



**Computers and New Media Technologies in Indian Households:
Based on a Study of Eight Major Cities in India**

Project NOAH

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A Survey of Computer Households in India: A Summary of the Main Findings

Introduction and Study Design

This is a report on the use of home computers among Indian families and their experiences with new information technologies. We conducted a survey of 1000 computer owning urban families during January - March 2000. We also interviewed 255 non-computer owner families with similar demographics to get some additional and comparative insights. The study was centered on top 8 cities of India (Bombay, Delhi, Calcutta, Chennai, Bangalore, Hyderabad, Pune and Ahmedabad), which account for over 95% of the computers installed in Indian homes.

We designed the sample in such a way to give greater weight to Bombay and Delhi, which together constitute close to 70% of the total installed base of computers in Indian homes.

Primary Respondent - Male

The study used the household member most knowledgeable about computer use in the home as the resource person. The fact that over 82% of the respondents were male shows that computers are still largely a male preserve.

Computer Owner Demographics

Computer owners have considerably a higher income, are better educated. The Chief Wage Earner (CWE) is typically a professional, or middle to senior executive in public or private sector, or a businessperson. The average household size of computer owners is 4.0. Among the respondent households with computers 42% had children living at home 58% did not have children.

About 46% of the computer owners have an Internet connection. Internet owning households are relatively more affluent than households who have a PC but do not have an Internet connection.

Typically, computer owners also own other household appliances - Refrigerator 95%, Mixer/Grinder 93%, Washing Machine 84%, Electric Water Heater 85%, Vacuum Cleaner 54%, Electric Oven 45%, Air Conditioner 35%, Television 95%, Hi Fi Music System with CD 35%. The penetration of different household products and appliances is much lower among computer non-owners.

Computer Households - Respondent Characteristics

Respondent Selection

In each household the respondent for the survey was selected on the basis of who was most knowledgeable about computer use in the household.

Here are some interesting results.

Male Preserve

The fact that over 82% (compared to 18%) of the respondents were male shows that computers are still largely a male preserve in India.

Computers – The Technology of the Youth

50% of the respondents were under 24 and 22% between 25 and 30 years. Clearly, then, computer use-based knowledge is limited to the young and very young.

In terms of marital status, 63% of the respondents are single and 36% are married—yet another statistics that clearly show that this is the technology of the youth.

Expertise

About 27% of the respondents consider themselves as “expert” users, while another 53% say they are quite “knowledgeable” about computers.

Computer Ownership

When Acquired...

Close to 75% of all computer-owning households have bought the computer within the last 2 years. Adoption of computers in the larger cities has been faster than in smaller cities as indicated by the increasing percentage of computers purchased within the last one year.

Desktop versus Laptop

Given the large price differential between desktop and laptop computers, the Indian households still exhibit a higher preference for desktop computers.

Clustering of Computer Households

Three clusters emerged in regard to computer households based on the level of usage and their attitudes towards computers.

Enthusiasts are those who feel strongly that the computer and Internet are well integrated with other activities performed in the home.

Pragmatists are those who have discovered different uses for the computer and could in the future evolve into enthusiasts.

Utilitarian are those who feel that the computer serves some basic functions but has not really affected their 'lifestyle' in any significant manner.

Location of Computers in the Home

Computers in Indian homes are placed either in the adult bedroom or "hall"/living room. The tendency to place the computers in the hall/living room decreases as income levels rise. This can be explained by the fact that the number of rooms in the lower income category households is also likely to be smaller.

The location of the computers in the home varies by ownership of an Internet connection. A large proportion of households without an Internet connection (44%) place the computer in the hall / living room

Location of Other Appliances in the Home

In over 75% of computer non-owning SEC-A households, the television is placed in the "hall" / living room. Only about 17% of these households place the TV in adult or children's bedroom. The location of the telephone(s) within the home is similar to the TV and is confined mainly to the hall/ living room or the adult bedroom.

About 43% of households place the refrigerator in the kitchen, while about 20% place it in the dining area. In Indian homes the washing machine is usually placed in the bathrooms (29%) or the kitchen (11%).

Computer Uses

Prior to purchase of the computer, over 60% of the current owners anticipated using the computer for job related work and family entertainment/games. However during the actual use, family entertainment/ games comes out as the most frequently cited use (86%) compared to 70% households who state also using it for job related work and word processing. Other uses are children's education (53%), writing letters/correspondence (73%). Other major uses are limited to computer families with Internet connection: e-mail (43% of the over all sample but 99% of Internet owners), internet/web surfing (43% of over all sample and 99% of internet owners).

Hours of Use Per Week

According to the self-report data, the household uses the computer on an average 27 hours per week. However more than 50% of the computer households use it for more than 20 hours per week.

Time Spent on Watching Television

There is no significant difference in the TV viewing habits of computer owning households and computer non owning households in terms of the amount of time spent watching TV.

Even though there is no actual difference in the amount of time spent watching between computer owners and non-owners, 44% of the computer owners feel that they watch less TV after the purchase of the computer.

Internet Use

The Internet is most frequently used for sending and receiving e-mail. Gender differences in the usage of Internet exist in the areas of online chatting, which is significantly higher for women (Note: This information provided by the most knowledgeable member, who is in most cases male). Men on the other hand exhibit higher usage for sports information and also to do job related work, sending faxes etc.

Internet Access Outside of Home

Fifty percent of the computers owning households who have no Internet access at home access the Internet outside the home through Cyber café, educational institutions, and work places. Even among the computer non-owning households more than one fourth of the households access the net outside the home.

Levels of Satisfaction With Computers

Nearly 80% of the respondents are satisfied with most aspects of computers except the speed of access on the Internet where the satisfaction level drops to about 65%.

Computer Effects on Children

Computers are believed to have a positive affect on the development of skills such as logical thinking, creativity, reading, general knowledge and mathematical abilities.

Experience With Computers Relative to Other Household Appliances

The computer owners were asked to rank various household appliances in regard to how essential they are for the home. The computer was ranked fourth behind the telephone, refrigerator/ gas stove and TV. In regard to the level of frustration with appliances, very few respondents expressed any frustration in using different types of appliances including the computers.

Futuristic Technologies

Among five futuristic scenarios presented, computer owners expressed the highest interest in communication system, which combines telephone, computer, Internet, and TV This is followed by a computer-based home control system.

Family Socialization

In most computer owning homes, family members socialize in the living room/ hall or in the hall cum dining room. Besides watching the television, which is usually placed in the living room, the other activities over which family members meet and interact are meals.

Even though computer usage is generally perceived to be a personal experience, in Indian homes the computer plays a central role for group activities like watching VCD movies, browsing the Internet, playing games in about 15% of computer owning homes.

