spread awareness of products in the remote markets. The **Internet being now used by the market functionaries** that will lead to intelligence sales of the products. It will help to sustain the demand boom witnessed recently in this sector.

The sectors which have recorded excellent growth rates of more than 20 per cent in terms of quantity produced are Air Conditioners (25 per cent), Split Air Conditioners (42.6 per cent) Micro Wave Woven (27.3 per cent), DVDS (25 per cent) VCD/MP3 (20 per cent), Colour Picture Tube (23 per cent,).The sectors which have recorded high growth rates between 10 and 20 per cent in April-March 2004-05 over the corresponding previous period are Colour Television (12%),

Window Air Conditioners (18.8 per cent), Washing Machines (18.1 per cent Watch (10%), Frost Free Refrigerators (13.8%),

Some sectors which have recorded moderate growth of 0 to 10 per cent are refrigerators (5 per cent),), clock (8 per cent), Direct Cool Refrigerator (2.8 per cent) The sector recording negative growth is B&W TV (- 16.7%), The Refrigeration Industry has reached 3.9 million units in 2004-05 from 3.7 million units in the last year with a growth of 5 per cent. The Air-Conditioners Industry has reached at 1.2 million units during 2004-05 with a growth of 25 per cent from 9.8 lakh units in 2003-04. Washing Machines is estimated to have grown by 18.1 per cent from 1.35 million units in 2003-04 to 1.6 million units in 2004-05. Microwave ovens have grown by 27.3 per cent growth with 3.5 lakh units compared to2.75 lakh units in 2003-04.The Indian Colour Television industry has grown by 12.1 per cent in 2004-05 by reaching 9.25 million units in 2004-05 from 8.25 million units in 2003-04. The B&W TV has recorded a negative growth of 16.7 per cent from 3 million units in 2003-04 to 2.5 million units in 2004-05.

Watch and clock have registered growth of 10 per cent and 8 per cent from 20.6 mn units and 26.3 million units in 2003-04 to 22.6 mn units and 28.4 mn units in 2004-05.The VCD/MP3 industry has registered 20% growth and has achieved production of 8.4 million units. The unorganized sector has occupied a major share in manufacturing and supplying VCD/MP3.DVD Players are estimated to have grown by 25 per cent in 2004-05 with the volume estimated to be 625000 units.

The first half of the year and the first quarter of the financial year, 2005 have seen a little setback for the domestic consumer electronics and durables industry with the two largest segments of the industry - colour televisions (CTV) and refrigerators facing decline in production and sales during the period. But the Air conditioners and washing machines market have grown at the rate of 20%. The de-growth seen in the first quarter of the current fiscal has been mainly due to the value added tax (VAT) regime introduced in April, 2005, as held by the industry representative. Overall, the refrigerator segment had achieved a negative growth of 4.3 per cent in volume terms and two per cent in value terms during the period

The rising rate of growth of GDP, rising purchasing power of people with higher propensity to consume with preference for sophisticated brands would provide constant impetus to growth of white goods industry segment. Penetration of consumer durables would be deeper in rural India if banks and financial institutions come out with liberal incentive schemes for the white goods industry segment, growth in disposable income, improving lifestyles, power availability, low running cost, and rise in temperatures. While the consumer durables market is facing a slowdown due to saturation in the urban market, rural consumers should be provided with easily payable consumer finance schemes and basic services, after sales services to suit the infrastructure and the existing amenities like electricity, voltage etc. Currently, rural consumers purchase their durables from the nearest towns, leading to increased expenses due to transportation.

Purchase necessarily done only during the harvest, festive and wedding seasons — April to June and October to November in North India and October to February in the South, believed to be months `good for buying', should be converted to routine regular feature from the seasonal character. Rural India that accounts for nearly 70% of the total number of households, has a 2% penetration in case of refrigerators and 0.5% for washing machines, offers plenty of scope and opportunities for the white goods industry. The urban consumer durable market for products including TV is growing annually by 7 to 10 % whereas the rural market is zooming ahead at around 25 % annually. **According to survey made by industry, the rural** market is growing faster than the urban India now. The urban market is a replacement and up gradation market now.

The increasing popularity of easily available consumer loans and the expansion of hire purchase schemes will give a moral boost to the price-sensitive consumers. The attractive schemes of financial institutions and commercial banks are increasingly becoming suitable for the consumer. Consumer goods companies are themselves coming out with attractive financing schemes to consumers through their extensive dealer network. This has a direct bearing on future demand. The other factor for surging demand for consumer goods is the phenomenal growth of

media in India. The flurry of television channels and the rising penetration of cinemas will continue to spread awareness of products in the remotest of markets. The vigorous marketing efforts being made by the domestic majors will help the industry. The Internet being now used by the market functionaries that will lead to intelligence sales of the products. It will help to sustain the demand boom witnessed recently in this sector.

The ability of imports to compete is set to rise. However, the effective duty protection is still quite high at about 35-40 per cent. So, a flood of imports is unlikely and would be rather need based. Reduction in import duties may significantly lower prices of products such as microwave ovens, whose market size is quite small in India. Otherwise, local manufacturing will continue to stay competitive. At the same time, there will be some positive benefits in the form of reduction in input costs. Washing machines and refrigerators will also benefit from lower input costs.

Table 2.1 Projected sales of Consumer Durables in the year 2005 -2006

	2005-06 (Projected)
CONSUMER DURABLES/WHITE GOODS	
Refrigerator	5-10
Air conditioner	20-25
Washing Machines	5-10%
Microwave Ovens	25%
Consumer Electronics (Overall)	9%
Colour televisions	15-20%
Black & White televisions	-20%
VCDs/MP3	30%
DVD	25%
Clock	10%
Watch	10%

SESHAIAH, Venkata KRISHNA[2] - ICFAI Business School refer to the growing colour television sector in India. They abstract their study as, "The Color TV industry in India has seen a gamut of changes in the past one decade as liberalization set in the Indian subcontinent making its market highly competitive and consumer driven. With the fast changing liberalization policies, changing and

growing demands of the consumers made the industry competitive. The constant desire of the companies (domestic or international) to have a major share in the market often leads them to die many deaths which has became a hackneyed phenomenon in this sector of Liberalized India if the companies are not in able to cope with changing reforms and the changing tastes and preferences of the consumers. The results revealed that the purchasing decision of the consumer depends on Quality, Goodwill Popularity, Affordability, Features, and Support Services of the product, this phenomenon observed in all income groups. The results also revealed that the brand preference is independent of age, income and education." The following tables represent some of the data from their work.

Table 2.2 Ownership Contingency Table ()

Brand	15-25	26-35	36-45	46 & above	Total
Sony	15	15	5	2	37
BPL	37	30	14	16	97
Onida	17	11	9	3	40
Philips	12	17	7	2	38
Samsung	16	16	12	4	48
Videocon	18	28	20	9	75
LG	4	6	6	3	19
Others	22	15	16	15	68
Total	141	138	89	54	422

Table 2.3 Education Classification. Contingency table (ownership)

Brand	10th	High S.	Grad.	Post-grad	Diploma	others	Total
Sony	1	2	20	11	3	0	37
BPL	8	11	59	46	9	2	135
Onida	5	8	34	29	3	1	80
Philips	2	6	34	31	6	1	80
Samsung	1	10	69	52	9	4	145
Videocon	2	11	55	32	5	2	107
LG	5	9	77	51	6	1	149
Others	5	4	23	30	11	0	73
Total	34	67	426	339	54	13	933

Seema Gupta [3]abstracts the following in her paper published in Vilakshan, XIMB Journal of Management. The Indian Television industry is going through

turbulent transformation. Companies are relooking at their strategies and are desperate for growth. The entrenched position of the Indian market leaders in CTVs' like Videocon, BPL and Onida has been challenged by the MNCs such as LG, AIWA, Akai, Panasonic, Samsung, Sony, Philips and Sharp; some in a perceptible way and others threatening to do so. The changing environment demands fresh thinking to gain the cutting edge advantage. This paper attempts to look at the various macro and micro environmental factors operating in the industry using the model of strategic analysis by George Day, i.e. to analyze the bargaining power of buyers and suppliers, the threat of new entrants, threat of substitutes, intensity of rivalry, impact of technological changes, growth and volatility of the market and the influence of government and regulatory interventions. These variables affecting the industry have been categorized as favorable or adverse depending on the influence on the profitability of the industry. Some strategic initiatives, which can be adopted, to leverage the favorable forces and prevent the adverse ones have been identified.

She also insists on the technological factors, indicating market growth. She summaries as, The manufacturing of electronic items relate mainly to assembly line operations. Since this is a technology driven industry, companies need to constantly improvise, innovate and customize their products. Colored cabinets, headphones, 3-D 360 degree sound technology and e-mail TV, plasma TV and golden eye technology are just a few examples.

Till now, TV makers have played with one or more of the three elements of a TV picture, sound, and features- on an analog signal. So one had a sharper picture with Philips' Power chip, flatter screens in plasma TV, increased channels in hyper band, program summary on screen, cordless headphones, top dome speakers and Nicam stereo sound inputs.

Digital gives marketers a fresh platform to play with all of these features. The promotion strategies and product features of a majority of the players have emphasized more and more on the latest technology factors. All the players whether domestic or multinational are introducing technologically advanced and feature rich

products. Salora International launched high-end televisions under brand name "Promax" which had 250-programme memory, 250 personal preference channels and a video lock to block undesirable content. Sony (Wega series) enjoys good brand equity, mainly because of its Trinitron picture tube. Samsung flat TV models are equipped with the 100 Hz scan, which reduces flickering of the screen and visibility of scanning lines.

These are also equipped with game mode, a child lock and a sleep timer. LG Flatron models have features like PIP-2 tuner and woofer with 350 watts and 3 graphic games. Another model that the company is launching has swing speakers, advanced multi window PIP, a digital virtual Dolby, a PC and teletext. BPL has also launched flat TV models under sub brand name "matrix" which have all the features that come with systems of this range. Philips India has launched 29 inch TV incorporating its pioneering digital natural motion technology and priced it higher than industry levels following the strategy of low market share but high revenues.

Hence the market players are investing in R&D and improving technology on a constant basis to offer innovative products. In the fiscal 2004-05, the market for high-end televisions witnessed a phenomenal growth over 2003-04, though the market base still remains very small. The market for projection TVs is estimated at 13, 500 units followed by plasma TVs and LCD TVs at 6, 700 and 2, 850 units respectively. The projection TV market is highly competitive. At present, Sony leads the projection TV segment with sales of 4,000 units in 2004-05. LG occupies the second position with sales of 3000 units. Samsung and Philips closely follow with sales of 2,500 and 2,200 units respectively.

Onida and Toshiba are then other major players in this segment. LG is the leader in plasma TV segment with a market share of 30 per cent, followed by Samsung at 22 per cent. LG and Samsung have been engaged in competition for numero uno position for LCD TV, which has also been growing significantly. For the next few years, the markets for high-end televisions will continue to grow

phenomenally and it is estimated that by the end of 2007 the market for high-end TVs would cross 100,000 units milestone.

In view of the higher technical nature of television and rising expectations of consumers in general, marketers now need to strengthen the service network since there is a paucity of service facilities and consumer dissonance is built around service facilities. Most Indian consumers are techno phobic and are uncomfortable with instruction manuals. Thus assurance of comprehensive service to these consumers is a strategy that a number of these marketers use effectively to sell. Buying a Television is No Longer Simple. A consumer should consider many variables to get the right TV in which the Technology of the Brand paves an important role. As a sum up of my literature review, I have given information's of various types of TV's below. CRT Televisions are the oldest technology and are becoming scarce. They generate a very good picture. There is little or no drop off when viewing at an angle, but their Disadvantages are that, Maximum size is 36" being heavy and they reflect light. Only the newer ones are capable of receiving HDTVLCD Televisions are the Fastest Growing Segment for Low to Mid-Range consumers. Costco offers more of these than any other flat panel technology. They have Light Weight; can be Wall Mounted Available in small (19") to large (56") sizes, Low amount of light reflected in the screen. Their Viewing drops off at wide angles and are not large enough for very large home theater setups.

2.2 Research Gap

The study is carried out only in Coimbatore. It cannot be firmly told, that the same outcome would be feasible with all the similar cities. There may be variations, if the study is carried out in metro cities and tech rich cities like Bangalore.

Also, the brands Sony, Samsung and LG were the only brands Dealt. Other Brands like Onida, Videocon, were not dealt in this study. This is also a gap in this research.

