



Rai Technology University

ENGINEERING MINDS

International Marketing Research



Subject: INTERNATIONAL MARKETING RESEARCH

Credits: 4

SYLLABUS

Marketing Research

Need, nature and scope; complexities of international marketing research; marketing information system (MIS); Organization of international marketing research.

Marketing Research Process

Problem identification; Selection of research design: major issues; emic dilemma.

Secondary and Primary Data

Secondary data sources and uses; online data sources and research; Primary data collection: methods and instruments, Attitude measurement; Sampling plan.

Multivariate Country Data Analysis

Issues and process; Univariate and multivariate data analysis techniques, Research Report Preparation and Presentation; Product research; Advertising research; Ethical issues involved in international marketing research.

Suggested Reading:

1. Marketing Research by Ramanuj Majumdar
2. Marketing Research by Mishra
3. Marketing Research by MV Kulkarni
4. Marketing Research by DM Sarawte
5. Research for Marketing Decisions by Paul Green, Donald Tull
6. Marketing Research by Rajendra Nargundkar (Tata McGraw)
7. Business research Methods by Donald R.Cooper
8. Market research by G.C.Beri

COURSE OVERVIEW

“Survival of the fittest”, everybody knows this wonderful quotation given by Darwin. Which is applicable in all walks of life so in business environment too. Gone are the days when consumer had to buy only those products that are available in the market, as we know that after 1991 Indian economy was opened to other countries and number of companies entered in to the Indian market because of its larger market size. As the number of companies increased competition increased and all the companies tries to impress the consumer by offering unique product at affordable price. Now the million dollar question is that how to impress the King of the market (consumer)? So they come out with a separate and specialized branch of marketing viz. marketing research, which is responsible for doing all the research activities related to product usage, market share of the company, market share of its product, if there is fall in market share this department perform the research work to know the reason, they do research work to know the taste and preference of the consumers and work with R&D department to design a unique product. As we know that FMCG companies generally change their advertisement and packaging of the product very frequently, soft drink major Coca-Cola and Pepsi changes their advertisement after every six months. Why? Because they continuously work with their consumer and choose a slogan which suits to their life style. This course pack written with a view to make student able to understand the basic concepts of marketing research, its various design, data analysis processes, sources of data ,presentation and Report writing. After being through with this course pack, the students should be able to demonstrate requisite expertise in:

Basics of Marketing Research.

Planning and conducting Research Project.

Data Processing, analysis and Reporting.

Issues and Application of Marketing Research.

INTERNATIONAL MARKETING RESEARCH

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LESSON 1:

INTRODUCTION : DEFINITION, BASIC AND APPLIED RESEARCH, LIMITATION OF MARKETING RESEARCH.

Introduction to the Chapter

Dear students today we will be starting our course on marketing research. Till now you have to come to know about the various aspect of marketing now we will go through the research aspect of marketing. In this subject we will come to know about marketing research, why companies go for marketing research, how do they use the data collected in research, what are the different method of collection of data and different applications of marketing research. Today we will touch the introductory part of it where we will define the marketing research, understand its characteristics, different types of marketing research and it's limitations and applications.

Objective of the Lecture

- **Definition of marketing.**
- **Basic and Applied research.**
- **Application and limitation of marketing research.**

Introduction

Use of marketing research has grown continuously over the past fifty years, since managers painfully learned the cost of market ignorance. The modern managers must have knowledge of its method and how to use it profitably. This chapter introduces you to some definitions, presents an overview of the research process, and offers a glimpse of the profession.

Before defining marketing research let us determine research.

- Research always starts with a question or a problem.
- Its purpose is to find answers to question through the application of the scientific method.
- It is a systematic and intensive study directed towards a more complete knowledge of the subject studied.

Definition

Now let's define our main subject that is marketing research.

The systematic gathering, recording, and analyzing of data about problems relating to the marketing of goods and services (Acc. to American Marketing Association).

Marketing research is the function which links the customer, customer and public to the marketer through information-information used to identify and define marketing opportunities and problems; generate, refine and evaluate marketing actions; monitor marketing performance; and improve understanding of market as a process.

Marketing research specifies the information required to address these issues; designs the method for collecting information; manages and implements the data collection process; analyses the results; and communicates the findings and their implications.

Research in common context refers to a search for knowledge. It can also be defined as a *scientific and systematic search* for gaining information and knowledge on a specific topic or phenomena.

Management research is extensively used in various areas.

For example, We all know that, Marketing is the process of Planning & Executing the concepts, pricing, promotion & distribution of ideas, goods, and services to create exchange that satisfy individual & organizational objectives. Thus, we can say that, the **Marketing Concept** requires **Customer Satisfaction** rather than **Profit Maximization** to be the goal of an organization. The organization should be **Consumer oriented** and should try to understand consumer's requirements & satisfy them quickly and efficiently, in ways that are beneficial to both the consumer & the organization.

This means that any organization should try to obtain information on consumer needs and gather market intelligence to help satisfy these needs efficiently. This can only be done only by research.

"Research comprises of defining and redefining problems, formulating hypothesis or suggested solutions; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis".

On evaluating these definitions we can conclude that-

Research refers to the systematic method consisting of

- Enunciating the problem,
- Formulating a hypothesis,
- Collecting the fact or data,
- Analyzing the facts and
- Reaching certain conclusions either in the form of solutions towards the concerned problem or in certain generals for some theoretical formulation.

Information used to identify and define marketing opportunities and problems;

- Generate,
- Refine, and evaluate marketing actions;
- Monitor marketing performance; and
- Improve understanding of marketing as a process.

In the nut-shell we see that Marketing research specifies

- The information required to address these issues,
- Designs the method for collecting information,
- Manages and implements the data collection process,
- Analyses,
- Communicates the findings and their implications

Research is a systematic approach to gather information required for sound management decisions.

Characteristics of Research

- a. **Systematic Approach:** Each step must of your investigation be so planned that it leads to the next step. Planning and organization are part of this approach. A planned and organized research saves your time and money.
- b. **Objectivity:** It implies that True Research should attempt to find an unbiased answer to the decision-making problem.
- c. **Reproducible:** A reproducible research procedure is one, which an equally competent researcher could duplicate, and from it deduces approximately the same results. Precise information regarding samples – methods, collection etc., should be specified.
- d. **Relevancy:** It furnishes three important tasks:
 - It avoids collection of irrelevant information and saves time and money
 - It compares the information to be collected with researcher's criteria for action
 - It enables to see whether the research is proceeding in the right direction
- e. **Control:** Research is not only affected by the factors, which one is investigating but some other extraneous factors also. It is impossible to control all the factors. All the factors that we think may affect the study have to be controlled and accounted for.