Attitude Toward Computers

The commonly held attitudes / belief's among all computer owners with regard to the role of computers at home are:

- ?? Knowledge of computers is essential to keep-up with the changes.
- ?? Computers are not at all difficult to use and contribute time savings at home.
- ?? Computers have become part of the daily routine in the family and are essential as any other appliance at home.
- ?? It is difficult to imagine life without computers at home.
- ?? Although computers are integrated into the home life, they are more useful in the office or the work place than at home. Along the same lines, computers have increased the time spent on job related work at home.
- ?? Computers have increased contact with family and friends but the telephone is still the main communication tool.

- ?? Computers contribute positively in improving children's educational experience and are essential to ensure their future success in the work place.
- ?? Computers are synonymous with a high quality of education.
- ?? All computer owners believe that the Internet keeps them better informed about the world.

Computer Non-Owners

About 42% of the households who do not own a computer currently intend to buy a computer in the near future. Among those intending to buy, about 55% intend make a purchase within the next 6 months.

The main motivation for the households who are planning to buy computers in the near future is job related work (69%), followed by Internet surfing (63%) and e-mail (58%). One of the main differences in likely uses for a computer between current owners and future buyers of computers is in the increasing importance of Internet browsing and e-mail as the main drivers for purchase.

Some of the other important drivers for purchase are children's education and family entertainment.

The main barrier to the purchase of computers for the home is a perceived lack of utility for the computer at home. Close to 50% of the respondents who are not interested in buying a computer say they cannot think of any use for it at home.

Besides the perceived lack of utility, the other barriers to purchase are the cost of acquiring a computer.

1. Background

This study is part of Project Millennihome, a joint effort between Project NOAH based at the Center for Research on Information technology and Organizations (CRITO), University of California, Irvine, and the Marketing Technology Center, (MTC), Stockholm, Sweden. Funding for the study was provided by three major Swedish companies, Ericsson (Lund, Sweden), Electrolux (Stockholm, Sweden), and Vattenfall (Stockholm, Sweden).

The primary aim of the Indian study is to increase our understanding and knowledge of the nature of adoption of computers and information technologies by Indian families and their impact on home life and work life. The study is also designed to investigate how the families use technologies on an everyday basis for social communication and interactions, home management, job related work and information gathering.

The study was conducted in urban India, specifically in 8 major cities (Bombay, Delhi, Calcutta, Chennai, Bangalore, Hyderabad, Pune and Ahmedabad). These cities were selected primarily because they account for over 95% of the computers installed in Indian homes. Accordingly, we conducted a survey of 996 computer owning urban families during January-March 2000. We also interviewed 255 non-computer owner families to get some additional insights. All interviews were done in the homes of the respondents by professionally trained interviewers.

The Indian Market Research Bureau (IMRB) assisted in the design and data collection aspects of the study. The fieldwork was conducted between January 2000 and April 2000.

This is an initial report and more detailed analyses will be available in due course.

This report may be read in conjunction with another report, "A Comparative Study of Uses and Impacts Computers in the Home: USA, Sweden and India," available at Project NOAH website: <http://www.crito.uci.edu/noah>.

2. Scope Of The Study

Some of the key deliverables from the qualitative module of the study are,

Computer Households

- ?? Purchase process for a home computer
 - ?? main reasons for buying the computer
 - ?? type of computer purchased (Mac, IBM Compatible)
 - ?? when was the computer purchased
 - ?? household member most knowledgeable about computers at the time of purchase (key influencer ?)
- ?? Status of computer usage within the household
 - ?? household members who use the computer
 - ?? intensity/extent of usage
 - ?? uses to which the computer is put to
 - ?? primary reasons for using the computer by different household members
- ?? Status of Internet usage
 - ?? household members accessing Internet at home
 - ?? reasons for using the Internet
 - ?? period for which Internet access has been available at home
 - ?? access to Internet in places other than home such as school, office, Internet Kiosk etc.
- ?? Consumer perceptions & attitudes regarding,
 - ?? utility & role of computers at home
 - ?? Internet
 - ?? affect of computers on children's education
- ?? Extent of satisfaction with computers & Internet at home.
- ?? Interest in technologies likely to be available for the home in the future
- ?? Study in detail the pattern of computer usage by various members of the household in terms of,
 - ?? applications performed
 - ?? reasons for using various applications
 - ?? length of time each application has been in use

Note : The detail pattern of computer usage was obtained from a sub-sample of computer owning households by means of a paper diary which was used to collect computer usage information for a period of 2 weeks.

Non-Computer Households

- ?? Level of familiarity with computers
 - ?? ever used a computer at home?
 - ?? experience with the computer, if owned previously
 - ?? reasons for discontinuing the use of computer
 - ?? household members who have access to the computer at places other than home (school, office, Kiosks etc.)
 - ?? What are the reasons for using the computer
 - ?? intensity/ extent of usage
- ?? Level of familiarity with the Internet
 - ?? household members who have accessed the Internet
 - ?? places where the Internet is accessed (school, office, Kiosks etc.)
 - ?? various reasons for using the Internet
- ?? Intention to acquire a computer in the future
 - ?? when likely to acquire
 - ?? likely uses planned for the computer
- ?? Level of interest in futuristic technologies.

3. Methodology

3.1 Components Of The Study

Study Sites:

As stated earlier, the study was conducted in 8 major cities of India (Bombay, Delhi, Calcutta, Chennai, Bangalore, Hyderabad, Pune and Ahmedabad), which accounted for over 95% of the computers installed in Indian homes. Accordingly, we conducted a survey of 996 computer owning families during January-March 2000. We also interviewed 255 non-computer owner families.

3.3 Sampling

3.3.1 Computer Owning Households

Given the low penetration of computers in Indian population (about 0.5% in the entire country and 10% in the major cities) and because of the prohibitive costs associated with random sampling, we employed purposive or judgemental sampling. Geographical representation within each city was achieved by first judgementally identifying all areas with high concentration of the relevant households and then doing equal number of interviews in each such area.

3.3.2 Computer Non-Owning Households

In a similar fashion to the selection of computer owning households, purposive sampling was adopted for this population segment also.

3.4 Sample Size

We designed the sample in such a way to give greater weight to Bombay and Delhi, which together constitute close to 70% of total installed base of computers in Indian homes.

The city level data was weighted according to the proportion of computer owning households in each of these cities for the purpose of reporting the overall figures.