CHAPTER 3- METHODOLOGIES

3.1 Type of Project

The type of the project is Descriptive type .and survey type. Descriptive research, also known as statistical research, describes data and characteristics about the population or phenomenon being studied. Descriptive research answers the questions who, what, where, when and how.

Although the data description is factual, accurate and systematic, the research cannot describe what caused a situation. Thus, descriptive research cannot be used to create a causal relationship, where one variable affects another. In other words, descriptive research can be said to have a low requirement for internal validity.

The description is used for frequencies, averages and other statistical calculations. Often the best approach, prior to writing descriptive research, is to conduct a survey investigation. Qualitative research often has the aim of description and researchers may follow-up with examinations of why the observations exist and what the implications of the findings are. In short **descriptive research** deals with everything that can be counted and studied. But there are always restrictions to that. Your research must have an impact to the lives of the people around you. For example, finding the most frequent disease that affects the children of a town. The reader of the research will know what to do to prevent that disease thus; more people will live a healthy life.

3.2 Target respondents

Table 3.1 Target Respondents

Customers chosen for study	**Family type:** nuclear, medium, joint families. **Education Level:** PG, UG, School HS, No education
Areas in Coimbatore where the study could be made:	TVS Nagar, VadaValli, Ganapathy, Singanallur, Peelamedu, KovaiPudur, RSpuram, Saibaba Colony, Ram Nagar, Thudiyalur, Periyanayakkan Palayam, Saravanampatti.

3.3 Assumptions

There are no specific assumptions in the project.

3.4 Constraints

The number of consumers who purchase or prefer to purchase LCD TV's are growing , but when it comes to the current type of TV owned by the consumer, then the number of consumers owning LCD TV's are comparatively less , than consumers owning CRT TV. This has made a relatively fewer population target respondents. Out of the target respondents, some may own a different brand other than the brands taken for study in this project.

With respect to questions of the source of information's, where the respondent's fetched knowledge about LCD TV, a choice called Advertisements is given. But this does not explain whether, it is a TV Advertisement or news papers add. These may be the possible constraints.

3.5 Limitations

The project study has been carried out with LCD TV's only. Future can find a good market for the PLASMA TV, which is the technology competitor behind LCD TV's.

The study is carried out only in Coimbatore. It cannot be firmly told, that the same outcome would be feasible with all the similar cities. There may be variations, if the study is carried out in metro cities and tech rich cities like Bangalore.

3.6 Proposed Sampling Methods

The proposed Sampling method, for carrying out this study is MULTI-STAGE SAMPLING method. Multistage sampling is a complex form of cluster sampling. Using all the sample elements in all the selected clusters may be prohibitively expensive or not necessary. Under these circumstances, multistage cluster sampling becomes useful. Instead of using all the elements contained in the selected clusters, the researcher randomly selects elements from each cluster. Constructing the clusters is the first stage. Deciding what elements within the cluster to use is the second stage. The technique is used frequently when a complete list of all members of the population does not exist and is inappropriate.

In some cases, several levels of cluster selection may be applied before the final sample elements are reached. For example, household surveys conducted by the Australian Bureau of Statistics begin by dividing metropolitan regions into 'collection districts', and selecting some of these collection districts (first stage). The selected collection districts are then divided into blocks, and blocks are chosen from within each selected collection district (second stage). Next, dwellings are listed within each selected block, and some of these dwellings are selected (third stage). This method means that it is not necessary to create a list of every dwelling in the region, only for selected blocks. In remote areas, an additional stage of clustering is used, in order to reduce travel requirements.

Although cluster sampling and stratified sampling bear some superficial similarities, they are substantially different. In stratified sampling, a random sample is drawn from all the strata, where in cluster sampling only the selected clusters are studied, either in single stage or multi stage.

3.7 Tools for Analysis

There are two tools, used for analysis, for coming to a conclusion in this study.

The first one is the **Percentage analysis** and the second one is the **Hypothesis formulation** and testing of Hypothesis using **Chi- Square Test**. Let us evaluate the tools in the below paragraphs.

Percentage analysis method is used to come for an initial conclusion as well as a base to formulate a Hypothesis, which can be then checked with a Statistical test. This tool is used to calculate the level of perception of the technology in LCD TV's by the respondents, by the method of Percentage evaluation. Thus, for each parameters discussed in the interpretation section, a percentage analysis is done, considering the number of respondents opted for a particular choice and the total number of respondents.

Finally, the Percentage of technological features which was fully understood by all of the consumers **,the** Percentage of technological features which was understood by at least half of the consumers using it, the Percentage of technological features which was understood below half of the consumers, the Percentage of technological features which was never understood by any of the consumers are calculated and tabulated. Based on these calculations, the findings are evaluated. This method thus, lies as a base for formulation of hypothesis and carry out a statistical test, further.

The second method is the **Chi –square method.**

A **chi-square test** (also **chi-squared** or χ^2 **test**) is any statistical hypothesis test in which the test statistic has a chi-square distribution when the null hypothesis is true, or any in which the probability distribution of the test statistic (assuming the

null hypothesis is true) can be made to approximate a chi-square distribution as closely as desired by making the sample size large enough. This is a statistical method, used to test any hypothesis, when the sample is small.

In this method, a null Hypothesis is stated. A calculation is done, in each category on the assumption that the null hypothesis is correct. Thus for each observation, we shall have observed frequency and expected frequency. Then a level of significance is determined.

Then the chi-square value is calculated by using the following formula.

Chi square = $\sum (Oi-Ei)^2/Ei$

Where

i = 1 to K

Oi = observed frequency in the ith category.

Ei =Expected frequency in the ith category.

K number of categories.

Then the number of degrees of freedom is calculated. For the specified level of significance, the critical or theoretical value of chi-square is found. The calculated value of chi-square is compared with the theoretical value and the region of rejection is determined. In case the calculated value of chi-square is less than the theoretical value, then the null hypothesis is accepted. If on the other hand, the calculated value of chi-square is greater than the theoretical value, the null hypothesis is rejected.

CHAPTER 4 – DATA ANALYSIS AND INTERPRETATION

4.1 Interpretation methodologies

4.1.1 Interpretation on the technology behind the LCD TV's of SONY, Samsung and LG.

Consider the following table.

Table 4.1 Technological features of the LCD TV's of SONY, Samsung and LG

Sony	Samsung	L.G
Bravia Engine 2 Pro	Crystal Design	Dynamic contrast ratio
XMB- TM	Ultra Clear Panel	Intelligent sensor
DLNA	DNIe- Pro	AV mode
RGB Dynamic Led	50000:1 Dynamic contrast ratio	Wide colour control
Full HD 1080	Entertainment mode	Response time (GTG)
Photo TV HD	Energy star	Fresh white
24 P True Cinema	1080p Full HD	Anti Dazzling system
Motion Flow TM Pro	100 Hz motion plus	Surround 3.1 ch
100 Hz technology	Wide colour enhancer 2	clear voice
Bravia Sync	1080 24 P -Real Movie	SRS truss Around xt
PC connectivity	4 HDMI	On screen Equilizer
	Wise link	moving led power indicator
	Down firing speaker	HDMI multi media interface
		Simplink
		USB communication

4.1.1.1 Technology in Sony LCD Television:

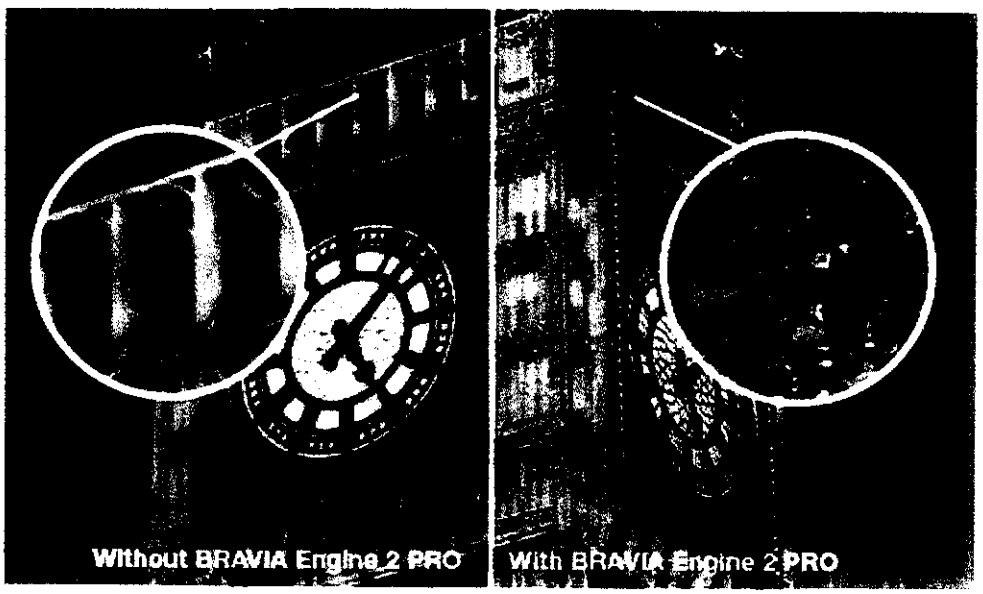
Bravia™ LCD TV

The era of High Definition has arrived and Sony's Bravia LCD TVs are here to help you fully enjoy its advantages. Innovation, creativity and technology come into play in the creation of our LCD TVs, bringing an unprecedented level of realism and stunning clarity to your movies, both visually and aurally. With slim and stylish designs, Bravia Lcd can fit anywhere in your home. Additional features like faster response time and PC connectivity help create the full entertainment experience.

Bravia Engine 2 Pro

BRAVIA Engine 2 Pro is a newly developed high definition video processor that integrates several special picture enhancement technologies such as the DRC-MF v3 (Digital Reality Creation) and Advanced Contrast Enhancer.

Figure 4.1 – Bravia Engine



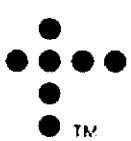
Increased sharpness with less noise and more depth to the picture with natural and realistic texture.

These technologies work in synergy to greatly improve detailed parts of images such as textures and black areas in dark scenes to produce crisp and clear images with the perfect contrast. This also enables you to see images in finer detail from both Standard Definition sources and Full HD sources including 1080 progressive scan signal format. In other words, you'll never have a bad picture moment with BRAVIA X Series televisions.

XMB™ (XrossMediaBar)

XMB™ is Sony's original graphic user interface that allows for simple navigation of various media and content. With XMB™, navigation is made so simple you don't even need to look at the remote control while searching and selecting content

Figure 4.2 -XrossMediaBar



DLNA (Digital Living Network Alliance)

Digital Living Network Alliance (DLNA) is a standard designed to realize seamless interoperability of connected devices on your home network, enabling you to share your digital media and content services easily and without fuss. With DLNA, you can simply connect and enjoy