Research Can Be Classified Into Two Broad Categories

1. Basic research.
2. Applied research.
1. **Basic research:** Basic research sometimes called fundamental research, theoretical research or pure research. It aims at expanding the frontiers of knowledge and does not directly involve pragmatic problems. The essence of basic research is that it addresses itself to more fundamental question and not to the problems with immediate commercial potential.
2. **Applied research:** also called decisional research on the other hand, proceeds with a certain problem and it specifies alternative solutions and the possible outcomes of each alternative. Unlike basic research, it is prompted by commercial considerations.

Applied research can be divided into two categories:-

- (a) Problem solving research and (b) Problem-oriented research.
- a. **Problem solving research:** Problem solving research, as the name implies, is concerned with a particular issue or a problem and is usually proprietary in character. The latter characteristics indicates that such a research is undertaken within a firm or by an outside consultant on its behalf.
- b. **Problem oriented research:** Problem oriented research is concerned with a class of issues or problems in which several firms may be interested. Research of this type usually concerned with conceptual aspects but is oriented towards applied problem.

Typical Application of Marketing Research

Application of marketing research can be divided into two broad areas:

1. Strategic
2. Tactical

Among the strategic areas, marketing research applications would be demand forecasting, sales forecasting, segmentation studies, identification of target markets for a given product, and positioning strategies identification.

In tactical application, we would have applications such as product testing, pricing research, advertising research, promotional research, distribution and logistics related research. In other words, it would be include research related to all the P's of marketing: how much to price the product, how to distribute it, whether to package it in one way or another, what time to offer a service, consumer satisfaction with respect to the different element of the marketing mix (product, price, promotion, distribution), and so on. In general, we would find more tactical application than strategic applications because these areas can be fine-tuned more easily based on the marketing research findings. Obviously, strategic changes are likely to be fewer than tactical changes. Therefore, the need for information would be in proportion to the frequency of changes

The following list is a snapshot of the kind of studies that have actually been done in India.

1. A study of consumer buying habits for detergents-frequency, pack size, effect of promotion, brand loyalty and so forth.
2. To find out the potential demand for ready-to-eat chapattis in Mumbai City.
3. To determine which of the three proposed ingredients-tulsi, coconut oil or neem, the consumer would like to have in toilet soap.
4. To find the effectiveness of the advertising campaign for a car brand.
5. To determine brand awareness and brand loyalty for a branded PC.
6. To find the customer satisfaction level among consumers in choosing a brand cellular phone handset.

As the list shows, marketing research tackles a wide variety of subjects. The list is only indicative, and the applications of marketing research in reality can be useful for almost any major decision related to marketing.

Some Other Application of Marketing Research

Concept Research

During a new product launch, there would be several stages-for example, concept development, concept testing, prototype development and testing, test marketing in a designated city or region, estimation of total market size based on the test marketing, and a national rollout or withdrawal of the product based on the results.

The first stage is the development of a concept and its testing. The concept for a new product may come from several sources-

the idea may be from a brain-storming session consisting of company employees, a focus group conducted among consumers, so the brainwave of a top executive. Whatever may be its source; it is generally researched further through what is termed as concept testing.

A concept test takes the form of developing a description of the product, its benefits, how to use it, and so on, in about a paragraph, and then asking potential consumers to rate how much they like the concept, how much they would be willing to pay for the product if introduced, and similar questions.

Product Research

Apart from product concept, research helps to identify which alternative packaging is most preferred, or what drives a consumer to buy a brand or product category itself, and specifics of satisfaction or dissatisfaction with elements of a product. These days, service elements are as important product features, because competition is bringing most products par with each other.

An example of product research would be to find out the reactions of consumers to manual cameras versus automatic cameras. In addition to specific likes or dislikes for each product category, brand preference within the category could form a part of the research. The objective may be to find out what type of camera to launch and how strong the brand salience for the sponsor's brand is.

The scope of product research is immense, and includes products or brands at various stages of the product life cycle—introduction, growth, maturity and decline. One particularly interesting category of research is into the subject of brand positioning. The most commonly used technique for brand-positioning studies (though not the only one) is called Multidimensional Scaling.

Pricing Research

Pricing is an important part of the marketing plan. In the late nineties in India, some interesting changes have been tried by marketers of various goods and services. Newer varieties of discounting practices including buy-backs, exchange offers, and straight discounts have been offered by many consumer durable manufacturers. Most FMCG manufacturers/ marketers of toothpaste, toothbrush, toilet soap, and talcum powder have offered a variety of price-offs or premium-based offers which affect the effective consumer price of a product.

Price research can delve into questions such as appropriate pricing levels from the customers' point of view, or the dealer's point of view. It could try to find out how the current price of a product is perceived, whether it is a barrier for purchase, how a brand is perceived with respect to its price and relative to other brands' prices (price positioning). An interesting area of research into pricing has been determining price elasticity at various price points for a given brand through experiments or simulations.

Distribution Research

Most marketing research focuses on consumers or buyers. Sometimes this extends to potential buyers or those who were buyers but have switched to other brands. But right now there is a renewed interest in the entire area of logistics, supply chain and customer service at dealer locations. There is also increasing standardization from the point of view of brand building, in

displays at the retail level, promotions done at the distribution of products including service levels provided by current channels, Frequency of salespeople visits to distribution points, routing/ transport related issues for deliveries to and from distribution points throughout the channel, testing of new channels, channel displays, linkages between displays and sales performance.

Advertising Research

The two major categories of research in advertising are:

1. Copy
2. Media

Copy Testing

It includes research into all aspects of advertising—brand awareness, brand recall, copy recall (at various time periods such as say after recall, week after recall), recall of different parts of the advertisement such as the headline for print ads, slogan for TV ads, the star in an endorsement and so on. Other applications include testing alternative ad copies (copy is the name given to text or words used in the advertisement, and the person in the advertising agency responsible for writing the words is known as the copy writer) for a single ad, alternative layouts (a layout is the way all the elements of the advertisement are laid out in a print advertisement) with the same copy, testing of concepts or storyboards (a storyboard is a scene-by-scene drawing of a TV commercial which is like a rough version before the ad is actually shot on film) of TV commercials to test for positive /negative reactions, and many others.

