Chapter Three

RESEARCH METHODOLOGY
CHAPTER-THREE

RESEARCH METHODOLOGY

In general sense the word research refers to a search of knowledge. Research is an art of investigation in a scientific way. The basic types of research are:

1. Descriptive/Analytical Research
2. Applied/Fundamental Research
3. Quantitative/Qualitative Research
4. Conceptual/Empirical Research
5. One-Time/ Longitudinal Research
6. Clinical/Diagnostic Research

A diagrammatic representation of different types of research is presented in Figure 3.1.

![Figure # 3.1: Different Types Of Research](image-url)
Research methodology is a way to resolve a particular problem. In research methodology different steps are involved as mentioned in Figure 3.2.

**Figure # 3.2: Steps of Research**

Present research is basically based on consumers purchasing pattern for different household durable consumer product of different consumers of Raipur City.
RESEARCH DESIGN

Research design opted in this research is formal design. In such type of research design facilitates us to be efficient and yielding maximal data information. Research design is descriptive in nature. Preference of household durable consumers is analyzed.

SAMPLE DESIGN

Primary and secondary data were used to study different aspects of objective.

(1) Primary Data Collection

Primary data was collected from 300 respondents from organized and unorganized durable goods shops and outlets of Raipur City.

Organized Outlets: Following organized outlets were chosen:

1. Lotus
2. Big Bazaar
3. Easy Day
4. Best Price
5. Vishal Mega Mart

Unorganized outlets-Local shops of durable household products were chosen for the purpose. These shops are situated in different places of Raipur City.
LOTUS

There are two LOTUS ELECTRONIC STORES in Raipur:

A – Jail Road, Raipur

B – Shop no 16, ground floor, city mall 36, Raipur

BIG BAZAAR

Big Bazaar is the largest hypermarket chain in India. The concept of Wednesday Bazaar was promoted as ‘Hafte Ka Sabse Sasta Din’ (Cheapest Day of the Week). Initiated in January 2007, the idea behind this scheme was to draw customers to stores on Wednesdays, the day when consumer presence is usually less.
According to the chain, the aim of the concept was ‘to give home makers the power to save the most. Big Bazaar introduced ‘Sabse Sasta Din’ (Cheapest Day) with the intention of attaining a sales figure of Rs 26 crore in a single day. The concept became such a hit that the time period for the offer had to be increased from one day to three days in 2009 (January 24 to 26) and to five days in 2011 (January 22 to 26).

A – City mall 36, Raipur
B – City centre, Pandri, Raipur

EASY DAY
Easyday is an Indian retail brand that runs chains of consumer retail department stores. The brand is wholly owned by Bharti Enterprises Limited and is operated by its subsidiary, Bharti Retail Limited, which is headquartered in New Delhi. The technical and management support for the brand is provided by Arkansas, United States based Wal-Mart Stores, Inc, which is the largest retailer in the world. Bharti Enterprises announced its foray into retail in February 2007 and the first store was opened in Punjab, India in April 2008. Easyday presently has 220 stores across 13 states. In Raipur, Easy day is situated at the upper basement in Magneto mall G E Road.

A – Easy day, Magneto mall, upper basement, Raipur, C.G.

BEST PRICE
Bharti Enterprises tied-up with Walmart for opening a chain of retail stores all over India. The two companies, in August 2007, made a surprise statement that they have signed a wholesale cash-and-carry deal. The first Best Price Modern Wholesale opened in Amritsar in May 2009.

A – Ring road no. 2, Birgaon, Raipur (C.G.)

VISHAL MEGA MART
Vishal Mega Mart like its name is a big retail store consisting of various durable goods. It is situated in Raipur i.e. Guru Ghasidas Plaza, G.E. Road, Amapara, Raipur, C.G. (A)

In Raipur city all the five types of organized shops were chosen thus the 100% organized shops were selected as per as organized household durable outlets were concern. Out of 100 unorganized household durable product shops, 20 shops were deliberately selected to collect primary data.

Sample design of the research is schematically presented in Figure 3.3
Primary data relating to study purchasing pattern of durable consumer goods including the major factors affecting their purchasing decision, their brand preferences and preferences towards organized and unorganized outlets of durable goods were randomly collected.