	Computer owning Households		Computer Non-owning Households	
	Planned	Achieved	Planned	Achieved
Bombay	200	202	40	40
Delhi	200	181	30	31
Chennai	125	138	30	30
Bangalore	125	130	30	30
Calcutta	100	100	30	30
Hyderabad	100	96	30	35
Pune	75	74	30	29
Ahmedabad	75	75	30	30
Total	1000	996	250	255

Detailed Findings

4. Computer Owning Households

4.1 Demographic Profile

4.1.2 Occupation of Chief Wage Earner (CWE)

The occupational profile the CWE (defined as the person contributing the maximum to household expenses) in computer owning households indicates they are professionals, or hold middle/senior level executive positions in private or public sector, or business people.

	<i>PC owners</i>	<i>PC non owners</i>	<i>Internet owners</i>
Sample Size	996	255	423
	%	%	%
Officer/Executive-Middle/Senior	39	40	40
<i>Officer/Executive - Junior level</i>	16	24	13
Self employed professionals	9	11	9
<i>Businessmen/Industrialist - Small</i>	17	18	17
<i>Businessmen/Industrialist - Large</i>	12		16
<i>Shop owners</i>	6	6	4
<i>Supervisory level</i>	1	1	1

4.1.2 Education Level of CWE

The education profile of computer owning households when compared to non-owners is more skewed towards graduates and postgraduates.

	PC owners	PC non owners	Internet owners
Sample Size	996	255	423
	%	%	%
Graduate/PG - Professional	42	36	47
Graduate/PG - General	49	52	45
College not graduate	7	11	6
SSC/HSC (10-12 years school)	2	1	1
School (5-9 years)	*	*	1

4.1.3 Demographic Profile -Household Size

The average household size of a computer owning households is 4.4.

	PC owners 996	PC non owners 255
	%	%
1	2	2
2	5	8
3	18	19
4	40	41
5	21	19
6 - 7	11	9
8+	3	2

4.1.4 Families with Children

Among the households with computers, 42% have children (i.e. under the age of 18) living at home and 58% have no children.

<i>Children at Home</i>		
<i>Sample Size</i>	996	255
<i>Households with Children%</i>	42%	
<i>Without Children%</i>	58%	

4.1.5 Monthly Household Income

The income level in computer owning households is much higher than computer non-owning households indicating a strong correlation between income and ownership of computers.

	PC owners 996	PC non owners 255
Sample Size	%	%
Up to Rs.6000	4	12
<i>Rs.6001 – 10000</i>	14	22
<i>Rs.10001 – 15000</i>	18	22
<i>Rs.15001 – 20000</i>	14	14
<i>Above Rs.20000</i>	35	23
<i>Refused / DKCS</i>	15	7

4.1.6 Respondent Characteristics

The respondent for the survey was the household member most knowledgeable about computer use in the household. The fact that over 82% of the respondents were male shows that computers in India are largely a male preserve.

<i>Gender</i>	<i>PC Owners</i>
<i>Sample Size</i>	996
	%
<i>Male</i>	82
<i>Female</i>	18

Among the households with computers, 63% of the respondents were single 36% were married. This compares with 46% and 53% for respondents in non-computer households.

<i>Marital Status</i>	<i>PC Owners</i>	<i>PC Non-Owners</i>
<i>Sample Size</i>	996	255
<i>Single%</i>	63	46
<i>Married%</i>	36	53
<i>Divorced/Widowed%</i>	1	2

In terms of age, 50% of the respondents were under 24 and 22% between 25 and 30 years. Clearly, then, computer use-based knowledge is limited to the young and very young. This is indeed the “technology of the youth.”

	PC Owners	
	Freq.	%
18 and under	84	8.4%
19-24	403	40.5%
25-30	218	21.9%
31-40	164	16.5%
41-50	75	7.5%
51-60	34	3.4%
61 above	18	1.8%

4.1.7 Respondent Familiarity With Computers

Given the short time since computers have entered homes, only 27% of the respondents consider themselves as expert users, while another 53% are quite knowledgeable about computers.

Sample Size	<i>Total</i> 985
	%
<i>Expert</i>	27
<i>Not expert but knowledgeable</i>	53
<i>Can do a few things well</i>	14
<i>Beginner</i>	5
<i>Not specified</i>	1

4.2 Computer Ownership

4.2.1 Age of Computer Owned: By City Type

Close to 75% of all computer-owning households have bought the computer within the last 2 years. Adoption of computers in the larger cities has been faster than in smaller cities as indicated by the increasing percentage of computers purchased within the last year.

<i>Sample Size</i>	<i>Total</i>	<i>Top 2 cities</i>	<i>Next 2 cities</i>	<i>Other 4 cities</i>
	996	383	238	375
	%	%	%	%
Up to 6 months	24	22	21	30
7 - 12 months	23	21	29	22
12 - 24 months	27	29	25	25
24 - 36 months	12	14	11	9
More than 36 months	14	14	14	14

4.2.2

How Many Computers Are in Use at Home?

Almost all families own only one computer. The mean number of computers in use is 1.01.

Number of Computers	Frequency	%
1	989	99.3%
2	5	0.5%
3	0	0.0%
4	1	0.1%
5	1	0.1%

(Mean 1.01 computers in use)

4.2.3 Type of Computers: (Processor & Operating system)

Most of the computers in Indian homes run on the wintel platform.

Processor Type	
<i>Sample Size</i>	996
	%
<i>Apple / Macintosh</i>	2
<i>IBM Compatible</i>	99

Operating System Used

<i>Sample Size</i>	996
	%
<i>Windows</i>	96
<i>DOS</i>	33
<i>UNIX</i>	3
<i>Linux</i>	1

4.2.4 Type of Computers: Desktop Vs. Laptop

Given the large price differential between desktop and laptop computers, the Indian households still exhibit a higher preference for desktop computers.

<i>Unweighted Sample Size</i>	996
	%
<i>Desktop</i>	98
<i>Portable/Laptop</i>	2

4.2.5 Location of Computers: By Monthly Household Income

Computers in Indian homes are placed either in the adult bedroom or “hall”/living room. The tendency to place the computers in the hall/living room decreases as income levels rise. This can be explained by the fact that the number of rooms in the lower income category households is also likely to be smaller

Based on Income Categories (Monthly in Rupees)	<i>Total</i>	<i>Up to 6K</i>	<i>6-10K</i>	<i>10-15K</i>	<i>15-20K</i>	<i>20K+</i>
	996	53	146	172	128	345
	%	%	%	%	%	%
<i>Hall/Living room</i>	38	49	52	48	33	31
<i>Adult bedroom</i>	31	37	20	29	35	36
<i>Children’s bedroom</i>	16	7	7	8	18	17
<i>Home office</i>	8	6	13	8	7	7
<i>Study room</i>	3	1	4	4	3	3
<i>Dining room</i>	2	-	1	1	2	2

4.2.6 Internet Connection

Approximately 42% of the households have Internet connection and almost all of them through telephone modem.