A particular class of advertising research is known as Tracking Studies. When an advertising campaign is running, periodic sample surveys known as tracking studies can be conducted to evaluate the effect of the campaign over a long period of time such as six months or one year, or even longer. This may allow marketers to alter the advertising theme, content, media selection or even longer. This may allow marketers to alter the advertising theme, content, media selection or frequency of airing /releasing advertisement and evaluate the effects. As opposed to a snapshot provided by a one-time survey, tracking studies may provide a continuous or near continuous mechanism. But here, one should be careful in assessing the impact of the advertising on sales, because other factors could change along with time.

Media Research

The major category under this category is research into viewership of specific television programmes on various TV channels. There are specialized agencies like A.C. Nielsen worldwide which offer viewership data on a syndicated basis (i.e., to anyone who wants to buy the data). In India, both ORG-MARG and IMRB offer this service. Research could also focus on print media and their readership. Here again, readership surveys such as the National Readership Survey (NRS) and Indian Readership survey (IRS) provided syndicated readership data.

Media research can also focus on demographic details of people reached by each medium, and also attempt to correlate consumption habits of these groups with their media preference. Advertising research is used at all stages of advertising, from conception to release of ads, and thereafter to measure advertising effectiveness based on various parameters,

Limitation of Marketing Research

Now let's have a look on the limitation of marketing research. You would be surprised that how a helping hand has limitations. As marketing research can be extremely rewarding to a firm, it is wise to know that it is subject to certain limitations. One must be aware of these limitations in advance so that one is clear about what marketing research can and cannot do.

- Marketing research tends to be fragmentary in its approach as a result of which it becomes difficult to have an overall perspective in which a marketing problem is to be viewed and studied.
- Marketing research is criticized on the ground that it becomes too superficial and faculty in industry. While the principles of marketing research are good and based on scientific lines, in industry, marketing research is very often used by those who have had no formal training in the subject. Such person avoid using detailed investigations and sophisticated techniques which require both time and patience on the part of marketing researchers.
- There is an absence of a meaningful dialogue between the marketing management and the marketing research team. As a result, marketing researchers get divorced form the main stream of marketing. This denies them any opportunity to test their finding in the practical marketing situation.
- Marketing research is not an exact science. There are several imponderables which come in the way of getting accurate results. For example, consumer behaviour is an area which is rather elusive and the theory does not go very far in disclosing it very precisely. Analytical tools of marketing research are still deficient and cannot give us a precise idea, especially on the behavioural aspects.

Let's Recapitulate The Chapter

Marketing Research

The function that brings the consumer, customer and public to the market through information - information used to identify and define marketing objectives and problems; generate, refine and evaluate marketing actions; monitor marketing performance; and improve understanding of the marketing process.

American Marketing Association, 1987



• Research can be classified into two broad categories :

- 1 Basic research .
- 2 Applied research.

• Application of marketing research:

1. Strategic.
2. Tactical.

• Limitation of Marketing research:

1. Too superficial
2. Fragmentary in its approach.
3. Marketing research is not an exact science.

CHAPTER 1

Role of Marketing Research

Marketing Research at Marriott Corporation

3. Results

- Bring along a laptop computer (58%)
- Games on their computer (70% of those with laptop)
- Travel with a teddy bear or other type of stuffed animal (7%)
- Bring photos of their families or pets
- Many travelers like to have time to relax
- Want "more than a friendly face"

Learning Objectives

1. To review the marketing concept and the marketing mix.
2. To comprehend the marketing environment within which managers must make decisions.
3. To define marketing research.
4. To understand the importance of marketing research in shaping marketing decisions.

Marketing Research at Marriott Corporation

4. Strategies

THE NATURE OF MARKETING

Marketing:

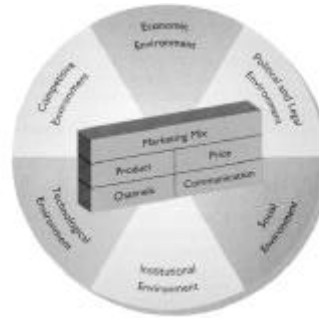
The process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges.

Figure 1.1 The Task of Marketing Management



THE EXTERNAL MARKETING ENVIRONMENT

Figure 1.2 The Environments affecting Marketing



THE NATURE OF MARKETING

Identifying Target Markets and Researching the Marketing Mix:

A marketing mix:

The unique blend of product/service, pricing, promotion, and distribution strategies designed to reach a specific target market.

THE EXTERNAL MARKETING ENVIRONMENT

Altering the marketing mix because of changes:

- New consumers
- New businesses
- Different tastes, needs, incomes, lifestyles, purchasing habits

MARKETING RESEARCH: Definition

- Marketing research is the firm's formal communication link with the environment.

MARKETING RESEARCH: Type(1)

- (1) Planning: determining marketing opportunities (size, scope and resources)
- (2) Problem solving: focusing on the marketing mix
- (3) Control-oriented: keeping existing customers and isolating trouble spots

MARKETING RESEARCH: Definition

Marketing research is the function which links the consumer, customer, and public to the market through information-information used to identify and define marketing opportunities and problem; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve our understanding of marketing as a process

LESSON 2:

MARKETING RESEARCH MANAGEMENT: IMPORTANCE, ROLE OF RESEARCH IN IMPORTANT AREAS, QUALITIES OF MARKETING RESEARCH MANAGER, ORGANIZING MARKETING RESEARCH FUNCTION, OPTING FOR OUTSOURCING RESEARCH SERVICE

Introduction

Till now we have understood the basics of marketing research now in this lecture we will study about marketing research management, its importance, qualities of marketing research manager and organizing function.

Objective of the Lecture

- Understand the importance and role of research function.
- Role of Research in different areas.
- Qualities of Research Manager.
- Organizing marketing research function.
- Considerations for hiring outside research agency.

Marketing Research Management

With the increasing use of marketing research these days, it is being realized that it is a complex task and has to be properly managed if optimum results are to be obtained. Accordingly, the management of marketing research, which forms the subject matter of this chapter, has assumed considerable importance nowadays.

Would you tell me what is research management?