Primary data were collected by using a structured, pre-tested questionnaire. 300 respondent household families were selected for this purpose.
(2) Secondary Data Collection

To analyze market and industry analysis secondary data were collected from different sources i.e., Business Line Statistics, Brand line, Economic Times, Business Standard, FICCI reports, Integrated marketing communications, retail Biz. etc. Some important websites were also used to collect secondary data.

(3) Sample Plan

Sample plan used in this research is depicted in 3.4.

Figure # 3.4: Sample Plan in The Study

Target Population

→ Households of Raipur

→ Sampling Units

→ Household & Individuals who purchase durable goods

→ Organized Retail

→ Unorganized Retail

→ Sampling Method

→ Convenience Sampling + Step Out Sampling

→ Size of Sample

→ N = 300
ANALYSIS OF DATA

Primary and secondary data were analyzed by using following statistical tools:

1. Chi-square Test ($\chi^2$): Chi-square Test was used to test the hypothesis framed for the study. Following formula was used to calculate $\chi^2$ value:

   $$ \chi^2 = \Sigma \frac{(f_0 - f_e)^2}{f_e} $$

   Where
   - $\chi^2$ = Chi-square
   - $\Sigma$ = Summation Symbol
   - $f_0$ = Observed Frequency
   - $f_e$ = Expected frequency in a given cell

   Expected frequency ($f_e$) was calculated by using the following formula:

   $$ f_e = \frac{RT \times CT}{N} $$

   where
   - $f_e$ = Expected frequency in a given cell
   - $RT$ = Row total for the row containing that particular cell
   - $CT$ = Column total for the row containing that particular cell
   - $N$ = total numbers of observations

2. Degree of Freedom: Degree of freedom for calculated $\chi^2$ value was also calculated by using formula:

   $$ Df = (r - 1)(c-1) $$

   Where
   - $Df$ = Degree of Freedom
   - $r$ = No. of rows
   - $c$ = No. of columns
i. Acceptance and rejection of null hypothesis acceptance and/or rejection of a hypothesis was done by using the following methods:

(A) Acceptance of $H_0$
\[ \chi^2_t > \chi^2_{cal} \]

(B) Rejection of null hypothesis
\[ \chi^2_t < \chi^2_{cal} \]
$H_0$ is rejected

ii. **Mean:** Sample arithmetic Mean was used in different places to analyze the fact. The formula use for the purpose was
\[ \bar{X} = \frac{\sum m}{N} \]

where
\[ \bar{X} = \text{Arithmetic mean} \]
\[ m = \text{Size of Item} \]
\[ N = \text{Total Frequency} \]
\[ \Sigma = \text{Summation Mark} \]

iii. **Weighted Mean:** Weighted mean is similar to an arithmetic mean where instead of each of the data point equally contributing to final average.
\[ WM = \frac{\sum XW}{\Sigma X} \]

where
\[ WM = \text{Weighted Mean} \]
\[ X = \text{Value} \]
\[ W = \text{Weight} \]
\[ \Sigma = \text{Summation Mark} \]
iv. **Other Techniques:** percentage, graphical tools, and other relevant techniques were also used in the analysis.

v. **C.A.G.R. (Compound Annual Growth Rates):** Compound annual growth rates (CAGR) were also computed when analyzing secondary data relating to consumer durable product growth for a given period of time. The formula used was as follows:

\[ \text{CAGR} = (b-1) \times 100 \]

Where \( b \) = beta variable

Beta variable (b) was calculated by using exponential regression model which was as follows:

\[ Y = ab^x \]
\[ Y = \text{Dependent Variable} \]
\[ X = \text{Time Period (Annual)} \]
\[ b = \text{Beta Variable For That Product} \]
\[ A = \text{Intercept Value} \]

vi. **Test of Significant:** Students ‘t’ test was used to test the validity of CAGR value. The formula used for that purpose was as follows:

\[ 't_c' = \frac{b}{\text{S.E.}} \]

Where \( t \) = Calculated value of ‘t’
\( b \) = beta coefficient of variable
\( \text{S.E.} \) = Standard error of the estimate