		Freq.	%
Internet Connection	Yes	423	42.5%
	No	573	57.5%
Type of Internet Connection	Telephone Modem	404	95.3%
	Cable Modem	20	4.7%

4.2.7 Location of Computers: By Internet Ownership

The location of the computers in the home varies based on whether the families have an Internet connection or not. While 29% of those with Internet connection place the computers in the family living area, a larger proportion (44%) of the households without an Internet connection (44%) do so.

Another important difference is the location of the computer in the children's bedroom in Internet owning homes (19%) compared to non-owners (13%).

<i>Sample Size</i>	<i>Internet owners</i> 423	<i>Internet non owners</i> 573
	%	%
<i>Hall/Living room</i>	29	44
<i>Adult bedroom</i>	32	30
<i>Children's bedroom</i>	19	13
<i>Home office</i>	10	7
<i>Study room</i>	3	3
<i>Dining room</i>	3	1

4.3 Key Purchase Drivers (anticipated uses for the computer)

4.3.1 Anticipated Vs Current Uses for the Computers

We make a distinction between “Computer Use” and “Internet Use.” Because the Internet is an important feature of the technology and only less than half have an Internet connection, the patterns of computer use among these two sub-samples are likely to vary.

Prior to purchase of the computer, over 60% of the current owners anticipated using the computer for job related work and family entertainment/games. However when it comes to actual use, family entertainment/ games come out as the most frequently cited use (86%) compared to 70% for job related use or word processing.

Sample Size	Anticipated use 996	Current Use 996
	%	%
<i>Job related work</i>	65	73
<i>Family entertainment/games</i>	62	86
<i>Children’s education & entertainment</i>	54	-
<i>Word processing/writing letters</i>	53	72
<i>Internet/Web surfing</i>	48	43
<i>E-mail</i>	43	47
<i>Adult education</i>	38	-
<i>Personal Finance</i>	28	30
<i>Computer learning</i>	4	-
<i>Study / educational purpose</i>	3	44

4.3.2 Top 3 Uses of the Computer by Respondent

About 45% of respondents state that the most frequently conducted activity on the computer is job-related work. Close to one fifth of the respondents also say that school related work is the most frequent use.

Whole sample - 996		Rank 1	Rank 2	Rank 3
<i>Job related work</i>	%	45	13	11
<i>School related work</i>	%	17	24	15
<i>Hobbies, games & entertainment</i>	%	12	22	19
<i>Health information</i>	%	7	16	15
<i>Recipe updating</i>	%	8	10	12
<i>Travel & vacation planning</i>	%	5	6	4
<i>Finance management</i>	%	3	3	2

4.4 Computer Usage

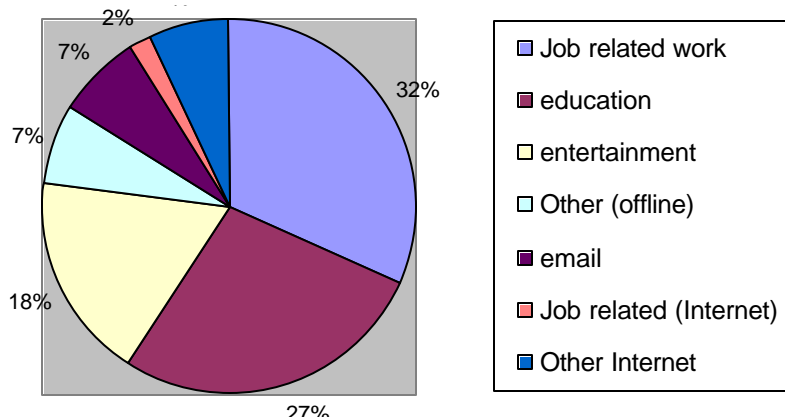
4.4.1 Computer Usage Per Week (Questionnaire)

The computer is use per household on an average is 27 hours per week as reported by the respondent. More than 50% of the computer households use it for more than 20 hours.

<i>Sample Size</i>	996
	%
<i>5 hours or less</i>	6
<i>6 - 10 hours</i>	11
<i>11 - 20 hours</i>	29
<i>21 - 30 hours</i>	21
<i>More than 30 hours</i>	33

4.4.2 Computer Usage Per Week (Diary data)

Based on the diary data a typical computer owning household uses the computer for an average of 10hour 24 minutes per week. The actual usage as recorded in the diary is lower than the usage reported by the respondent by 60%.



Job related work accounts for more than a third of total computer usage time, followed by education (26%) and entertainment (19%). The computer usage for accessing the Internet is around 16% of total usage across both Internet owners and non-owners (1½ hours per week). E-mail, still accounts for over one third of total Internet usage.

4.4.3 Computer Usage: By Number of Users

As the number of users sharing a computer increases, the per person usage comes down even though overall usage of the computer increases slightly.

No. of users per household	Average usage per Household - Hours per week
1 – 2 users	9.25
3 – 4 users	11.15
5 – 6 users	11.35
7+ users	13.50

4.4.4 Average TV Viewing Time of Respondent

There is some notion that computer use displaces TV watching because of the common characteristics of these two media. We found that there is no significant difference in the TV viewing habits of computer owning households and computer non owning households in terms of the amount of time spent watching TV.

	<i>PC owners</i>		<i>PC non owners</i>	
	<i>Sunday/ Holiday</i>	<i>Weekday</i>	<i>Sunday/ Holiday</i>	<i>Weekday</i>
	%	%	%	%
Did not watch	4	3	3	2
<i>Less than half hour</i>	3	6	1	5
<i>½ hour to 1 hour</i>	7	22	4	22
<i>1.1 to 2 hours</i>	22	38	27	38
<i>2.1 to 3 hours</i>	28	19	25	19
<i>3.1 to 5 hours</i>	25	6	25	9
<i>5.1 to 7 hours</i>	6	2	8	3
<i>Above 7 hours</i>	5	3	7	2

4.4.5 Perceived Change in TV Viewing Since Purchase of Computer

Even though there is no difference in the actual amount of time spent watching TV between computer owners and non-owners, about 44% of the computer owners feel that they watch less TV after the purchase of the computer.

	<i>Total</i> 996
	%
<i>More</i>	7
<i>About the same</i>	48
<i>Less</i>	44

4.5 Satisfaction with Computers

The satisfaction levels with computer in general is very high (>90%). Given the higher user to computer ratio in Indian homes, satisfaction with the number of computers in the home is lower.

	<i>Very satisfied</i>	<i>Somewhat satisfied</i>	<i>Neither nor satisfied</i>	<i>Somewhat dissatisfied</i>	<i>Very dissatisfied</i>
<i>Experience with computers in general %</i>	62	29	5	3	1
<i>Computers overall performance %</i>	56	33	7	3	2
<i>No. of computers in the home %</i>	61	16	7	5	11

4.6 Internet Ownership & usage

4.6.1 Internet Owner Profile: Median Household Income

The average monthly household income of computer households with Internet access is over Rs.15,000/-.