Blankenship and Doyle provide a very lucid answer to this question:

Research management concentrates on direction and administration of the processes, projects, personnel, finances and agencies engaged in research. Its duties include seeing that the research design is right for the task and that the study is carried out properly. It sees to it that the presentation of results to management is handled properly and that all these activities are administered within a controlled budget. It means that proper research organisation has to be set up to handle individual projects and task.

It will be seen that research management includes host of interrelated activities. Thus, the types of research projects to be undertaken, the selection, the selection of research personnel, financing of research manager has to be concerned. He has to ensure that a suitable research design is developed and that the study is carried out on the right lines, according to predetermined schedule and within the budget allocated for the purpose. As these activities are interrelated, if any one of them is not conducted properly, it will have an adverse impact on the other. For example, if a research project is not conducted according to the time schedule laid down earlier, it will increase the cost and make it impossible to complete the project within the allocated fund.

Importance of Research Management

As we know that marketing concept is useful in attaining the objective of integrated marketing, research management is relevant for making marketing research really useful. By superior

management is relevant for making marketing research technique can be pulled together and coordinated so that marketing research can be made really effective.

The marketing manager who understands only techniques. Each must understand how to put together all the efforts falling within his sphere of responsibility.

From improved marketing research management, a firm can enjoy two major advantages. These are:

1. Marketing research will be more helpful to marketing management in decision-making, and
2. Marketing research will be more economically and more effectively.

The role of research has greatly increased in the field of business and economy as a whole. The study of research methods provides you with the knowledge and skills you need to solve the problems and meet the challenges of today's modern pace of development. Three factors stimulate the interest in a scientific research to decision making.

- i. The manager's increased need for more and better information.
- ii. The availability of improved techniques and tools to meet this need.
- iii. The resulting information overload

The usefulness and contribution of research in assisting marketing decisions is so crucial that it has given rise to the opening of a new field altogether called 'marketing research'. Market research is basically the systematic gathering, recording and analyzing of the facts about business problems with a view to investigate the structure and development of a market for the purpose of formulating efficient policies for purchasing, production and sales. Research with regard to demand and market factors has great utility in business. Market analysis has become an integral tool of business policy. Once sales forecasting is done, the Master Production Schedule (MPS) and Material Requirement Planning (MRP) can be efficiently done within the limits of the projected capacity based on the MPS Budgetary control can be made more efficient, thus replacing subjective business decisions with more logical and scientific decisions.

Modern industry with its large-scale operations tends to create a gulf between the customer and the manufacturer. Particularly when business is too big and operations are too far-flung, one cannot depend upon casual contacts and personal impressions. Research methodology has been developed as the tool by which business executives keep in touch with their customers. If an entrepreneur has to make sound decisions, he must know who has customers are and what they want. To a certain extent he relies on his salesmen and his dealers to supply him with market information but in recent years, more and more firms/

executives have turned to research methodology as a medium of communication between the customer and the company.

Marketing research is the link between the manufacturer and the consumer and the means of providing consumer-orientation in all aspects of the marketing function. It is the instrument of obtaining the knowledge about the market and consumer through objective methods, which guard against the manufacturer's subjective bias.

Many Researchers define marketing research as gathering, recording and analyzing of all facts about problems relating to the transfer and sale of goods and services from producer to consumer.

Research methodology is an essential prerequisite for consumer-oriented marketing. It is necessary for developing the marketing strategy where in factors under the control of the organization, viz., product distribution system, advertising, promotion and price can be utilized so as to obtain maximum results in the context of the factors outside the control of the organization viz., economic environment, competitor and laws of land.

I hope you have the clear picture of the functions of the manager in an organization and the role of research in decision-making.

On the basis of the functions we can state some of the general objectives of Managerial Research:

- Decision-making objectives
 - Economic and business objectives
 - Policy objectives
 - Product development
 - Profit objectives
 - Human Resource Development objectives
 - Market objectives:
1. Innovation objectives
 2. Customer satisfaction objectives
- Promotional objectives
 - Corporate change objectives

Role of Research in Important Areas

Through research, an executive can quickly get a synopsis of the current scenario, which improves his information base for making sound decisions affecting future operations of the enterprise. The following are the major areas in which research plays a key role in making effective decisions.

Marketing

Marketing research is undertaken to assist the marketing function. Marketing research stimulates the flow of marketing data from the consumer and his environment to marketing information system of the enterprise. Market research involves the process of

- Systematic collection
- Compilation
- Analysis
- Interpretation of relevant data for marketing decisions

This information goes to the executive in the form of data. On the basis of this data the executive develop plans and programmers.

Advertising research, packaging research, performance evaluation research, sales analysis, distribution channel, etc., may also be considered in management research.

Research tools are applied effectively for studies involving:

1. Demand forecasting
2. Consumer buying behaviour.
3. Measuring advertising effectiveness
4. Media selection for advertising
5. Test marketing
6. Product positioning
7. Product potential

Marketing Research

1. Product Research: Assessment of suitability of goods with respect to design and price.
2. Market Characteristics Research (Qualitative): Who uses the product? Relationship between buyer and user, buying motive, how a product is used, analysis of consumption rates, units in which product is purchased, customs and habits affecting the use of a product, consumer attitudes, shopping habits of consumers, brand loyalty, research of special consumer groups, survey of local markets, basic economic analysis of the consumer market, etc.
3. Size of Market (Quantitative): Market potential, total sales quota, territorial sales quota, quota for individuals, concentration of sales and advertising efforts; appraisal of efficiency, etc.
4. Competitive position and Trends Research
5. Sales Research: Analysis of sales records.
6. Distribution Research: Channels of distribution, distribution costs.
7. Advertising and Promotion Research: Testing and evaluating, advertising and promotion
8. New product launching and Product Positioning.

Production

Research helps you in an enterprise to decide in the field of production on:

- What to produce
- How much to produce
- When to produce
- For whom to produce

Some of the areas you can apply research are

- Product development
- Cost reduction
- Work simplification
- Profitability improvement
- Inventory control

Materials

The materials department uses research to frame suitable policies regarding:

- Where to buy

- How much to buy
- When to buy
- At what prices to buy.

Human Resource Development

You must be aware that the Human Resource

Development department uses research to study wage rates, incentive schemes, cost of living, employee turnover rates, employment trends, and performance appraisal. It also uses research effectively for its most important activity namely manpower planning.