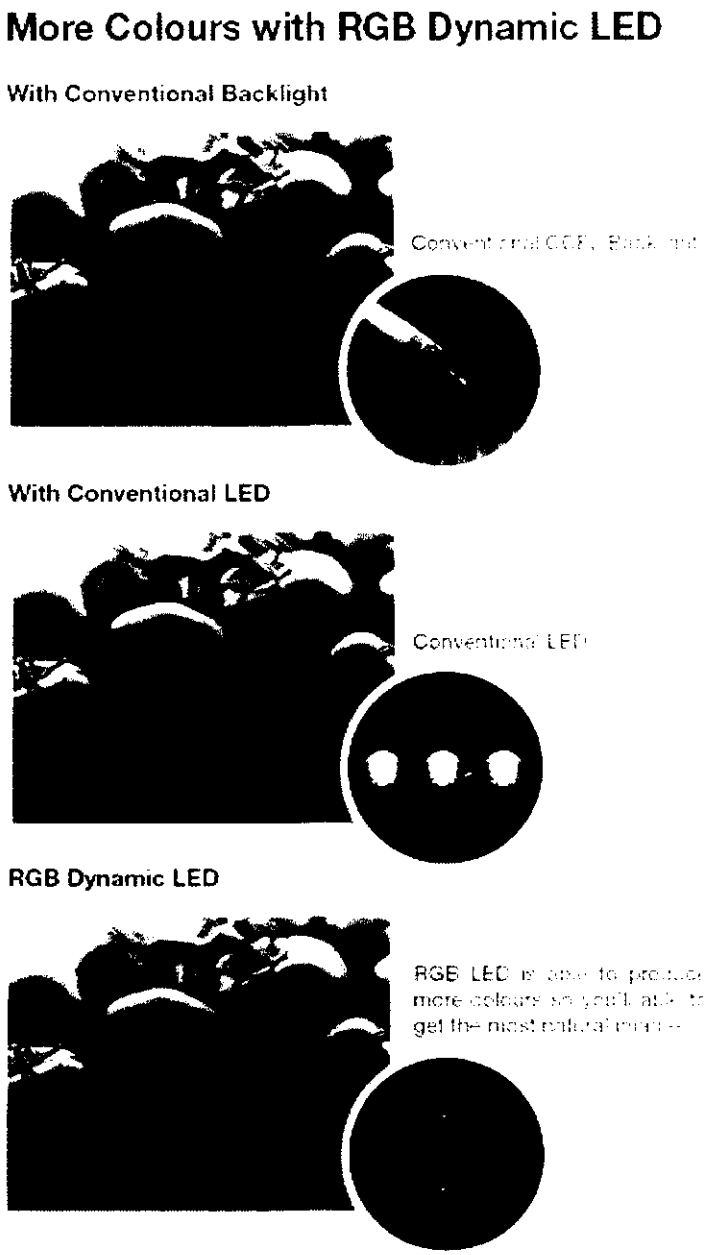
Figure 4.3 – DLNA certification

RGB Dynamic LED

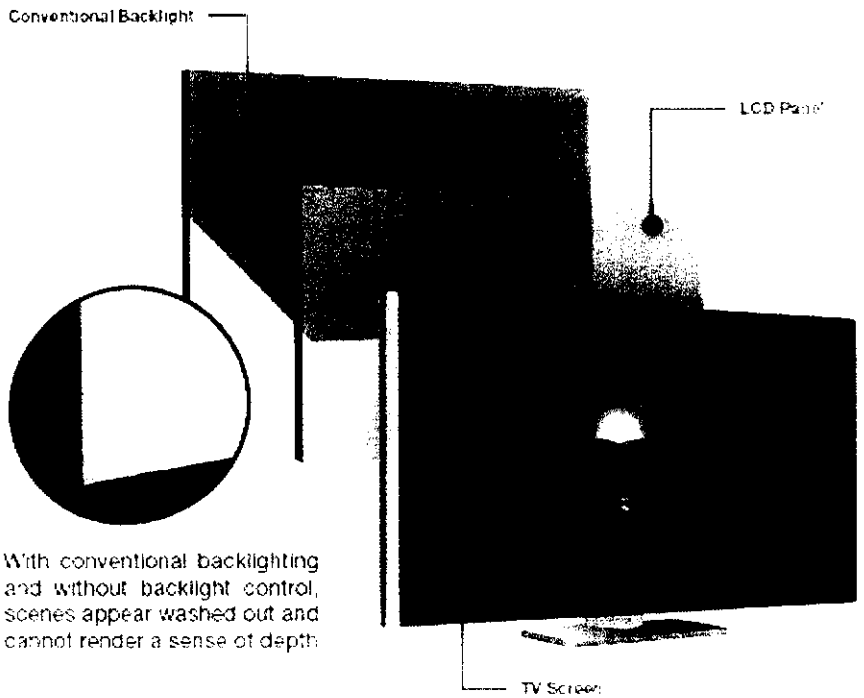
BRAVIA X Series can display the widest range of colours through the use of RGB LED backlighting which has a unique arrangement of red, blue and green LEDs. Combine that with dynamic control of its backlight, the BRAVIA X Series LCD TVs are able to suppress unneeded light to produce rich dark tones.

Enjoy well-lit images with true deep blacks as well as a sense of depth in every scene.

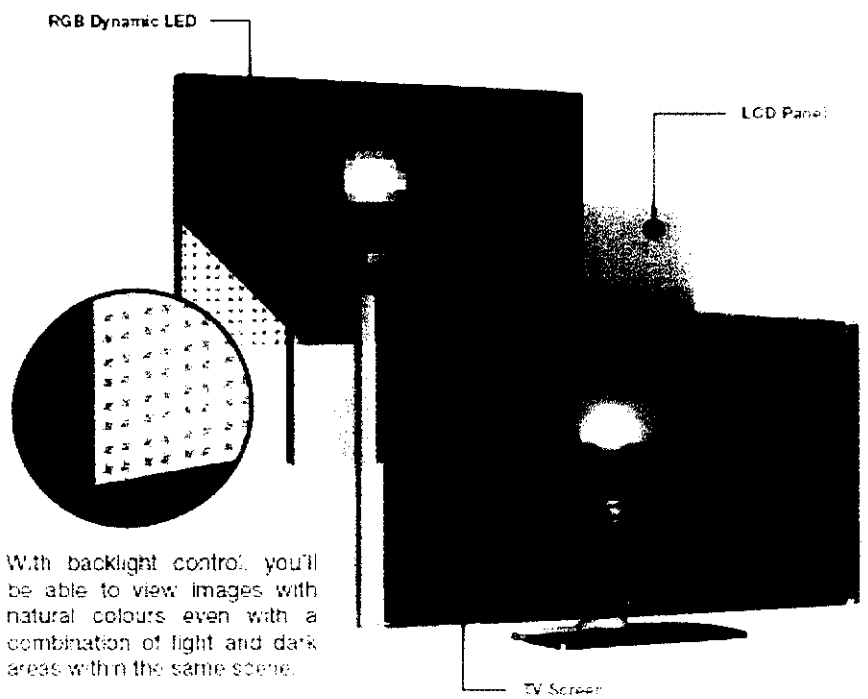
Figure 4.4 – RGB Dynamic- performance



Higher Contrast with RGB Dynamic LED



With conventional backlighting and without backlight control, scenes appear washed out and cannot render a sense of depth.



With backlight control, you'll be able to view images with natural colours even with a combination of light and dark areas within the same scene.

Full HD 1080

With High Definition (HD) 1080 recording, the effective scanning line is 1,080, which is more than twice the number in conventional standard definition (SD) format, and video data quality of High Definition 1080p recording is about 4.5 times more.

Figure 4.5 – Full HD 1080 Definition

These sharp images really bring out the feel of the material and impact of the subject matter. The difference between HD picture and SD quality is immediately noticeable. The wider 16:9 aspect ratio of HD approximates the shape of the human visual field, making you feel like you are actually in the picture.

PhotoTV HD

This new feature allows you and your loved ones to enjoy all your favorite images right on your BRAVIA TV in their full glory. Create a slide show directly from your Handy cam®, Cyber-shot or Alpha featuring your exotic vacation or a collection of images from days long past and enjoy them in the High Definition and colour of your BRAVIA TV.

24P True Cinema™

While conventional televisions (and most DVDs) operate at 50Hz, modern film-makers record their films onto Blu-Ray Disc™ using 24 frames per second (24Hz, or 24P). With 24P True Cinema, your BRAVIA will automatically recognize these films and select the correct format for playback so you see and hear the film just as in the theatre.

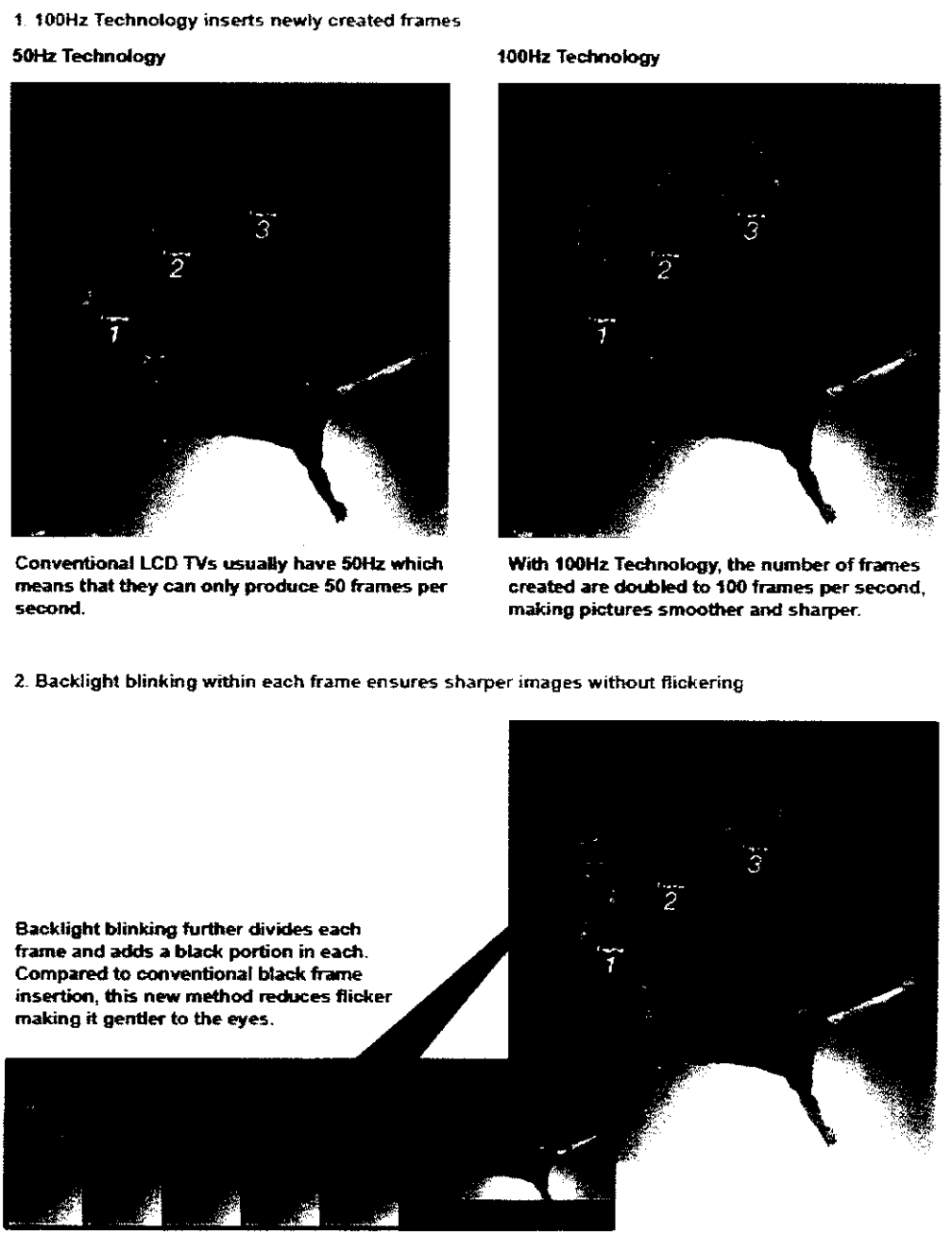
Motion flow™ PRO

Motion flow™ PRO improves motion performance so that fast actions appear clearer and sharper, and smoother than ever. This feature works in two ways:

(1) 100Hz Technology inserts newly created frames

(2) Backlight blinking within each frame ensures sharper images without flickering.

Figure 4.6 – 100 Hz function –Pictorial representation



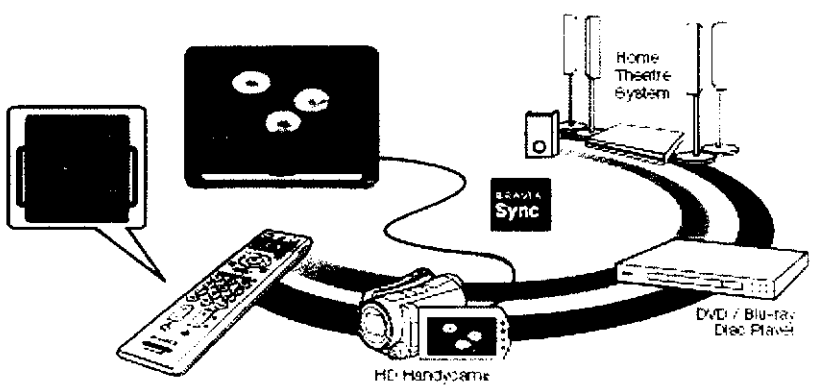
MPEG Noise Reduction

MPEG Noise Reduction automatically reduces block noise and improves the edges of characters while at the same time, successfully suppressing noise that usually appears at high contrast edges. Enjoy crisp, noise-free images with sharp edges on BRAVIA's Series televisions.

BRAVIA Sync

BRAVIA Sync allows for intuitive one-push play and shutdown as it synchronizes with all your other entertainment devices.