<i>Sample Size</i>	423
	%
<i>Up to Rs.6000</i>	4
<i>Rs.6000 to Rs.10000</i>	14
<i>Rs.10000 to Rs.15000</i>	18
<i>Rs.15000 to Rs.20000</i>	14
<i>Above Rs.20000</i>	35
<i>Refused/Don't know</i>	15

4.6.2 Internet Owner Profile: By Type of City

Close to 60% of the households having an Internet access are in the top 2 metros, Bombay and Delhi.

<i>Sample Size</i>	423
	%
<i>Top 2 cities (Bombay & Delhi)</i>	57
<i>Next 2 cities (Chennai & Calcutta)</i>	15
<i>Other 4 cities (Bangalore, Hyderabad, Pune & Ahmedabad)</i>	28

4.6.3 Internet Ownership by Median Household Income

About 46% of PC owners have access to the Internet. However analysis of Internet penetration by household incomes shows a strong correlation between income and access to the Internet at home.

	<i>Total</i>	<i>Up to 6K-13</i>	<i>6-10K 43</i>	<i>10-15K 53</i>	<i>15-20K 42</i>	<i>20K+ 107</i>
	996	53	146	172	128	345
	%	%	%	%	%	%
<i>Have an Internet connection</i>	46	21	33	37	49	57
<i>Don't have Internet</i>	54	79	67	63	51	43

4.6.4 Type of Internet Access

At the time of this study, access to the Internet was mostly through telephone modems primarily because Internet delivery through cable limited to very few sections within each city.

<i>Sample Size</i>	423
	%
<i>Telephone modem</i>	97
<i>Cable modem</i>	3

4.6.5 When Was the Internet First Subscribed To?

About 75% of the homes having access to the Internet have obtained access within the last 4 years. This spurt in the number of connected homes has coincided to a large extent with the abolition of VSNL's monopoly in providing Internet access.

Self employed professionals, senior level executives and large businessmen who constitute the more affluent section of the relevant households have been the early adopters of the Internet. This is partly explained the higher cost of Internet access (which may come down in the future).

	<i>Total</i>	<i>Sr. Exec.</i>	<i>Jr. Exec</i>	<i>Self employed</i>	<i>Shop owner</i>	<i>Businessman small</i>	<i>Businessman large</i>
<i>Sample Size</i>	423	166	58	37	14	80	65
	%	%	%	%	%	%	%
<i>Less than 6 months</i>	47	49	42	43	31	53	43
<i>7 - 12 months</i>	28	23	38	21	48	35	27
<i>13 - 18 months</i>	9	11	10	12	9	3	7
<i>19 - 24 months</i>	10	10	9	14	12	5	14
<i>24 - 36 months</i>	5	7	1	9	-	2	7
<i>More than 36 months</i>	1	-	-	1	-	2	2

4.6.6 When Was the Internet First Subscribed To? (by Median Household Income)

The recent decrease in access charges and increased competition have resulted in a large proportion of relatively less affluent households getting access to the Internet in the last 6 months.

<i>Income Level</i>	<i>Total</i>	<i>Up to 6K</i>	<i>6-10K</i>	<i>10-15K</i>	<i>15-20K</i>	<i>20K+</i>
<i>Sample Size</i>	423	11	42	64	60	180
	%	%	%	%	%	%
<i>Up to 6 months</i>	47	62	54	42	48	43
<i>7 - 12 months</i>	28	31	22	30	33	28
<i>13 - 18 months</i>	9	7	12	14	5	9
<i>19 - 24 months</i>	10	-	8	10	4	13
<i>25 - 36 months</i>	5	-	3	4	9	6
<i>More than 36 months</i>	1	-	1	-	1	1

4.6.7 Usage of Internet Among Owners

The Internet is most frequently used for sending and receiving e-mail communications. Gender differences in the usage of Internet exist in areas such as online chatting, which is significantly higher for women (This information was provided by the most knowledgeable member, who is in most cases the male). Men on the other hand exhibit higher usage for sports information and also to do job related work, sending faxes etc.

	<i>Overall %</i>	<i>Male %</i>	<i>Female %</i>
<i>E-mail to friends</i>	83	83	83
<i>Reading news information</i>	62	62	65
<i>Work / job related e-mail</i>	60	61	52
<i>Chat groups</i>	49	48	55
<i>Getting sports information</i>	48	51	35
<i>Sending faxes</i>	40	42	34
<i>Community information</i>	26	26	23
<i>Shopping for daily purchase items like food</i>	6	5	9
<i>Shopping for products like cars, appliances, computers etc.</i>	3	3	2
<i>Shopping for other products like books, CD's etc.</i>	10	11	7
<i>Online banking</i>	9	11	3

4.6.8 Access to Internet Outside Home

Fifty percent of the computers owning households who have no Internet access at home access the Internet outside the home through Cyber café, educational institutions, offices etc. Even among the computer non-owning SEC A households more than one fourth of the households access the net outside the home.

	<i>Overall %</i>	<i>Internet owners %</i>	<i>Internet non owners %</i>	<i>PC non owners %</i>
<i>Access Internet outside home</i>	48	45	50	27
<i>Don't access the Internet outside the home</i>	49	50	48	73
<i>DK/CS</i>	3	5	2	-

4.6.9 Change In Usage of Internet Among Households Having Connection for More Than 6 Months

Households with Internet access for than 6 months indicate an increase in usage of the Internet.

<i>Sample Size</i>	231
	%
<i>More often</i>	69
<i>About the same</i>	25
<i>Less often</i>	5

4.7 Satisfaction With the Internet

Compared to the levels of satisfaction with computers in general, satisfaction specifically with the Internet is slightly lower especially due to problems relating to the speed of access to the Internet.

Base: Internet Owners	<i>Very satisfied</i>	<i>Somewh at satisfied</i>	<i>Neither nor satisfied</i>	<i>Somewhat dissatisfied</i>	<i>Very dissatisf ied</i>
Ease of getting on the Internet from home - %	48	31	13	6	3
Speed of access to the Internet from home %	31	33	19	9	7

4.8 Effect of Computers On Children’s Education

Computers are believed to have a positive affect on the development of skills in children like logical thinking, creativity, reading, general knowledge and mathematical abilities.