Solving Various Operational and Planning Problems of Business and Industry

Various types of researches, e.g., market research, operations research and motivational research, when combined together, help in solving various complex problems of business and industry in a number of ways. These techniques help in replacing intuitive business decisions by more logical and scientific decisions.

Government and Economic System

Research helps a decision maker in a number of ways, e.g., it can help in examining the consequences of each alternative and help in bringing out the effect on economic conditions. Various examples can be quoted such as problems of big and small industries due to various factors – up gradation of technology and its impact on labour and supervisory deployment, effect of government's liberal policy, WTO and its new guidances, ISO 9000/14000 standards and their impact on our exports allocation of national resources on national priority basis, etc.

Research lays the foundation for all Government Policies in our economic system:

We all are aware of the fact that research is applied for bringing out union finance budget and railway budget every year. Government also uses research for economic planning and optimum utilization of resources for the development of the country. For systematic collection of information on the economic and social structure of the country you need Research. Such types of information indicate what is happening to the national economy and what changes are taking place.

Social Relationships

Research in social sciences is concerned with both – knowledge for self and knowledge for helping in solving immediate problems of human relations. It is a sort of formal training, which helps an individual in a better way, e.g.

- It helps professionals to earn their livelihood. It helps students to know how to write and report various findings.
- It helps philosophers and thinkers in their new thoughts and ideas.
- It helps in developing new styles for creative work.
- It may help researchers, in general, to generalize new theories.

Qualities of a Marketing Research Manager:

Now we will discuss the qualities of a marketing research manager, because he is the person, who is responsible for the

success of marketing research management. A research manager must have some special qualities if he is to do justice to his assignment. To begin with,

- He must be innovative and always be prepared to look at any problem from a fresh perspective.
- He must be confident of his skill and knowledge and prepared not only to accept new ideas but also to try them out.
- He should be well-informed and up-to-date in his own area of specialization. In addition, he should be familiar with recent developments in particular industries, especially the problems faced by them in the marketing of their products.
- He should also be familiar with the recent trends in research technique and should be prepared to absorb the latest knowledge as much as possible.

Without such an outlook, a research manager will not be able to inspire his team and offer the leadership that is expected of him. Finally, he should have considerable selling skill so that he can convince the management regarding the accuracy and soundness of the recommendation emerging from his research.

One of the most crucial decisions to be taken by management is whether marketing research should be undertaken and if so, what place is to be assigned to this function. This is an administrative decision which calls for a clear perspective on the part of top management. Even when a decision is taken in favor of the marketing function, a related issue is what budget allocations are to be made to carry out marketing research efficiently. Also, the organization of marketing research activity has to be considered so that management get the maximum benefit from it.

Organizing Marketing Research Function

First of all, the question arises as to how the marketing research function is to be organized within a firm. It should be noted that the organizational structure for this function will differ according to the type of agency which is handling it. Organizational structure for marketing research function differs according to the type of agency, which is handling it. Thus, a marketing research organization in a manufacturing firm will be different from that in a research or a consultancy firm, as the requirements an emphasis on research will be different. A major difference between a manufacturing firm and a research firm is that whereas in the former, research being one of the several activities is a means to an end, in the latter, research is the only activity and is an end in itself. A research firm has to ensure that research work leads to profit, whereas a manufacturing firm need not be concerned with consideration.

Another point of difference between the two organizations is the degree of emphasis on the practical utility of marketing research. A manufacturing firm would normally place greater emphasis on the marketing research findings in the day-to-day marketing of its products. However, this is not the case of marketing research firm as it is not engaged in marketing of any product.

There are several options for an organization while making the decision for the structure of marketing research function. For example, there could be a marketing research department or cell with a skeleton staff if the marketing research function is not considered very important. Alternatively, the firm may have a

well developed department comprising a number of specialists as also the other supporting staff. The specific organization will depend on the requirement of each firm. A firm which has decided to introduce a marketing research function has to decide which of the three options, should be selected:

1. To set up a formalized marketing research department consisting of some full-time specialists whose main responsibility would be to carry out marketing research studies and report the findings to the management,
2. To assign the marketing research responsibility to one or more line or staff executives on a part-time basis, who would have to undertake it in addition to the major responsibility in other sphere, and
3. To assign the responsibility of undertaking marketing research responsibility to one or more line or staff executives on a part-time basis, who would have to undertake it in addition to the major responsibility of undertaking marketing research to an outside individual or an organisation.

In some firms, where a separate marketing information system exists, the marketing research function may form a part of such a system. In such cases, marketing research acts as one of the inputs to the marketing information system.

If the firm has decided to have separate marketing research department, then sufficient freedom should be given to the latter to carry out its tasks. Another aspect that is relevant is whether a large firm should have a centralized marketing research department or whether alternatively each division or operating unit should have its own. The main advantage of the centralized marketing research department is all there will be more effective coordination of marketing research with marketing management. Also, effective control and supervision of research can be ensured. On the other hand, if marketing research is undertaken by each division or operating unit, it will enable researcher to be more knowledgeable about divisional markets and their problems. In addition, such an approach will offer great autonomy to division and operating units in their research activity which will ultimately be beneficial to the firm.

So we can conclude that marketing research plan should be written out in sufficient detail. Before it is finalized, it should be circulated amongst the concerned officials in the company. It should fit into the marketing plan of the company, as it is an important input in it. Although it should be followed and implemented as far as possible, there should be an element of flexibility in it so that certain changes, if found necessary, can be made.

Buying Marketing Research

Many a time, companies do not set up marketing research departments, as they do not have adequate amount of research consultant as and when they feel the need for research. Especially in a country like India, the number of companies having their own marketing research departments is extremely limited. many 'buy' marketing research from outside. Such companies should know how to select a marketing research agency before sponsoring a research study.

Choice of Research Agency

Why hire marketing research?

- If a firm does not have persons well-versed in research techniques, it has no choice but to hire the services of a marketing research agency.
- When a firm has a separate marketing research department or cell, it may find at a particular point of time that it is fully engaged on certain other studies and, as such, it cannot take up an additional problem, for detailed investigation. In that case too, it has to assign the study to an outside marketing research agency.
- The firm may find that an outside agency may complete the study faster, at a lower cost as well as with the utmost objectivity. As such it may decide to assign its study to an outside agency

Now the next question to be considered is that how does the firm go about choosing an outside marketing research agency. In developed countries, there are a large number of such agencies which either undertake complete ad hoc research projects or perform one or more specialized services such as drawing a proper sample of respondents, interviewing respondents, or processing data. In all those cases where it is necessary to hire outside agencies, the marketing researcher must be able to evaluate such specialized services.