Figure 4.7 – Bravia sync Pictorial representation



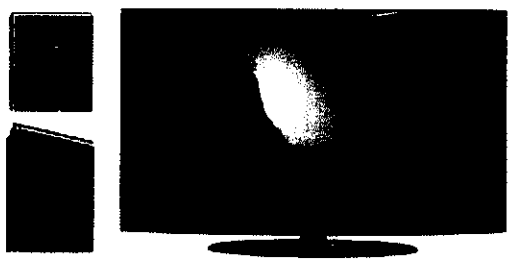
Connect your Handy cam® directly to a BRAVIA HD TV that is compatible with BRAVIA Sync using a HDMI cable and the Handy cam® playback screen is automatically displayed. You can even control your home theatre system and your Handy cam® directly using BRAVIA's remote controller. With such an easy operation, watching your recorded footage on a large-screen TV

4.1.1.2 Technologies in Samsung LCD television:

Crystal design

The exquisite craftsmanship of the LCD TV SERIES 6 650 sets a new standard in TV design. With its luxurious exterior and warm sunburst tones, it evokes emotions. The unique material plays with light and room décor customizes the set to harmonize any environment. Its fine finish is inspired by blown glass art and hand crafted beauty.

Figure 4.8 – Crystal design –Pictorial Representation



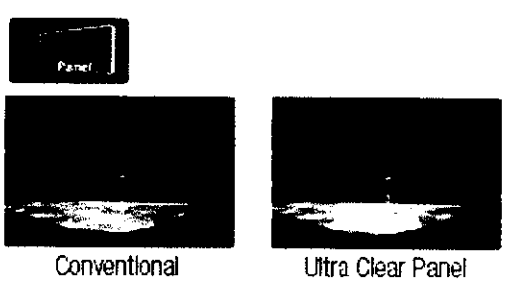
Bathed in natural beauty

Combining technological innovation with acute environmental awareness translates the design into smoother lines, warmer colour tones, and paint free manufacturing process of the LCD TV SERIES 6 650. The artistic ambience that it creates redefines the act of viewing and turns it into an art.

Ultra Clear Panel - crisp detail and vibrant colour

With its combination of high and low reflection layers, the Ultra Clear Panel performs perfectly in any lighting condition. By eliminating ambient light reflection, pictures not only remain pure at all times, but are also more comfortable for your eyes. (Applicable to over 40" models)

Figure 4.9 – Ultra clear panel – Pictorial Representation

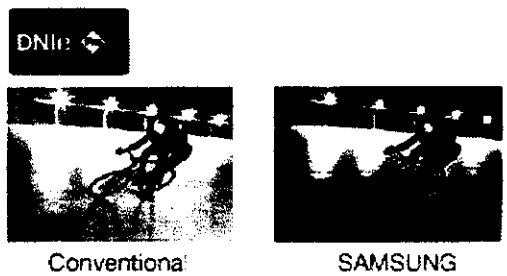


DNIe Pro - Digital Natural Image engine Pro

DNIe Pro produces an incredible depth of detail that captures your eyes and unlocks your senses. Its advanced Colour and Motion Optimizers deliver incredibly

lifelike images, and Contrast and Detail Enhancers combine to provide you with deeper depth of colour and precise pictures.

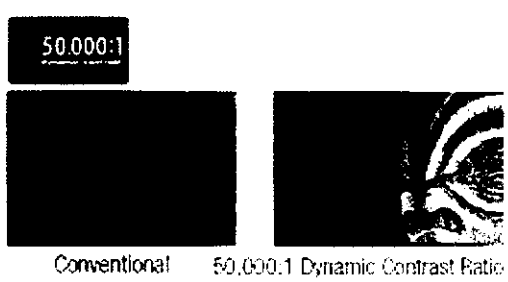
Figure 4.10 - DNIe- Pictorial representation



50,000:1 Dynamic Contrast Ratio - Rich black details

With a Dynamic Contrast Ratio of up to 50,000:1, images are presented with power, precision, and lifelike detail. The enhanced Digital Dynamic Contrast reduces the duty ratio, minimizes the black level, and creates deeper black colors. Faster dimming of the LCD backlight delivers deeper contrast of each video source, meaning that dark colors' take on extra depth and light coolers become brighter, clearer, and more pure. (Applicable to over 40" models)

Figure 4.11- dynamic contrast ratio- Pictorial representation



Entertainment Mode - a TV made for entertainment

To provide you with the best entertainment possible, picture and sound mode have been preset for sports, movie, and game. The picture quality you are experiencing is optimized for your specific needs. Fast motion imaging, dynamic detail enhancement, and down-firing speakers combine to deliver the most dramatic entertainment experience you have ever been a part of.

Sports mode places you right in the middle of the action. Playing field, race track, and water sports come to life in vivid colour and detail due to the enhanced green, red, and blue colours which provide a superior spectator environment for all

sports. Experience TV that feels like a movie theatre. Cinema Mode guarantees the very best moving image quality while the enhanced mid range speakers deliver powerful cinematic sound. Game mode enhances your gaming experience by providing you with smooth moving images, incredible sharpness of detail, and sound that is clear and powerful.

Energy Star - the evolution of ecology

Its energy efficiency bridges the gap between technological advancement and environmental awareness.

1080p Full HD - photo realistic details

The richest, most realistically represented images come to life in 1920 x 1080 Full HD. Colours are more vibrant, moving images have more fluidity, and action sequences become more dynamic.

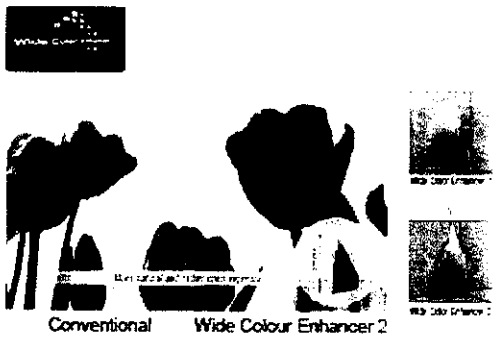
100Hz Motion plus - faster than your eyes can see

100 Hz Motion Plus technologies intelligently estimate the action, then create and insert an extra frame between frames to create a comfortable viewing experience. Through the insertion of this bridge frame, images appear seamless and the motion judder and image blurring is eliminated. Even the fastest action scenes are presented with precision and clarity. (Applicable to over 40" models)

Wide Colour Enhancer 2 - provides natural, realistic colours

Images are saturated with vivid, natural colour due to the expanded range of colour expression. By strengthening the red, green, and blue colours, depth and intensity are added to images that might have previously looked weak.

Figure 4.12 – Wide colour Enhancer – Pictorial Representation



1080 24P Real Movie - true to the original

The SAMSUNG LCD TV gives you the power to watch movies in their original 24-frames-per-second format-so you can see them the way they were intended to be seen. The latest in digital technology allows Blue-Ray Disc Players or Game Consoles to output content in its original forms of 24 fps. The SAMSUNG LCD TV supports these 24 fps sources through the HDMI input, and is capable of showing scenes in the maximum resolution of 1080p.

4 HDMI - one cable for audio and video

100% pure digital connection synchronizes audio and video signals, ensuring no data loss and pure viewing perfection. Equipped with 4 HDMI inputs and the addition of Universal Anynet+ allows you to control all connected audio and video devices from one remote control, giving you a more integrated entertainment experience.

Figure 4.13 – 4 HDMI – Pictorial Representation

WISELINK - music and photo on TV

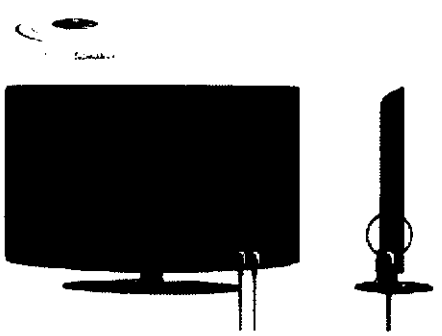
The WISELINK connection allows you to share music and photos with those who are closest to you by simply using the USB 2.0 interface.

Figure 4.14- Wise Link Pictorial Representation

Down-firing Speaker - invisible speaker system

Using an invisible speaker design allows your attention to remain on the screen. The powerful down-firing speakers create superior multi-directional sound that is dynamic, clear, and ideally suited for movie sound content.

Figure 4.15 – Down firing speaker – Pictorial Representation



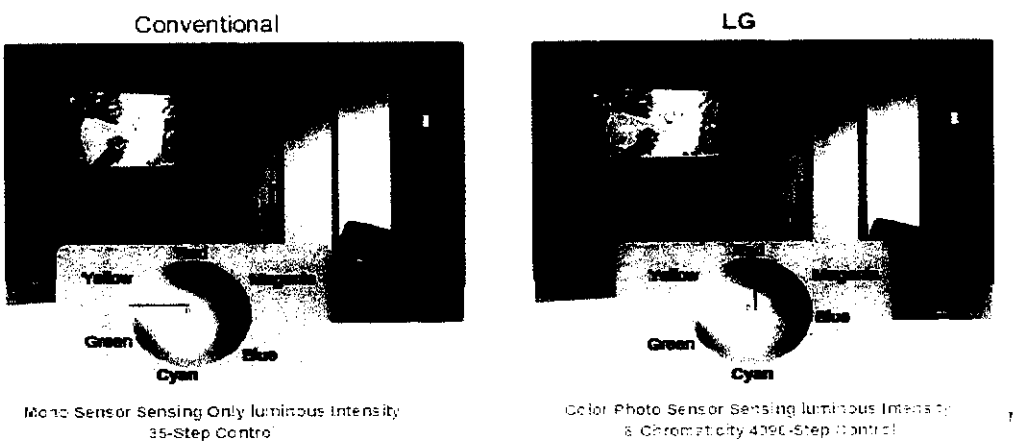
4.1.1.3 Technologies in LG LCD television:

Most of the technologies like 1080p Full HD, Anti dazzling system, RGB dynamic are similar to that of other LCD TV's Mentioned above. Apart from that LG , some technologies unique to LG are,

Intelligent sensor

This sensor, along with the RGB sensor, checks for the brightness of surrounding and adjusts, the picture quality according to it.

Figure 4.16 – Intelligent sensor- pictorial explanation



Wide colour control.

Wide colour control enhances the range of colours that the TV can display. It gives more neutral, vivid and true to life image quality, amore accurate reproduction of the original colours and size.

Figure 4.17 – wide colour control – Pictorial representations

Invisible speaker

The front bezel works as a normal speaker grill. With the invisible speaker the speakers are embedded, in strategic parts, underneath and around the bezel. They

enhance the audio, by increasing the sweet spot , to give a wider and richer sound field.

Figure 4.18 – Invisible speaker

On screen equalizer

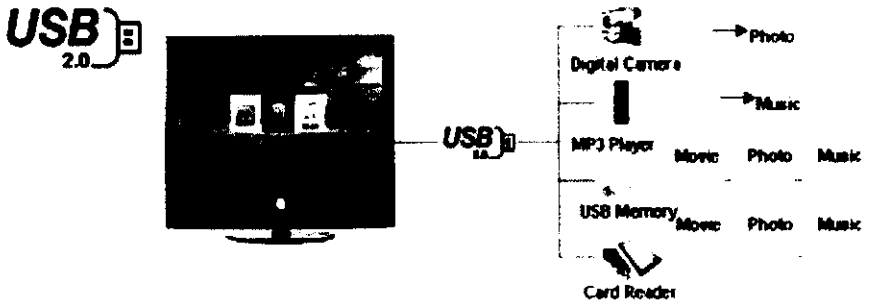
The sound equalizer can be checked on the screen, as and when the music is played, which makes it easier to tune according to the users need.

Figure 4.19 – On screen Equalizer – Pictorial Representation

USB 2.0

The Upgraded USB terminal has a transfer speed of 480 MB per second. This feature allows, easy use of Cam recorders, Digital cameras, MP3 players. The hot plug system, also allows disconnecting any device, when the TV is turned on.

Figure 4.20 – USB connections- Pictorial representation



Moving LED Indicator

The moving LED power indicator is the aesthetically, pleasant replacement, for the simple red light standby indicator. The indicator colour glows in red light whilst in standby, then gently pulses during power up sequence, before changing to soft blue light whilst running.

Figure 4.21 Moving LED – Pictorial Representation

4.1.2 Interpretation on the level of perception and understanding of the technologies in LCD TV's among the consumers of Coimbatore, among the brands Sony, Samsung and LG

The data's were collected by personal Interviews, going to various parts of Coimbatore. Questionnaires were used to collect the data's. Below are the data that were collected by questionnaire .The data's collected are processed here for further calculations.112 respondents were used for taking a survey. Out of this 168 respondents only 42 members were possessing LCD TV. All the others had only latest versions of CRT TV.