	<i>Reading</i>	<i>Writing</i>	<i>Math</i>	<i>Logical Thinking</i>	<i>Creativity</i>	<i>General Knowledge</i>
	%	%	%	%	%	%
<i>Very negative</i>	1	1	1	-	-	-
<i>Somewhat negative</i>	4	4	2	1	1	-
<i>No effect</i>	18	20	19	15	13	13
<i>Somewhat positive</i>	7	4	6	8	8	6
<i>Very positive</i>	5	4	4	7	11	12
<i>No opinion</i>	66	67	68	69	68	69

4.9 New Technologies and Futuristic technologies

We make a distinction between “New” technologies and “Futuristic” technologies. New technologies are new to the contemporary scene but are available in consumer markets. We include stereo system and VCR in the new technologies although they have been available for a longer period. This was done for comparison purposes. Futuristic technologies are those

experimental technologies that are not yet available but will be introduced within the next 2 or 3 years. In neither category did we include visionary technologies that are very much part of science fiction or close to it.

4.9.1 New Technologies

In the case of “new” technologies we wanted to know if our respondents owned them. We compared their ownership patterns to those of computer non-owners. In general, computer more computer owner households also own the new technologies thus demonstrating the high correlation between computer ownership and ownership of other technologies. Roughly 40% of the non-owner and 33% of the non-owners own VCRs. Similarly, 52% of the owners and 32% of the non-owners own stereo system. Te ownership of cell-phones is respectively 25% and 14%. When we look at the latest technologies, the ownership levels drop dramatically with a high of 12% (owners) for pagers and 3% for digital cameras (owners). They are even lower for non-owners.

	PC Owners		PC Non-Owners	
	Freq.	%	Freq.	%
Electronic organizer or Handheld Computer	94	9.4%	15	5.9%
Fax or telex machine (separate from PC)	90	9.0%	2	0.8%
Pager	119	11.9%	12	4.7%
Voice Mail/Voice Message Service/Answering Machine	86	8.6%	5	2.0%
DVD, DIVX, Laser disk player	126	12.7%	15	5.9%
Stereo System/CD Player	514	51.6%	82	32.2%
Cellular Phone or PCS	250	25.1%	36	14.1%
Video Camera	99	9.9%	7	2.7%
VCR	394	39.6%	83	32.5%
Digital Camera	34	3.4%	2	0.8%

4.9.2 Futuristic Technologies

In terms of the futuristic technologies, our interest was not so much in actual ownership as much as in the level of interest.

PC Owners: Among the futuristic scenarios presented, the communication system, which combines telephone, computer, Internet and TV has received the highest level of interest followed by the computer based home control system among computer owners.

<i>PC Owners (N=996)</i>		<i>Very much interested</i>	<i>Somewhat interested</i>	<i>Not at all interested</i>
<i>Refrigerator with computer screen & linked to Internet</i>	%	30	35	31
<i>Audio/video system linked to units in each room</i>	%	38	34	26
<i>A communication system which combines telephone, computer, Internet access & TV</i>	%	58	27	12
<i>A home computer control system that manages lighting, security & other appliances</i>	%	48	31	17
<i>A local area network to connect multiple computers, printers</i>	%	33	31	30

PC Non-Owners: The level of interest among computer non-owners in the futuristic technologies is slightly lower than that seen among the owners. But within the different scenarios presented the preferences of non-owners is similar to computer owners.

<i>PC Non-Owners (N=255)</i>		<i>Very much interested</i>	<i>Somewhat interested</i>	<i>Not at all interested</i>
<i>Refrigerator with computer screen & linked to Internet</i>	%	25	37	33
<i>Audio/video system linked to units in each room</i>	%	28	35	32
<i>A communication system which combines telephone, computer, Internet access & TV</i>	%	46	32	19
<i>A home computer control system that manages lighting, security & other appliances</i>	%	37	36	22
<i>A local area network to connect multiple computers, printers</i>	%	26	35	29

4.10 Household Product & Appliance ownership

Internet owning households are relatively more affluent than households who have a PC but not an Internet connection as can be seen from the penetration of various household appliances in these homes. The penetration of different household products and appliances is even lower among computer non-owners.

<i>Sample Size</i>	<i>PC Owners</i> 996	<i>Internet owners</i> 423	<i>PC Non owners</i> 255
	%	%	%
<i>Refrigerator</i>	95	98	91
<i>Mixer Grinder</i>	89	93	83
<i>Washing machine</i>	77	84	55
<i>Camera</i>	77	83	78
<i>Geyser</i>	69	83	42
<i>Vacuum Cleaner</i>	44	54	25
<i>Water purifier</i>	43	56	27
<i>Electric Oven</i>	35	45	21
<i>Air cooler</i>	35	41	30
<i>Air conditioners</i>	34	50	13
Microwave	22	31	11
Entertainment Electronics Products Owned			
Television	95	94	93
Hi-Fi Music System with CD	35	44	19
Hi-Fi Music System without CD	24	26	20
Radio	63	69	54
Audio tape recorder	52	57	40
VCR/VCP	41	50	34
VCD/DVD/Laser Disk	13	20	6
Video Camera/Camcorder	11	19	3
Communication Products			
Telephone	94	99	86
Cellular phone	28	42	16
Any phone (landline or mobile)	94	99	86
Pager	11	16	5
Any phone + pager	95	99	87
Fax machine	11	18	1
Answering machine	10	17	1
Other Products			
Electronics Organizer	10	15	8
Computer printer	44	54	-
Digital Camera	4	6	1

4.10.1 Experience With Home Appliances as Compared to PC Experience

The computer owners were asked to rank various household appliances in regard to how essential they are for the home. The computer was ranked fourth behind the telephone, refrigerator/ gas stove and TV.

<i>Base : All PC owning Households</i>	<i>Absolutely essential</i>	<i>Somewhat essential</i>	<i>Not at all essential</i>	<i>DK/CS</i>
<i>Telephone</i> %	95	4	-	1
<i>Refrigerator & gas stove</i> %	85	13	2	1
<i>Television</i> %	73	23	4	-
<i>Computers</i> %	69	30	1	-
<i>Car/two wheeler</i> %	67	24	7	2
<i>Washing machine</i> %	50	35	11	4
<i>Stereo System</i> %	29	54	16	1
<i>Microwave Oven</i> %	12	38	38	12
<i>VCR</i> %	8	33	52	7

4.10.2 Ranking of Appliances - PC Non-owners

In computer non-owning households the computer ranked the sixth position in terms of the most essential appliances.

<i>Base : All PC owning Households</i>	<i>Absolutely essential</i>	<i>Somewhat essential</i>	<i>Not at all essential</i>	<i>DK/CS</i>
<i>Telephone</i> %	97	3	-	-
<i>Refrigerator & gas stove</i> %	90	9	1	-
<i>Television</i> %	91	9	-	-
<i>Car/two wheeler</i> %	60	26	10	4
<i>Washing machine</i> %	54	31	12	3
<i>Computers</i> %	45	40	15	-
<i>Stereo System</i> %	42	40	17	1
<i>Microwave Oven</i> %	14	36	42	8
<i>VCR</i> %	15	37	42	6

4.10.3 Frustration Experienced In Using Various Appliances

In regard to the level of frustration with appliances, very few respondents expressed any frustration in using different types of appliances including the computers.