Now we will discuss the criteria to evaluate specialized agencies

Considerations for hiring Outside Agencies

There are several dimensions which need to be kept in view while selecting an outside agency for conducting Marketing Research. These considerations may be enumerated as below:

1. Technical Expertise

The marketing researcher should know who is to undertake the study and what is his proficiency in marketing research. The client firm may find that a research agency is good at basic studies but is not competent enough to undertake complex studies. Some research agencies are poorly staffed and as such they should be avoided.

2. Objectivity

The question of objectivity is very important. Outside agencies should be reputable for their objective approach in research projects.

3. Confidentiality

The client firm must ensure that the research agency maintains strict confidentiality regarding the project.

4. Economic Factors

A client firm may invite research proposals from more than one agency. In such a case, it would choose the most economical agency. However, client firms should not overlook the fact that some agencies are very economical, but at the same time their quality is also poor. Quality should not be compromised.

5. Timely submission of reports

The client firm should enquire about the reputation of the research agency especially in relation to its timely submission of reports. Sometimes, outside agencies are quick in taking up assignments from clients but are not so prompt in carrying out the task.

6. Experience of The Supplier

The client firm should ascertain the standing of the agency. While general experience is very important, relevant and specific research experience is what should be looked for.

7. Reputation of the agency

It is necessary to ensure that the agency has a good reputation. This consideration is important for lending credibility to the research findings. This is of special importance particularly when the client firm intends to use the study for creating an impact.

Since no single agency is likely to be strong on all these considerations, it is necessary that the client firm adopt a reasonable approach in this regard. It should ascertain which of the above criteria are crucial for its research project and then to select an agency.

Advantages of Research Proposals

There are some advantages of getting a research proposal from an outside consulting firm. First, there is fresh thinking on the marketing problem referred to by the company. This is because the outsider's approach is not subject to any constraints, which may be applicable within company. Second, it enables the company to evaluate the research capability of the consulting firm and its reliability. Third, a research proposal is always desirable as it offers some sort of commitment from the consultant to the company. In its absence, there may arise some misunderstanding and differences between the two parties regarding the specifications, time or price. Finally, the research proposal, once approved by the company, becomes a contract, binding both the parties. The company can then turn to other problems, since it is sure that the research will be taken care of by the consulting firm.

Contents of the Research Proposal

At this stage, it may be worthwhile to know the contents of a research proposal. While the style and format will differ from one consulting firm to another, the research proposal should invariably deal with some important aspects of research. To begin with, a research proposal should give some background of the problem, indicating the manner in which it is to be investigated. Then, a clear statement of the problem needs to be given. Needless to say, utmost clarity is required in defining the problem. The research proposal should specify the research methods to be used in the study. This part should contain information on the sample design and the sample size, the designing of the questionnaire, data collection procedure, and the processing and analysis of data. It should also indicate if the consulting firm will make a personal presentation of research findings. Finally, the proposal should indicate the time needed to carry out the task and also the cost.

Let's Recapitulate the Chapter

- **Marketing Research Management**

Research management concentrates on direction and administration of the processes, projects, personnel, finances and agencies engaged in research. Its duties include seeing that the research design is right for the task and that the study is carried out properly. It sees to it that the presentation of results to management is handled properly and that all these activities are administered within a controlled budget. It means that proper research organisation has to be set up to handle individual projects and task.

- Objectives of the marketing research

- Decision-making objectives
- Economic and business objectives
- Policy objectives
- Product development
- Profit objectives
- Human Resource Development objectives

- Market objectives:

1. Innovation objectives
2. Customer satisfaction objectives

- Promotional objectives
- Corporate change objectives

- Qualities of a marketing research manager:

- Innovative.
- Confident
- Well-informed.
- Knowledgeable

- **Considerations for hiring Outside Agencies:**

- Technical Expertise
- Objectivity.
- Confidentiality.
- Economic factors.
- Timely submission of reports.
- Experience of the supplier.
- Reputation of the agency.

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LESSON 3: TUTORIAL

Q: Differentiate between Basic and Applied Research.

[illegible]

Q: Enumerate various limitations of Marketing Research.

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LESSON 4:

MARKETING RESEARCH PROCESS, FORMULATING THE RESEARCH PROBLEM, CHOICE OF RESEARCH DESIGN, DETERMINING SAMPLING DESIGN AND SAMPLING SIZE, EVALUATION AND CONTROL OF MARKETING RESEARCH

Introduction

Today we are going to discuss the marketing research process, research design, sampling design, sampling size and finally evaluation and control of marketing research.

Objective of the Lecture

- To understand what is marketing research process.
- What is sampling design and sample size.
- Evaluation and control of marketing research.

The Research Process

Till now we have studied about marketing research definition, its different type, importance etc. now here we will discuss the marketing research process ; it involves different activities viz. formulating the research problem, choice of research design, determining sampling design and sampling size and evaluation and control of marketing research. The marketing research process involves a number of inter-related activities which overlap and do not rigidly follow a particular sequence. For example, if a researcher has formulated a research problem and is considering the sampling plan, he is supposed to consider the type of data to be collected as also the detailed tabulation. This is because the various steps are inter-woven into each other and each step will have some influence over the following step.

Now come to our discussion, we will discuss the major steps involved in a marketing research project.

Formulating the Research Problem

The first step in research is formulating a research problem. It is most important stage in applied research as poorly defined problem will not yield useful results. Poorly defined problems cause confusion and do not allow the researcher to develop a good research design.

To find out the problem , three categories of symptomatic situations, namely overt difficulties, latent difficulties and unnoticed opportunities should be studied. Overt difficulties are those which are quite apparent and which manifest themselves. E.g. if a firm has been witnessing a decline in its sales for sometime, this could be called an overt difficulty. Latent difficulties, on the other hand, are those which are not so apparent and which is not checked, would soon become evident. For example, declining sale may, in due course, demoralise the sales staff. Unnoticed opportunities indicate the potential for growth in a certain area of marketing. Such opportunities are not clearly seen and some effort is required to explore them.

After a problem has been chosen, the next task is to formulate it precisely. Formulation implies a clear statement or definition of the problem.