Below are the tables that contain the choices selected by the 42 respondents, on the questions, which were asked to understand the technology perception of LCD TV.

Table 4.2 Brand of TV owned by the respondents in the Past

Choices	1.Sony	2.LG	3.Samsung	4.others
Number of respondents opted for the choice.	16	11	12	3

Interpretation.

Out of the 42 members owing LCD TVs, 16 owned Sony brand, 11 owned LG brand and 12 owned Samsung brand. It is interpreted that, sony was in the lead , but this question corresponds to the brand the respondents had in the past, before Purchasing the LCD TV.

Table 4.3 The type of television owned by the respondent's in the past

Choices	1.CRT	2.LCD	3.PLASMA	4.others
Number of respondents opted for the choice.	39	3	0	0

Interpretation.

Out of the 42 members who are currently owing LCD TVs, 39 owned CRT type, 3 LCD type.

But now they own an LCD type TV. This makes me to interpret, that, the respondents, have jumped to the LCD type, by seeing its advantages over CRT type.

Table 4.4 The brand of LCD television the respondents own at present

Choices	1.Sony	2.LG	3.Samsung	4.others
Number of respondents opted for the choice.	29	8	5	0

Interpretation.

Out of the 42 members owing LCD TVs, 29 owned Sony brand, 8 owned LG brand and 5 owned Samsung brand. The other brands like Videocon, Onida, were not found. This clearly shows, Sony LG and Samsung are famous Brands of LCD TV. But Sony having a big Lead as 29 Respondents have Sony 8 have LG and 5 have Samsung LCD TV's at present.

Table 4.5 The main reason for respondents to choose the above brand

Choices	1.Technology	2.Cost	3.Aesthetics	4.others
Number of respondents opted for the choice.	26	8	12	0

Interpretation.

This is a tricky question to analyze, the technology perception. When asked about the main reason for purchasing LCD TV, 26 have opted for technology, 8 for cost, and 12 for aesthetics. Some respondents have opted for Combined choices. But the interpretations, below for various questions, makes it clear that, the customer still confuses with the aesthetic part as technology.

Table 4.6 Source of information that made Respondents to select the their respective brands

Choices	1.Advertisement	2.Friends	3.Relatives	4.Others
Number of respondents opted for the choice.	28	23	20	0

Interpretation.

This is another tricky question to analyze, the technology perception. When asked about the source of information from which the respondents , made out their choices of Buying LCD TV's, 28 respondents say , its advertisements, 23 say its friends and 20 say its relatives.Agin some respondents had choosen multiple choices for this.

Table 4.7 The brand of lcd tv's owned by the respondents , friends or relatives

Choices	1.Sony	2.LG	3.Samsung	4.others
Number of respondents opted for the choice.	24	11	4	3

Interpretation.

This is question relating to the previous question. It is seen that, when it comes to the LCD Brands, that the friends and relatives have, it is seen Sony Leads again with 24, LG with 11 and Samsung with 4.When considering Question number 3, again Sony leads. It is almost clear that, the respondents have gone with their friends and relatives brand, irrespective of technology.

Table 4.8 The difference the respondents identified from their brand, to the one that their friends owned

Choices	1.Technology	2.Cost	3.Aesthetics	4.others
Number of respondents opted for the choice.	29	8	6	5

Interpretation.

This is question relating to the previous question. When asked about the difference the respondents identified , with their s and their friends, 29 of them say technology , 8 as cost 6 as aesthetics and 5 as others. Others in the sense, difference in Brands. Again many sony users, say that, they have a higher dimension difference, which is again not a technology but only aesthetics. Here, it is clearly seen that the consumers confuse technology with aesthetics.

Table 4.9 The member in the respondent's home who showed more interest in buying your LCD TV

Choices	1.Respondent	2.Respondent spouse	3.Your children	4.others
Number of respondents opted for the choice.	29	8	0	5

Interpretation.

This is question was just asked to find the influence of the source , in buying LCD TV's.Here 29 respondents said, they themselves took the decision, 8 said, their spouces and 5 said other names in the family.

Table 4.10 The age of the person, who was the key to buy the LCD TV

Choices	1.below 20	2.20 to 30	3.30 to 40	4.more than 40
Number of respondents opted for the choice.	0	36	4	2

Interpretation.

This is question was just asked to find the influence of age on buying LCd TV's. It is seen clearly 36 of the respondents, had only between 20 to 30 , and 4 were in the age between 30 to 40 and 2 were more than 40 .This interprets, clearly, that, people, who find a new entry in to jobs and who have just started earning, show more interest on buying LCD TV's than the other counterparts.

Table 4.11 Respondents educational Level

Choices	1. UG	2. PG	3.Foreign education	4.others
Number of respondents opted for the choice.	34	8	0	0

Interpretation.

This is question was just asked to find the educational level of respondents, purchasing LCD TV's. Almost, 34 are under graduated and 8 are post graduated. These shows, almost all the people who go for LCD TV's are educated.

Table 4.12 Respondents Annual Income

Choices	1.< than 2 Laks	2. 2 to 5 laks	3. 5 to 10 Laks	4. >10 Laks
Number of respondents opted for the choice.	0	**37**	**5**	**0**

Interpretation.

This is question was just asked to find the income flow of the respondents who choose LCD TV's. Its seen almost, people with annual income around 2 to 5 laks and more than 5 to 10 laks, go for purchasing LCD TV. These shows, mostly the upper middle class and the Higher class of the society go for Purchasing LCD TV's

Table 4.13 Total number of members in Respondents Family

Choices	1. 3	2. 4	3. 5	4. > 5
Number of respondents opted for the choice.	2	36	4	0

Interpretation.

This is question was just asked just to have an idea on the family structure of the respondents. Almost , all the families is nuclear and small.

Table 4.14 Table showing the technology levels of understanding in Sony LCD TV

Technologies in Sony LCD TV	Number of respondents who are aware of each of the technologies.
Bravia Engine 2 Pro	29
XMB- TM	0
DLNA	0
RGB Dynamic Led	29
Full HD 1080	0
Photo TV HD	5
24 P True Cinema	0
Motion Flow TM Pro	0
100 Hz technology	14
Bravia Sync	29
PC connectivity	29

Interpretation.

The above table shows 11 technological features of sony TV. Out of this 11 features, the customers were asked to tick the features they were aware of. It is seen that, all the customers of Sony LCD TV, are aware of 4 technologies. Only 14 people were aware of 5 technologies and 5 people were aware of 6 technologies. It is also interpreted that, remaining 5 features were not known to any of the customers. Thus it is seen that, though many respondents had chosen Sony LCD TV, the level of awareness on the technological features is comparatively low.

Table 4.15 Table showing the technology levels of understanding in Samsung LCD TV

Technologies in Samsung LCD TV	Number of respondents who are aware of each of the technologies.
Crystal Design	5
Ultra Clear Panel	5
DNIe- Pro	0
50000:1 Dynamic contrast ratio	1
Entertainment mode	5
Energy star	0
1080p Full HD	3
100 Hz motion plus	0
Wide colour enhancer 2	0
1080 24 P -Real Movie	0
4 HDMI	5
Wise link	3
Down firing speaker	5

Interpretation.

The above table shows 13 technological features of Samsung LCD TV. Out of this 13 features, the customers were asked to tick the features they were aware of. It is

seen that, all the customers of Samsung LCD TV, are aware of 5 technologies. Only 3 people were aware of 7 technologies and 1 was aware of 8 technologies.

It is also interpreted that, remaining 5 features were not known to any of the customers. Thus it is seen that, the level of awareness on the technological features is comparatively low.

Table 4.16 Table showing the technology levels of understanding in LG LCD TV

Technologies in LG LCD TV	Number of respondents who are aware of each of the technologies.
Dynamic contrast ratio	5
Intelligent sensor	8
AV mode	8
Wide colour control	4
Response time (GTG)	0
Fresh white	0
Anti Dazzling system	8
Surround 3.1 ch	5
clear voice	8
SRS truss Around xt	0
On screen Equilizer	8
moving led power	3

indicator	
HDMI multi media interface	8
Simplink	8

Interpretation.

The above table shows 14 technological features of LG LCD TV. Out of this 14 features, the customers were asked to tick the features they were aware of. It is seen that, all the customers of LG LCD TV, are aware of 6 technologies. Only 5 people were aware of 7 technologies and 4 were aware of 8 technological features and 9 people were aware of 8technologies.

It is also interpreted that, remaining 3 features were not known to any of the customers. Thus it is seen that, though only few respondents had chosen LG LCD TV, compared to Sony, the level of awareness of technological features on the technological features is comparatively High.

Thus though the volume of Sony is large, the level of technological understanding is low. But with respect to LG the technological understanding is good, but the volume is comparatively low. Thus it is interpreted that, though most customers say they have good understanding of technological features, they go by advertisements and the brands with their friends and relatives. Also they confuse dimensional parameters and aesthetical features with technology features.

4.1.3 Interpretation in analyzing the Key technologies that had facilitated an increase in sales in LCD TV segment among the above mentioned brands among the consumers of Coimbatore.

Thus it is interpreted that, though most customers say they have good understanding of technological features, they go by advertisements and the brands with their friends and relatives. Also they confuse dimensional parameters and aesthetical features with technology features. In this regard, there is no such key technology which has increased any sales, rather than , advertisements, dimensions and aesthetics are the key features, increasing sales of LCD TV.

Also, it is observed that, Most of the Respondents had at least a UG Degree and Education.

With these two questions, it is clear that, the technology reach of the TV's are confined to respondents with a UG education and annual income above 2 lacks.

4.2 Calculations

Percentage Analysis.

Table 4.17 Table showing the number of technology features understood by the respondents

Brand of LCD TV	Number of technological features, questioned for obtaining understanding levels fro consumers.	Technological features which are completely understood by all consumers.	Technological features understood by only half of the consumers.	Technological features understood by only less than half of the consumers.	Technological features that was not understood by any of the consumer.
Sony	11	4	1	1	5
Samsung	13	5	2	1	5
LG	14	7	3	1	3

Here, the technologies understood by all the customers, is not added to the next column. i.e., while considering the technological features understood by only half of the customers, the previous column value is neglected. Even if it is added, then also the total result signifies the same view.

For Sony LCD TV

Total number of respondents who opted for Sony LCD TV = 29

Total number of technological features exposed to consumers for checking their perception levels of technology =11

Percentage of technological features which was fully understood by all of the consumers =4*100/11

=36.66%

Percentage of technological features which was understood by only half of the consumers using it=1*100/11 = 9.09%

Percentage of technological features which was understood only below half of the consumers =1*100/11

=9.09%

Percentage of technological features which was never understood by any of the consumers =5*100/11

=45.45%

For Samsung LCD TV

Total number of respondents who opted for Samsung LCD TV = 5

Total number of technological features exposed to consumers for checking their perception levels of technology =13

Percentage of technological features which was fully understood by all of the consumers =5*100/13

=38.46%

Percentage of technological features which was understood by only half of the consumers using it=2*100/13 = 15.38%

Percentage of technological features which was understood below half of the consumers =1*100/13

=7.69%

Percentage of technological features which was never understood by any of the consumers =5*100/13

=38.46%

For LG LCD TV

Total number of respondents who opted for LG LCD TV =8

Total number of technological features exposed to consumers for checking their perception levels of technology =14

Percentage of technological features which was fully understood by all of the consumers =7*100/14

=50%

Percentage of technological features which was understood by only half of the consumers using it=3*100/14 = 21.42%

Percentage of technological features which was understood only below half of the consumers =1*100/14

=7.14%

Percentage of technological features which was never understood by any of the consumers =5*100/14

=35.71%

Table 4.18 Table showing the percentage of technology levels of understanding in LCD TV among the respondents of Coimbatore

Brand of LCD TV	Total number of technological features exposed to consumers for checking their perception levels of technology	Percentage of technological features which was fully understood by all of the consumers	Percentage of technological features which was understood only by half of the consumers using it	Percentage of technological features which was understood only below half of the consumers.	Percentage of technological features which was never understood by any of the consumers	Number of people owning the brand (out of 42).
Sony	11	36.66%	9.09%	9.09	45.45%	29
Samsung	13	38.46%	15.38%	7.69%	38.46%	5
LG	14	50%	21.42%	7.14%	35.71%	8

Chi- square test - Hypothesis testing

Consider the table number 4.17 again.

Let us use the data in the above table, for Hypothesis testing and calculate the value of chi- square.