<i>Base : All PC owning Households</i>		<i>Top 2 Box (Never feel frustrated)</i>	<i>Last 2 Box (Always)</i>	<i>Mean score</i>
<i>Refrigerator & gas stove</i>	%	79	4	9.0
<i>Washing machine</i>	%	55	3	8.7
<i>Automobile</i>	%	52	2	8.6
<i>Television</i>	%	70	4	8.6
<i>Computers</i>	%	67	4	8.5
<i>Telephone</i>	%	66	6	8.1
<i>Microwave Oven*</i>	%	19	1	8.1
<i>VCR</i>	%	26	2	7.7
<i>Stereo System</i>	%	57	2	7.5

*Microwave ownership is extremely low even higher income households.

PC non-owners: In comparison to computer owners, non-owners admit to higher level of frustration in using various household products and appliances.

		<i>Never feel frustrated</i>	<i>Always</i>	<i>Mean score</i>
<i>Stereo System</i>	%	53	12	7.7
<i>Telephone</i>	%	63	13	7.9
<i>Microwave Oven</i>	%	36	16	7.3
<i>Automobile</i>	%	56	9	7.9
<i>VCR</i>	%	40	10	7.0
<i>Television</i>	%	66	12	8.1
<i>Washing machine</i>	%	60	10	7.9
<i>Refrigerator & gas stove</i>	%	79	11	8.5

4.10.4 Location of Various Products in the Home: Computer Owners

In over 80% of computer owning households, the television is placed in the “hall” / living room. Only about 23% of these households place the TV in private spaces like adult or children’s bedroom. The location of the telephone(s) within the home is similar to the TV and is confined mainly to the hall/ living room or the adult bedroom.

About 57% of the households place the refrigerator in the kitchen, while about 20% place it in the dining room. In Indian homes the washing machine is usually placed in the bathrooms (42%) or the kitchen (18%).

<i>N=996</i>	<i>TV</i>	<i>Telephone</i>	<i>Refrigerator</i>	<i>Washing machine</i>	<i>AC</i>
<i>Hall/Living room</i>	81%	77%	13%	3%	22%
<i>Adult bedroom</i>	18	31	3	2	37
<i>Children’s bedroom</i>	5	11	2	1	16
<i>Dining room</i>	5	7	20	2	5
<i>Home office</i>	-	4	-	1	3
<i>Kitchen</i>	-	2	57	18	-
<i>Bathroom</i>	-	-	-	42	-
<i>Passage/corridor</i>	-	-	-	4	-
<i>Balcony</i>	-	-	-	2	-

4.10.5 Location of Various Products In the Home: Computer Non-owners

In over 75% of computer non-owning households, the television is located in the hall / living room. Only about 17% of these households place the TV in adult or children's bedroom. The location of the telephone(s) within the home is similar to the TV and is confined mainly to the hall/ living room or the adult bedroom.

About 43% of households place the refrigerator in the kitchen, while about 20% place it in the dining area. In Indian homes the washing machine is usually located in the bathrooms (29%) or the kitchen (11%).

<i>N=996</i>	<i>TV</i>	<i>Telephone</i>	<i>Refrigerator</i>	<i>Washing machine</i>	<i>AC</i>
<i>Hall/Living room</i>	76%	61%	19%	4%	8%
<i>Adult bedroom</i>	17	19	2	2	19
<i>Children's bedroom</i>	4	3	1	1	8
<i>Dining room</i>	8	8	27	4	*
<i>Home office</i>	-	2	-	-	2
<i>Kitchen</i>	-	-	43	11	-
<i>Bathroom</i>	-	-	-	29	-
<i>Passage/corridor</i>	-	-	-	-	-
<i>Balcony</i>	-	-	-	-	-

4.10.6 Social Interaction Space in the Home

In most computer owning homes, family members socialize in the living room/ hall or in the hall cum dining room. Besides watching the television, which is usually found in the living room, family members also interact during meals.

Even though the computer usage is generally considered to be a personal experience, in Indian homes the computer plays a central role for group activities like watching VCD movies, browsing the Internet, playing games in about 15% of computer owning homes.

<i>Sample Size</i>	<i>PC owners 996</i>	<i>PC non owners 255</i>
	%	%
<i>Living room/Hall</i>	68	78
<i>Hall cum dining room</i>	20	-
<i>Dining room</i>	34	48
<i>Bedroom</i>	17	29
<i>Study/drawing room</i>	1	-
<i>Others</i>	1	-

Social activities engaged in.

	<i>Overall %</i>	<i>Dining 347 %</i>	<i>Living 671 %</i>	<i>Hall + Dining 193 %</i>	<i>Bed room 94 %</i>
<i>Watching TV</i>	68	56	77	68	65
<i>Dining/eating</i>	57	90	52	77	64
<i>Discussions/talking</i>	50	43	55	50	55
<i>Computers/Internet/G ames/VCD</i>	14	14	16	13	27
<i>Reading</i>	7	7	8	9	9
<i>Listening to music</i>	5	3	7	5	2
<i>Studying/writing</i>	2	2	3	2	3

4.11 Computer Non-owner Households

4.11.1 Likelihood of Buying a Computer for the Home

About 42% of the households who do not own a computer currently intend to buy a computer in the near future. Among those intending to buy, about 55% intend make a purchase within the next 6 months.

<i>Computer Non-Owners</i>	255
<i>Yes %</i>	42
<i>No %</i>	58

When likely to buy

N=107	%
<i>Within 3 months</i>	26
<i>4 – 6 months</i>	29
<i>7-12 months</i>	39
<i>Not mentioned</i>	6

4.11.2 Anticipated Uses For the Computer – Non-Owners

(Note: Some of the Non-Owner data is already included above in some earlier sections while comparing with owner data.)

The main motivation for the households who are planning to buy computers in the near future is job related work (69%), followed by Internet surfing (63%) and e-mail (58%). One of the main differences in likely uses for a computer between current owners and future buyers of computers is in the increasing importance of Internet browsing and e-mail as the main drivers for purchase.

Some of the other important drivers for purchase are children's education and family entertainment.