A complete problem definition must specify each of the following:

1. Unit of analysis.
2. Time and space boundaries.
3. Characteristics of interest- both the results that are of concern to management and the 'variables' that are to be tested for their relationship to the results.
4. Specific environment conditions.

Taken together these four aspects identify the who, when, where, and what of the research.

Let's understand these briefly:

Unit of Analysis

The individual or object whose characteristics are to be measured are called the units of analysis. The unit always identify the objects to be studied. It is necessary that the universe is well defined. For example, -"Women's dress buyers in Delhi stores on May 31st, 2004." This specifies a particular universe, provided that clear definition are given for 'Women dress buyers', and 'Delhi stores.'

Time and Space Boundaries

We find that the two universes are again different. In the first instance, a precise date, viz. 31st May, 2004 is given while in the second instance the entire month of May is given. Similarly, the two universe are different in terms of space- the 'buyers' universe specifies stores located in Delhi while the 'shoppers' universe specifies the Delhi Metropolitan area which should be a larger territory than the former.

Characteristics of Interest

Characteristics of interest can be style and colour preference, buying behaviour, personality traits, etc. It is necessary that the problem definition specify one or more characteristics to be measured and the fact that the nature of relationships amongst them is to be determined.

Environmental Conditions

It indicates the uniqueness or generality of the problem. The problem definition must specify the environment for which the company wants research results. It may also spell out the possibilities of changes as well as the direction of change in the environment so that the results of the research study do not become irrelevant. For example, if the management is interested in knowing how the units respond to price changes, then the problem definition should specify the prices to be researched.

Hypothesis Development

A hypothesis is a proposition which the researcher wants to verify. Often there may be several competing hypotheses, either specified or implied. One objective of research is to select among the possible hypotheses and to test them empirically with the help of statistical tools in order to ascertain whether they are true or false.

Choice of Research Design

Would you tell me what do you understand by design?

Ok, design means the methods and procedures. So here in marketing research design we will study the methods and procedure for conducting a particular study. The research design can be grouped into three categories- exploratory, descriptive and causal research.

An exploratory research focuses on the discovery of ideas and is generally based on secondary data. It is preliminary investigation which does not have a rigid design. This is because a researcher engaged in an exploratory study may have to change his focus as a result of new ideas and relationship among the variables.

A descriptive study is undertaken when the researcher wants to know the characteristics of certain group such as age, sex, educational level, income, occupation, etc. In contrast to exploratory studies, descriptive studies are well structured.

A causal research is undertaken when the researcher is interested in knowing the cause and effect relationship between two or more variables. Such studies are based on reasoning along well tested lines.

Determining Source of Data

The next step is to determine the source of data to be used. The marketing researcher has to decide whether he has to collect primary data or spend exclusively on secondary data. Sometimes, the research study is based on both secondary and primary data. When the study is based on secondary data, whether partly or fully, it is necessary to satisfy oneself that the data are quite suitable for the objective spelt out by the study.

Designing Data Collection Forms

Once the decision in favour of collection of primary data is taken, one has to decide the mode of collection. The two methods available are observational method and survey method.

Observation: This method suggests that data are collected through one's observation. If the researcher is a keen observer, with integrity he would be in a position to observe and record data faithfully and accurately.

While the observational method may be suitable in case of some studies, several things of interest such as attitudes, opinions, motivation and other intangible states of mind cannot be observed. Another aspect of this method is that it is nonreactive as data are collected unobtrusively without the direct participation of the respondent. This is a major advantage as the behavior can be recorded without relying on reports from the respondent.

Surveys: In marketing research, field surveys are commonly used to collect data from the respondents. Survey can be

1. Personal
2. Telephonic
3. By mail
4. By diary

There are certain advantages and limitations of each type of survey. Broadly speaking, telephonic survey is suitable when very limited information is sought in a short period of time. Moreover, such information should be readily available with the

respondent. In contrast, surveys based on personal interviews are suitable when detailed information is to be collected. Sometimes a combination of two or more method could also be used. Structured questionnaires prepared in advance, to elicit the necessary information from the respondents. In case the enumerators are to fill up questionnaire, the survey is a personal one. It is a mail survey if the information is sought by sending the questionnaire by post. Whether it is a personal or a mail survey, it is necessary to design a suitable questionnaire, conduct a pilot survey and undertake a pre-testing of the questionnaire. The pre-testing will enable the researcher to realize the shortcomings of the questionnaire.

Determining Sampling Design and Sampling Size

Another aspect which forms a part of research process is the sampling plant. When the marketing researcher has decided to carry out a field survey, he has to decide whether it is to be a census or sample survey. In almost all the cases, a sample survey undertaken on account of its overwhelming advantages over a census survey.

When a decision in favor of a sample survey has been taken, it is necessary to have a clear definition of the population from which the sample is to be drawn, before deciding on the type of sample design to be used. First, a broad choice is to be made between probability sampling and non-probability sampling. The researcher then selects a specific type of sample design from a number of sample designs. The type of sample design chosen will depend on its suitability and also the availability of the requisite sample frame.

As regards sample size, there are two basic approaches-the adhoc or practical approach and the statistical approach. Although the former is widely used in marketing research, it should be the endeavor of the researcher to follow the statistical approach, which is based on well-defined principles. The size of the sample will depend on the degree of the precision required as also on the cost considerations.

The object of sampling is to choose a sample, which will faithfully reproduce the characteristics of the population of universe. In practice, however, this objective is never completely attained on account of the occurrence of the two types of errors-errors due to bias in the selection and sampling errors. It is desirable to minimize these errors and to consult an experienced statistician on sampling.

Organising and Conducting the Field Survey

Till now we have prepared the questionnaires and selected the sample design and size of sample, the next step is to organize and conduct the field survey. Two important aspects should be looked into-**interviewing** and **supervision of fieldwork**. The task of interviewing seems to be simple but in reality, it is one of the most difficult tasks in marketing research. This is because respondents are generally hesitant in giving information unless approached with tact, initiative and intelligence. Supervision of fieldwork is equally important to ensure timely and proper completion of the field survey. Neglecting these aspects would

result in interviewing errors, which in turn would undermine the utility of the survey.

Processing and Analysing the Collected Data

Once the field survey is over and questionnaires have been received, the next task is to aggregate the data in a meaningful manner. A number of tables are prepared to bring out the main characteristics of the data. The researcher should have a well thought of framework for processing and analyzing data, and this should be done prior to the collection. It is advisable to prepare dummy tables, as such an exercise would indicate the nature and extent of tabulation as also the comparisons of data that can be undertaken.