Let us consider the following data.

Table 4.19 Table showing the number of technology features understood by the respondent

Brand of LCD TV	Technological features which are completely understood by all consumers.	Technological features understood only by half of the consumers.	Technological features understood by less than half of the consumers.	Technological features that was not understood by any of the consumer.
Sony	4	1	1	5
Samsung	5	2	1	5
LG	7	3	1	3

Let us Formulate the Hypothesis. Observing the data in the above table, it is seen that though the Sony TV exceeds in numbers, the technology perception is comparatively low, than LG LCD tv, which is comparatively owned by very few respondents. Also from the Percentage analysis, ion the above section, it is seen that, the technology perception of consumers in LCD TVs among the Brands of Sony , LG, and Samsung is comparatively low.

Hence we will have the NULL HYPOTHESIS as follows. The technology Perception LCD TV, among the consumers of Coimbatore , among the Brands of Sony , Samsung and LG , is low.The alternate hypothesis, is The technology Perception LCD TV, among the consumers of Coimbatore, among the Brands of Sony , Samsung and LG , is high or not low.

For this let us have a significance level of 5%. This indicates that in a long run, the risk of making a wrong decision is 5 %that is one is likely to be wrong in accepting a false hypothesis or in rejecting a true hypothesis on 5 out of 100 occasions. Since the sample is small, let us choose a chi-square test for evaluation of calculations in testing the hypothesis. For proceeding with the chi-square test, we have to find the row total and the column total of the above table. This leads to the following table.

Table 4.20 Chi square table for the data's in table 4.19

Brand of LCD TV	Technological features which are completely understood by all consumers.	Technological features understood by only half of the consumers.	Technological features understood by less than half of the consumers.	Technological features that was not understood by any of the consumer.	Column total
Sony	4	1	1	5	11
Samsung	5	2	1	5	13
LG	7	3	1	3	14
Row total	16	6	3	13	38

Now

Chi square = $\sum (Oi-Ei)^2/Ei$

Where

i = 1 to K

Oi = observed frequency in the ith category.

Ei =Expected frequency in the ith category.

K number of categories.

Let us find Ei

E11= 11*16/38 = 4.631

E12= 11*6/38 = 1.736

E13= 11*3/38 = 0.868

E14= 11*13/38 = 3.763

Similarly,

E21= 13*16/38 = 5.473

E22= 13*6/38 = 2.052

E23= 13*3/38 = 1.056

E24= 13*13/38 = 4.447

Similarly

E31= 14*16/38 = 5.894

E31= 14*6/38 = 2.210

E31= 14*3/38 = 1.165

E31= 14*13/38 = 4.789

Based on this value, another table is formed to evaluate the chi-square value.

Table 4.21 Chi square Calculation table for the data's in table 4.20

Oi	Ei	Oi – Ei	(Oi – Ei)^2	{ (Oi – Ei)^2 } / Ei
4	4.631	-0.631	0.398161	0.085977327
1	1.736	-0.736	0.541696	0.312036866
1	0.868	0.132	0.017424	0.020073733
5	3.763	1.237	1.530169	0.406635397
5	5.473	-0.473	0.223729	0.040878677
2	2.052	-0.052	0.002704	0.001317739
1	1.056	-0.056	0.003136	0.002969697
5	4.447	0.553	0.305809	0.068767484
7	5.894	1.106	1.223236	0.207539192
3	2.21	0.79	0.6241	0.28239819
1	1.165	-0.165	0.027225	0.023369099
3	4.789	-1.789	3.200521	0.668306745
Chi square =				**2.120270145**

Thus it is seen that the calculated value of Chi-square is 2.120.

The degrees of Freedom in this study is = (r-1)(c-)

Where

r =number of Rows

c = number of columns.

Hence the Degrees of freedom = (3-1) (4-1)

= 2* 3 = 6.

Hence Degrees of freedom = 6.

We have taken $\alpha = 0.05$ (5% level of significance).

The Chi square table value corresponding to 6 degrees of freedom and $\alpha = 0.05$ = 12.592

Thus it is seen that, the calculated value 2.120 is less than the table value 12.592.

Hence the Null hypothesis is accepted. **Thus our statement "The technology Perception LCD TV, among the consumers of Coimbatore, among the Brands of Sony, Samsung and LG, is low" is accepted.**

4.3 Diagrammatic Representation

This diagrammatic representation represents the data interpreted in section 4.1.2

Figure 4.22 – Graph on Respondent's past brand of TV

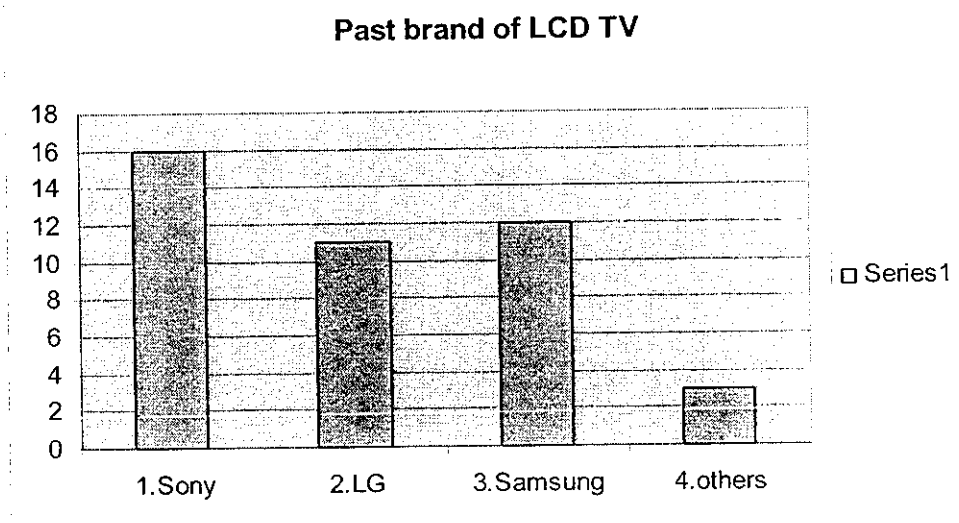


Figure 4.23 - Graph on Respondents Past type of TV

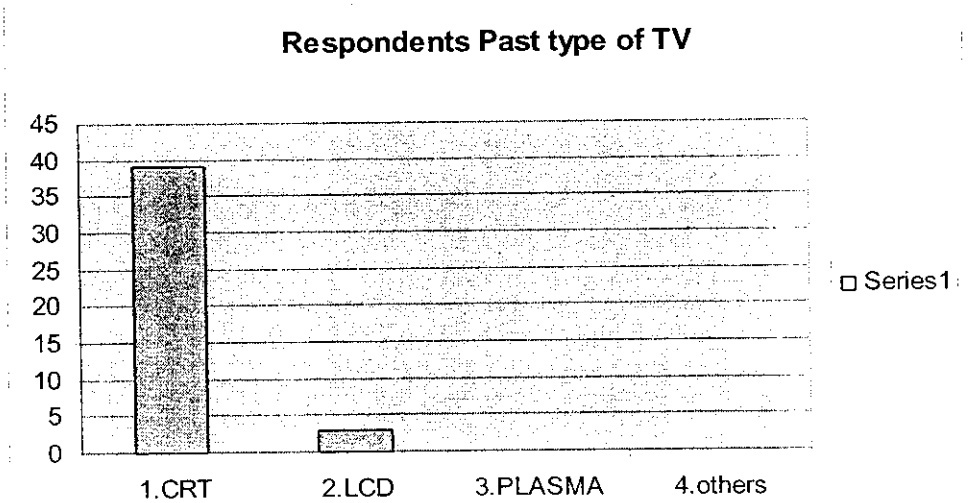


Figure 4.24 - Graph on Respondents Present brand of TV

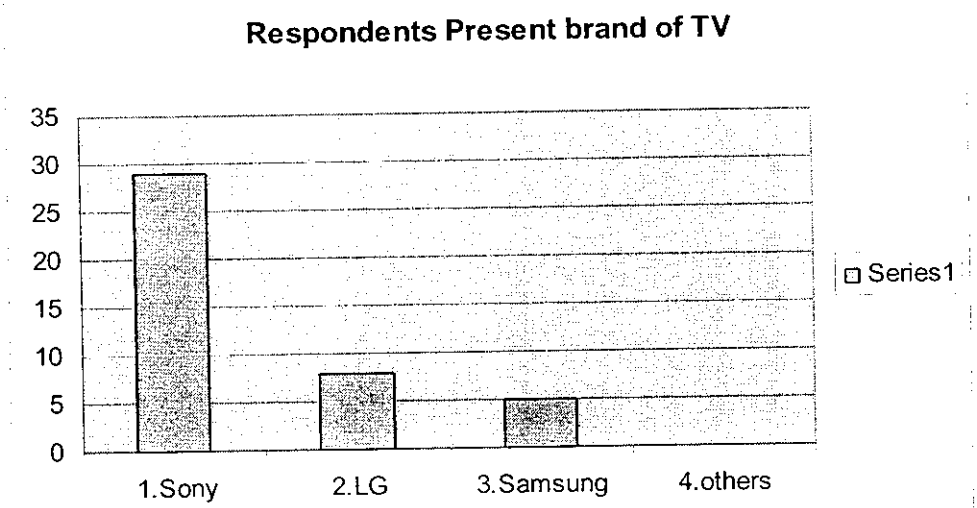


Figure 4.25 - Graph on Reasons of Respondents for choosing the brand of LCD TV they currently own

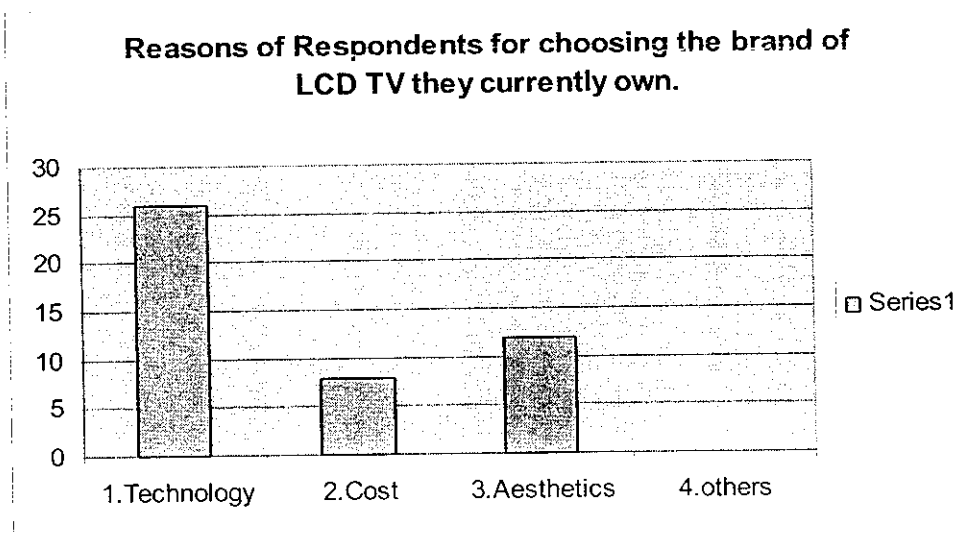


Figure 4.26 - Graph on Sources of information for the Respondents for choosing the brand of LCD TV they currently own.