	<i>Anticipated uses</i>	
	255 %	996 %
<i>Job related work</i>	69	65
<i>Internet or web surfing</i>	63	48
<i>E-mail</i>	58	43
<i>Children's education & entertainment</i>	56	54
<i>Family entertainment</i>	55	62
<i>Adult education</i>	44	38
<i>Personal finance management</i>	41	28
<i>Others</i>	10	-

4.11.3 Reasons for Lack of Interest in Buying a Computer For the Home

The main barrier to the purchase of computers for the home is the perceived lack of utility for the computer at home. Close to 50% of the respondents who are not interested in buying a computer say they can't think of any use for it at home.

Besides the perceived lack of utility, the other barriers to purchase are the cost of acquiring a computer.

	999 %
<i>Can't think of any use for it at home</i>	47
<i>Too expensive</i>	39
<i>Haven't really thought about it</i>	21
<i>Don't know how to use it</i>	16
<i>Already use a PC at work</i>	15
<i>Waiting for newer model</i>	12
<i>Afraid of technology</i>	7
<i>Don't need / not necessary</i>	3

5.0 Attitudes and Perceptions Toward Computers
6.0 Cluster Analysis

5.1 Attitudes and Perception Toward Computers

In order to understand the attitudes of respondents towards computers, a set of 27 statements were administered using a 5 point Agree - Disagree scale. The statements were designed to capture the respondent's attitudes towards computers on various issues including the centrality of computers in performing various tasks at home, their impact on daily life, their affect / influence on children, and other utilitarian features of the computers.

First, we wanted to find out how computers fit into the lives of our respondents. The respondents were very positive in regard to the integration of computers into their daily lives. A large majority feel that computers save time at home, and have become part of their daily routine. About half of them feel that it is difficult to imagine life without computers. However, only a minority of respondents believed that households were run more efficiently because of computers. Overall, computers are seen as changing the lives of the families.

Computers are also viewed as essential as any other household appliance. Very few people feel that computers are difficult to use. Computers have become so much a part of the daily life and are considered vital to family's daily activities that a majority feel that those who are not knowledgeable about computers are falling behind. Nearly half the respondents believe that computers are a symbol of social status (as opposed to, for example, TV).

Although only one-third of the respondents feel that computers have replaced the telephone as the main communication tool at home, a large majority believe that computers have increased their contact with family and friends.

Computers are not viewed as disruptive by our respondents in that they do not take people away from family interaction. Roughly equal proportion (40%) of our respondents feel that they watch less TV as those who do not believe so. Thus the impact of computers on TV watching is not certain.

In spite of these positive views towards computers as being essential to home life, a majority felt that computers would be more useful in the office than at home. Along the same lines, a large majority feel that the job related work at home has increased.

Finally, among the families with Internet, the Internet is seen as an important information source whether it is for general information or product or purchase related information.

	% Agree	% Disagree	% Neutral
1. Integration of Computers Into The Home Life			
<i>Saves Time at Home</i>	77	10	13
<i>Has become Part of Daily Routine</i>	70	13	17
<i>Households Run More Efficiently</i>	31	43	26
<i>Difficult to Imagine Life without computers</i>	48	28	14
2. Impact on Family Life			
<i>Takes Away Family Interaction</i>	31	47	22
<i>Watch Less TV</i>	37	40	13
<i>Changed family Life</i>	64	15	21
3. Work/Employment Tool			
<i>More Useful in the Office</i>	58	23	19
<i>Increased Job Related Work at Home</i>	57	21	12
4. Technology Fit – Usefulness/Utilitarian			
<i>Essential as any appliance</i>	65	17	18
<i>Difficult to Use</i>	13	76	11
<i>Gives Status</i>	46	35	19
<i>Not knowledgeable are Falling Behind</i>	74	14	12
5. Communication Tool			
<i>More contact with Family and Friends</i>	52	28	20
<i>Replaced telephone as Major Comm. Tool</i>	36	44	20
INTERNET			
6. Helpful to Find product Information	84	7	9
<i>Usually Look for Specific Information</i>	80	6	14
<i>Too difficult to find Information on the Internet</i>	31	56	13
<i>Keeps Me Informed</i>	90	3	7

6.0 Cluster Analysis

Using the attitude statements, the respondents were clustered using K- Means Cluster Analysis. Cluster Analysis is a multivariate technique which slots each individual into various “like minded” groups. This was done to understand whether consumers could be segmented in terms of attitudes towards computers.

The cluster analyses indicated that consumers can indeed be differentiated on the basis of their attitudes and that there existed 3 broad attitudinal segments. Of the various cluster solutions that emerged, the 3-cluster solution was found to be most distinct and logical.

6.1 Shared Attitudes Towards Computer Among Owners

The commonly held attitudes / belief’s among all computer owners with regard to role of computers at home are,

- ?? Knowledge of computers is essential to keep-up with the changes.
- ?? Computers are not at all difficult to use and contribute time-savings at home.
- ?? Computers contribute positively in improving children’s educational experience and are essential to ensure their future success in the work place.
- ?? Computers are synonymous with a high quality of education.
- ?? All computer owners believe that the Internet keeps them better informed about the world.

6.2 Attitudinal Clusters

The three clusters which emerge can be taken as different points of the same continuum, which can be defined as the level of integration / acceptance of information technology in the home.

Enthusiasts are those who strongly feel that the computer and Internet are well integrated with the activities carried out in the home.

Pragmatists are those who have discovered different uses of the computer and could in the future evolve into enthusiasts.

Utilitarian are those who feel that the computer serves basic functions like improving the educational experience of children but has not really changed their ‘lifestyle’ in an appreciable way.

6.3.1 Enthusiasts

The level to which computers have been integrated with various activities carried out in the home can differentiate the computer owning homes in this cluster.

- ?? Computer has become part of daily routine, and is considered as essential as any other household appliance.

- ?? Computers have changed the way things are done in these homes.
- ?? Computer has become the major communication device, thus increasing the amount of contact with friends & relatives.
- ?? Computers have lead to lower levels of interaction among family members and also reduced the amount of time spent watching TV.
- ?? The presence of the computer and the Internet has caused the home to become a remote office location as indicated by the increase in job-related work carried out at home.
- ?? The increasing use of the Internet has also bought with it worries about what children are accessing on the Internet.

The homes in this cluster are significantly higher users of the computers and Internet

6.3.2 Pragmatists

The computer owning homes in this cluster can be considered as those who have discovered different uses of the computer but are yet to make the transition to a more complete integration of computers into their daily lives. According to them:

- ?? Computers have changed the way things are done in their homes but have yet to become a part of their daily routine.
- ?? Computers have increased the amount of job-related work carried out at home.
- ?? Increasing use of computers is starting to affect the level of interaction between family members at home.

6.3.2 Utilitarians

Among the utilitarians, computers are identified with their core functionalities such as:

- ?? Computer as a time saving tool.
- ?? Computers improve children's educational experience.