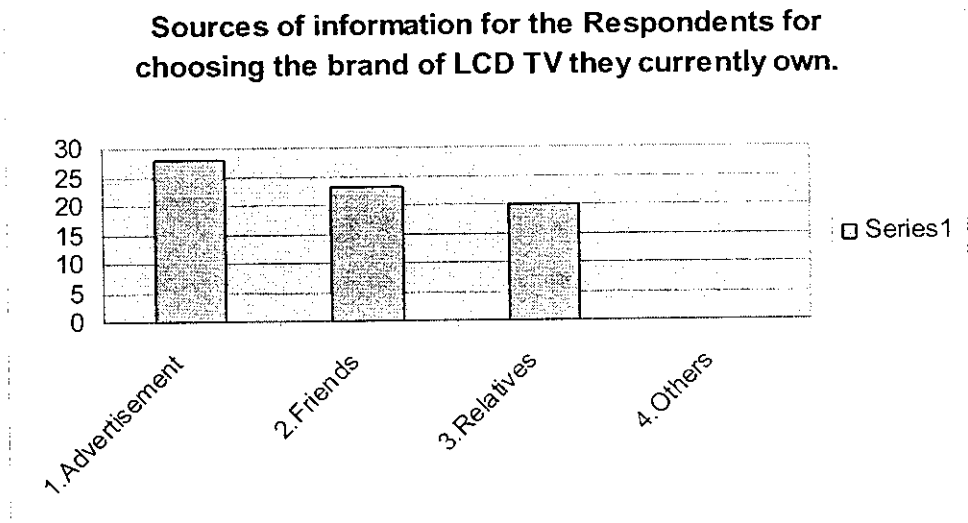


Figure 4.27- Graph on the brand of LCD TV's owned by the respondent's friends & Relatives

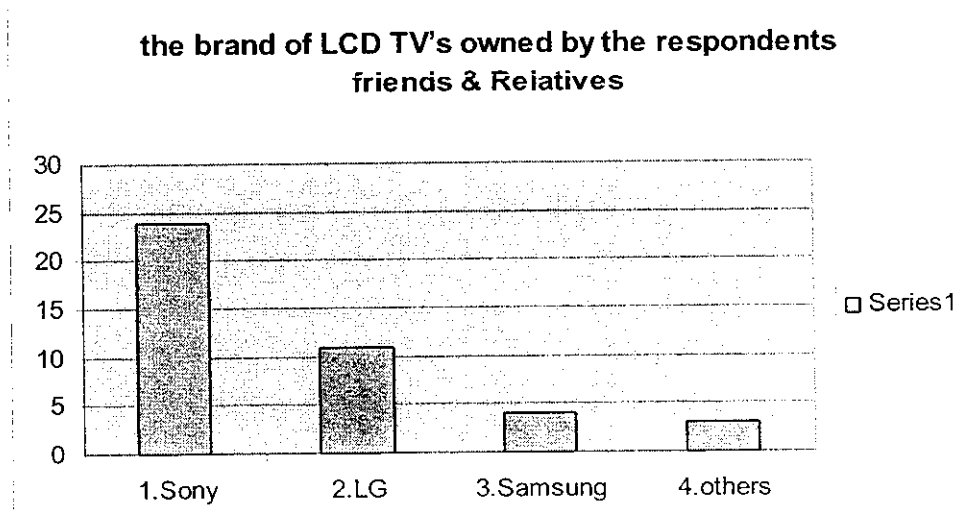


Figure 4.28- Graph on Difference between the LCD TV owned by the Respondents and the one owned by their Friends and Relatives

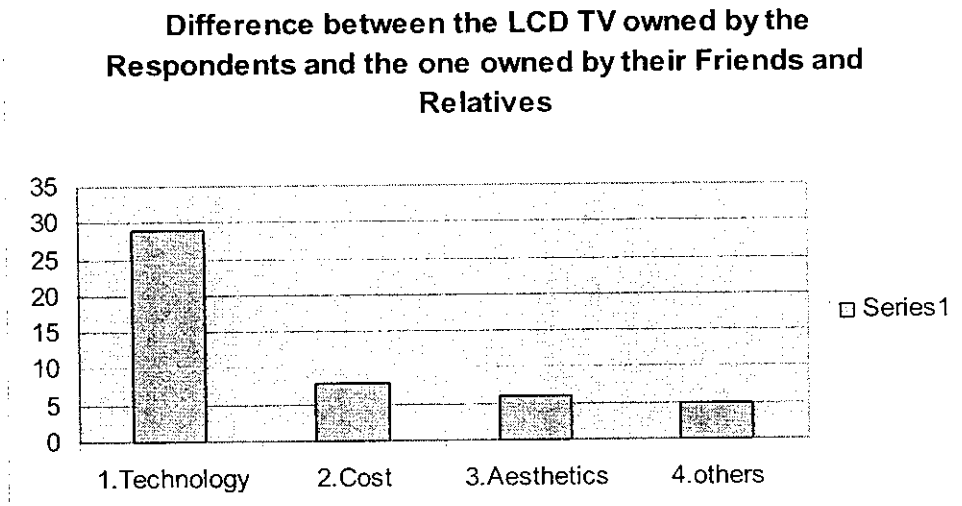


Figure 4.29- Graph on the member of Respondent's family who showed interest in buying LCD TV

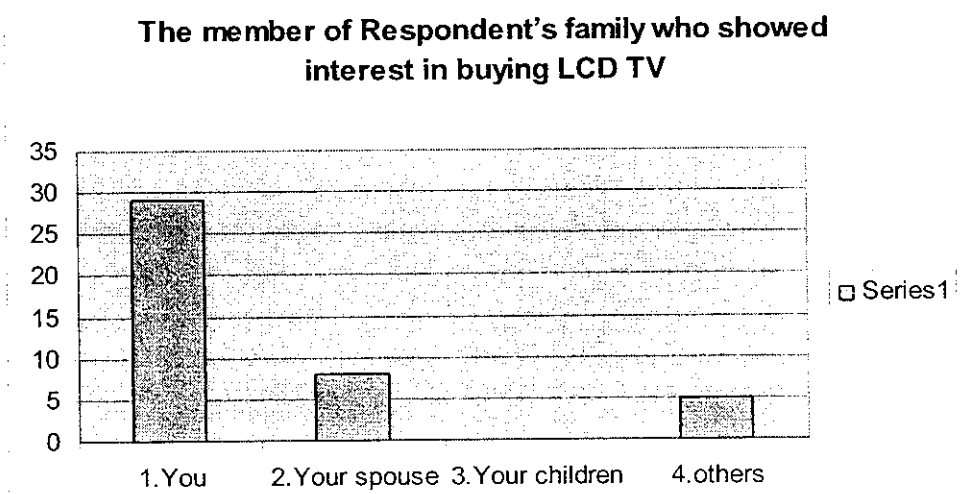


Figure 4.30- Graph on the age of the member in Respondent's family who was involved in buying LCD TV

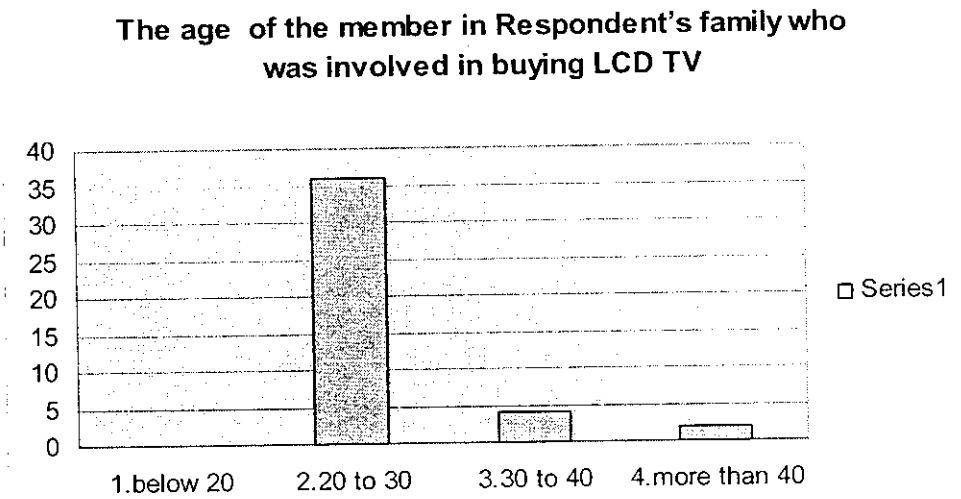


Figure 4.31 - Graph on the Education level of the member in Respondent's family who was involved in buying LCD TV

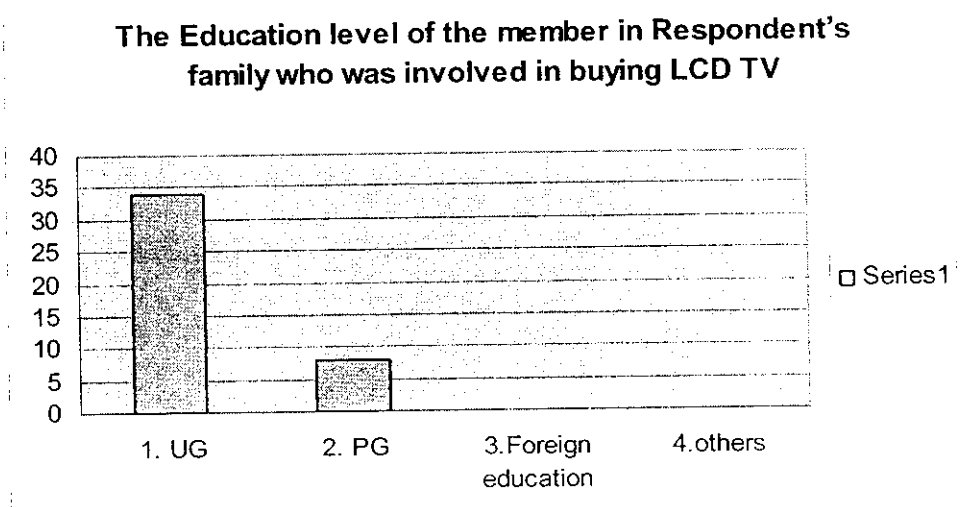


Figure 4.32 - Graph on the Annual income of the Respondents

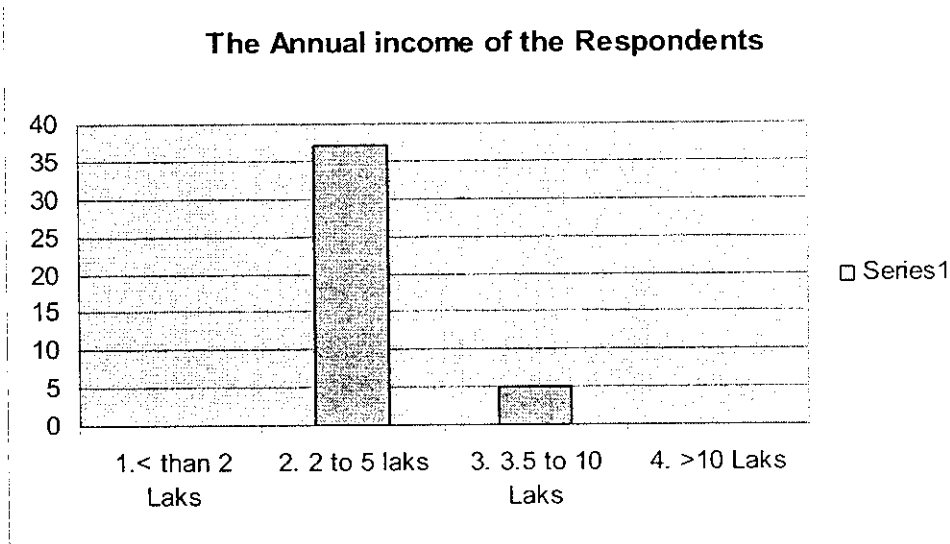


Figure 4.33- Graph on the number of members in Respondent's family

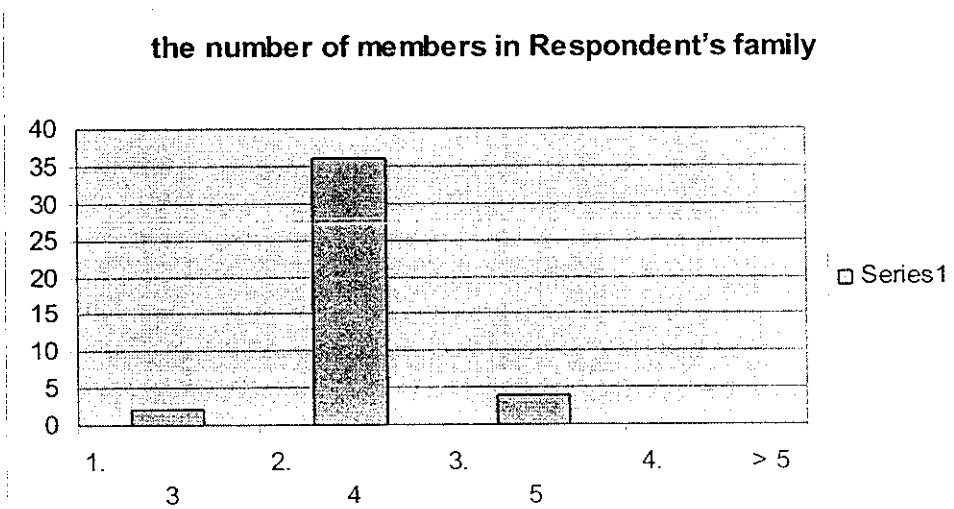


Figure 4.34- Graph on the Number of respondents , who were aware of each of the technologies in the Sony LCD TV

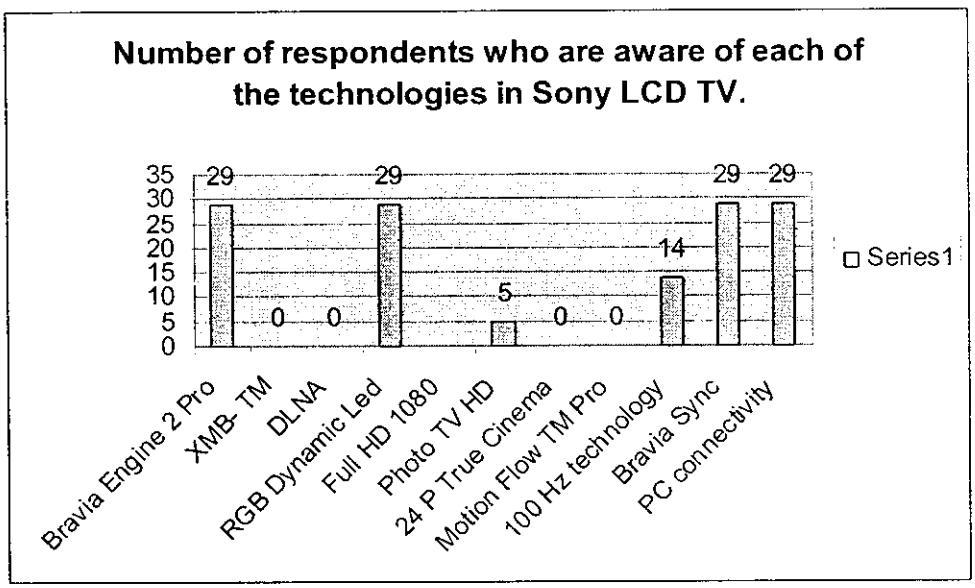


Figure 4.35- Graph on the Number of respondents, who were aware of each of the technologies in the Samsung LCD TV

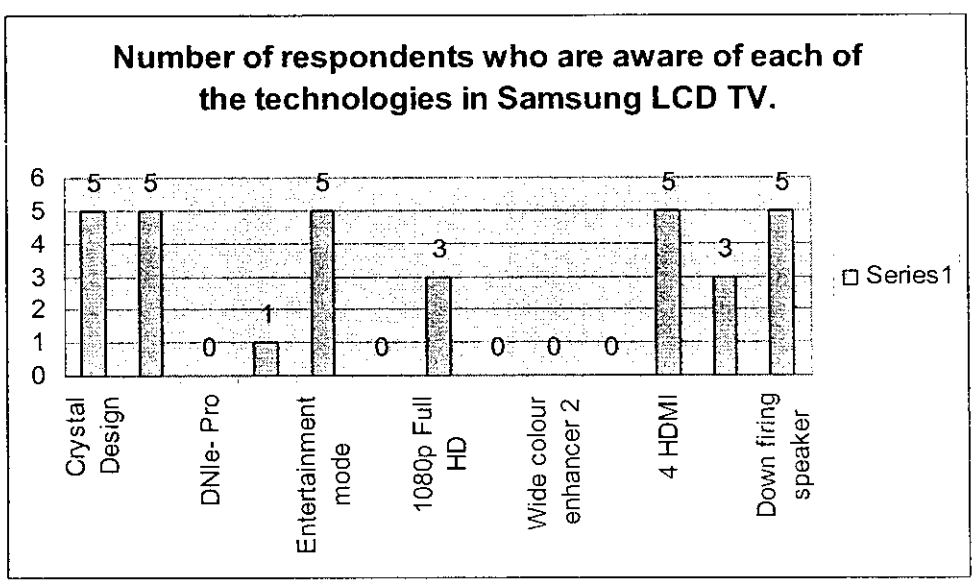
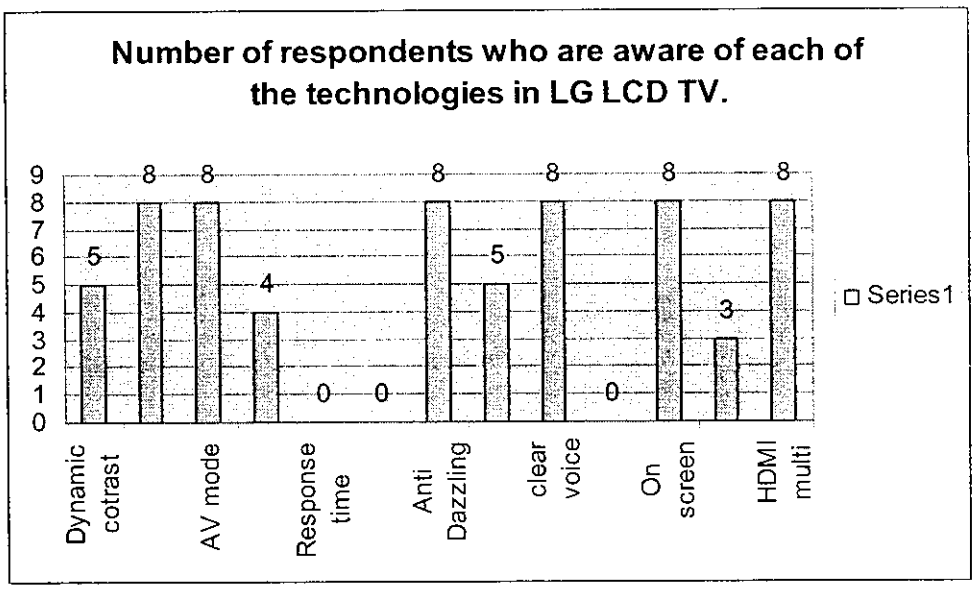


Figure 4.36- Graph on the Number of respondents, who were aware of each of the technologies in the LG LCD TV



4.4 Deliverables – Expected Conclusions

The degree of perception of the technology, in LCD TV's, among the consumers of Coimbatore among the brands of Sony, Samsung and LG is comparatively low.

The depth of the reach of technology in LCD TV's among the consumers of Coimbatore is also low. People pay more attention to the Aesthetics and dimensions, and the brands owned by their friends and relatives. The depth of understanding is not complete and it is very low, in this case study.

Findings, suggestions, recommendations in providing a better reach of technologies in LCD TV segment which has been discussed in the following chapters.

CHAPTER 5 – CONCLUSIONS

5.1 Summary of Findings

Thus it is seen that out of the 3 brands Sony Samsung and LG, and out of 42 respondents, from which the survey was taken out, It is Sony LCD TV, which Many respondents own.

But considering the technical understanding and perception of LCD TV's, then it is seen that, the technological understanding is comparatively good , with consumers of LG LCD TV.

This LG LCD TV, is owned by 8 respondent compared to 29 who own sony and 5 owing Samsung.

Now considering a question ,, about the Source of information that made Respondents to select the above tv(Please refer Table 5.1) ,many respondents, have said that advertisements are the prime source of information's about LCD TV followed by friends and relatives information's. Though people say that they have brought LCD TV, understanding its technology, it is seen that, Most of the Buyers have owned a TV, understanding some technical Information, but mostly they buy on the basis of advertisement and information from friends and relatives.

Thus summarizing, People above 2 lakhs of monthly income only buy LCD TV. When they buy, they give importance to technical features, but , they are more influenced by Advertisements and in formations from Friends and Relatives.

The perception of technology in LCD TV among the brands of Sony, LG and Samsung, among the consumers of Coimbatore is Low and is much influenced by Advertisements and information's from Friends and Relatives.

5.2 Suggestions & Recommendations

LCD TV is owned by less number of people. Even well income group, does not own an LCD TV. Hence a vast time is needed to cover a very large area and nook and corners. So to further study this project, the time span should be extended. Also, instead of coming to a conclusion from the survey carried out from people of

Coimbatore, surveys can be taken from other cities like Bangalore which is more tech savvy to understand the reach of technology in LCD TV among the consumer world.

5.3 Conclusions

To conclude, though LCD TV buyers show interest in technology, the reach is not to the extent.

Still Advertisements and Information's from friends and relatives, look very important, and the technology perception of Sony, Samsung ,and LG LCD TV's among the consumers of Coimbatore is low, and perception of technology of LG LCD TV is quite high among the three, where as Sony shows up a Market lead.

5.4 Directions for Future Research

This research can be extended, in obtaining the market share influenced by technology in these televisions. Also, research on improving technology reach, of LCD TV's to the consumers can be done.

This study can be extended, to other cities and states in India, to have a vast data in hand. Very particularly, tech savvy cities like Bangalore, Chandigarh, Surat and metro cities like Chennai, Delhi, Bombay and Calcutta, should be used to carry out the study. This may give a clear picture of the technology reach of LCD TV to the consumer world.

APPENDIX

Copy of Questionnaire

Questionnaire for assessing Technology perception of LCD TV's among the consumers of Coimbatore

Name:

Sex:

Your Locality in Coimbatore:

Please tick against the choices, you feel to be right

1. The brand of television the respondent's had in the past

   1.Sony 2.LG 3.Samsung 4.others

2. The type of television the respondent's had in the past

   1.CRT 2.LCD 3.PLASMA 4.others

3. The brand of LCD television the respondents have at present

   1.Sony 2.LG 3.Samsung 4.others

4. The main reason for respondents to choose the above brand

   1.Technology 2.Cost 3.Aesthetics 4.others

5. Source of information that made Respondents to select the above tv

   1.Advertisement 2.Friends 3.Relatives 4.Others

6. The brand of lcd TV's that the respondents , friends or relatives have

   1.Sony 2.LG 3.Samsung 4.others

7. The difference the respondents identified from your brand ,to the one that your friends hold lies in

1.Technology	2.Cost	3.Aesthetics	4.others

8. Who in the respondent's home showed more interest in buying your LCD TV?

1.Respondent	2.Respondent spouse	3.Your children	4.others

9. The age of the person, who was the key to buy the LCD TV falls under

1.below 20	2.20 to 30	3.30 to 40	4.more than 40

10. Respondents educational Level falls under

1. UG	2. PG	3.Foreign education	4.others

11. Respondents Annual Income is

1.< than 2 Laks	2. 2 to 5 laks	3. 3.5 to 10 Laks	4. >10 Laks

12. Total number of members in Respondents Family

1.	2.	3.	4.
3	4	5	> 5

13. Please tick the technology features , u are aware of in of your LCD TV brand,

Sony	Samsung	L.G
Bravia Engine 2 Pro	Crystal Design	Dynamic contrast ratio
XMB-TM	Ultra Clear Panel	Intelligent sensor
DLNA	DNIe- Pro	AV mode
RGB Dynamic Led	50000:1 Dynamic contrast ratio	Wide colour control
Full HD 1080	Entertainment mode	Response time (GTG)
Photo TV HD	Energy star	Fresh white
24 P True Cinema	1080p Full HD	Anti Dazzling system
Motion Flow TM Pro	100 Hz motion plus	Surround 3.1 ch
100 Hz technology	Wide colour enhancer 2	clear voice
Bravia Sync	1080 24 P -Real Movie	SRS truss Around xt
PC connectivity	4 HDMI	On screen Equalizer
	Wise link	moving led power indicator
	Down firing speaker	HDMI multi media interface
		Simplink
		USB communication

REFERENCES

1. FICCI - 'CONSUMER DURABLE GOODS SURVEY' - OCTOBER 2005-View Sonic Corporation – journal
2. SESHAIAH, Venkata KRISHNA - ICFAI Business School, ICFAI University in their Journal published by the Euro-American Association of Economic Development.
3. Seema Gupta, Visiting Faculty (Marketing), Indian Institute of Management, Bangalore, abstracts the following in her paper published in Vilakshan, XIMB Journal of Management

Web links used for gathering information's for the study

- http://compareindia.in.com/products/televisions/
- http://economictimes.indiatimes.com/Features/The_Sunday_ET/Companies/Will_the_Indian_plasma_TV_market_survive/rssarticleshow/3371807.cms
- http://infotech.indiatimes.com/articleshow/2555585.cms
- http://timesofindia.indiatimes.com/articleshow/323215483.cms
- http://www.eetindia.co.in/ART_8800544859_1800010_NT_37130528.HTM
- http://www.indiaprwire.com/pressrelease/consumer-electronics/200707263811.htm
- http://www.thehindubusinessline.com/2007/07/20/stories/2007072050700500.htm
- http://www.eetindia.co.in/ART_8800431605_1800010_NT_41ab008f.HTM