In order to derive meaningful results from the statistical table, the researcher may use one or more of the following four steps:

The first step is to calculate relevant majors of central tendency as also of dispersion, highlighting the major aspects of the data. The second is to cross tabulate the data to ascertain some useful relationships. The third is to calculate the correlation coefficient and undertake a regression analysis between variables. The fourth is to undertake a multivariate analysis. Such an analysis uses a variety of techniques to determine important relationships amongst several variables.

While designing a research study, the researcher should give adequate thought to the use of particular analytical techniques. In the recent years, many such analytical techniques have proliferated due to the emergence of the computer. The researcher now has access to an increasing assortment of techniques and it is desirable to know well in advance as to what analytical techniques are going to be used, so that the data can be collected accordingly.

It is necessary that the researcher give as much importance to the analysis and interpretation of the data as he has given to their collection. In the absence of proper analysis, data may be rendered useless resulting in a waste of time and money.

Preparing the Research Report

Once the data have been tabulated, interpreted and analyzed, the marketing researcher is required to prepare his report embodying the findings of the research study and recommendations. As a poor report on an otherwise good research will considerably undermine its utility, it is necessary that the researcher gives sufficient thought and care to its preparation.

Although report writing needs some skill, which can be developed with practice, the researcher should follow the main principles of writing a report. Some of these principles are objectivity, coherence, clarity in the presentation of ideas and use of charts and diagrams. The essence of a good research report is that it effectively communicates its research findings. As management is generally not interested in details of the research design and statistical findings, the research report should not be loaded with such details, otherwise there is a strong likelihood of its remaining unattended on the manager's desk. In view of this, the researcher has to exercise extra care to make the report a useful and a worthwhile document for the management.

Sometimes, a detailed marketing research study throws up one or more areas where further investigation is needed. Since research on those areas or aspects could have been fitted into the original project, a separate follow-up study has to be attempted.

Conclusion

The marketing research process, as described above, involves various steps, though strict adherence to each of these steps may not be necessary. A researcher may deviate from the above sequence and steps depending on his specific needs. It should be remembered that as research proceeds from the selection of the theme through the collection and analysis of data to the preparation of a report, the focus of attention will move from one activity to the other. This implies that the researcher does not always concentrate exclusively on one particular phase of research until its completion.

Further, while it is beneficial to draw a detailed plan and sequence of various activities in marketing research, it is hardly so if it requires such financial backing as the firm cannot afford. There is no point in attempting something which cannot be completed on account of financial constraints or limitations of time.

Another point worth emphasizing is that howsoever elaborate a research design may be, its successful implementation depends in no small measure on its management. In fact, management of research, whether in marketing or in any other field, is of great importance.

Errors in the Research Process

Hitherto, we have discussed the marketing process. The researcher should ensure that the research should ensure that the research does not have a high degree of error. If no care is exercised in minimizing errors that are likely to crop up at every stage then they are bound to assume phenomenal proportions.

The errors are of two types:-

- A Sampling Errors.
- B Non-Sampling Errors.

Sampling Errors

Marketing research studies are based on samples of people or products or stores. The results emerging from such studies are then generalized, i.e. applied to the entire population. For example, if a study is done amongst Maruti car owners in a city to know their average monthly expenditure on the maintenance of their car, it can be done either by covering all Maruti car owners residing in that city or by choosing a sample, say 10%, of the total Maruti car owners. In the latter case, the study may give a different average than the actual average if the entire population is covered. The difference between the sample value and the corresponding population value is known as the *sampling error*.

Non-Sampling Errors

Non-sampling errors are those errors which occur in different stages of research except in the selection of sampling. These errors are many and varied. A non-sampling error can arise right at the beginning when the problem is defined wrongly. It can also occur in any of the subsequent stages such as in designing a

questionnaire, non-response of the questionnaire, in the analysis and interpretation of data, etc

Remember

- Sampling error is measurable while it is not easy to measure a non-sampling error.
- Sampling error decrease as the sample size increases, while it is not necessary in case of non-sampling error.

Types of Non-sampling Errors

- **Defective problem definition:** Problem on which research is to be undertaken should be precisely defined. For example, a study in unemployment must be clear as to the concept of unemployment, the reference period, the geographic area to be covered, and so on. If any of these concept has wrong connotation, the results of the study would turn out to be wrong.
- **Defective population definition:** If the population is not well-defined and does not fit to the objects of research study then an error occurs. Suppose a study is undertaken to know the views of industrial workers on incentives offered by a company. The study defines its population as male employees and interviews are held amongst them. The exclusion of female employees would be a source of error.
- **Frame error:** The sampling frame is the list of all units comprising the population from which a sample to be taken. If the sampling frame is incomplete or inaccurate, its use will give rise to this type of error. For example, consider the voters' list as sampling frame. If a survey is to be undertaken to collect information from different sections of the society, then the voters' list will be inappropriate. This is because young people below 15 years of age will be left out from the survey.
- **Surrogate information error:** This type of error occurs when the information sought by the researcher is different from the information needed to solve the problem. For example, when price of a brand is taken to represent its quality. In such a case, it is presumed that higher the price of the brand, the better is its quality. This may or may not be true.
- **Non-response error:** Non-response error occurs when respondent refuse to cooperate with the interviewer by not answering his questions. In case of mail survey particularly, the extent of non-response is usually high.
- **Measurement error:** This is caused when the information gathered is different from the information sought. For example, respondent are asked to indicate whether they own a colour television set. Some of them respond in the affirmative just to boost their image before an interviewer, even though they may not be owning a colour television set.
- **Experimental error:** An experiment aims at measuring the impact of one or more independent variable on a dependent variable. For example, take the case of the impact of training on the performance of salesmen. During the period when the training is given, there may be a decline in competition and as result sales performance may improve. The result of such an experimental study will be misleading.
- **Poor questionnaire design:** As you know that a questionnaire is an instrument to collect data from respondent in a survey. If the questionnaire is defective, the

data collected on that basis will be misleading. For example, if one or more questions are wrongly worded conveying a different meaning than what was sought to be conveyed, wrong data will be collected through responses to such questions.

- **Interviewer bias:** This error occurs on account of interviewer's influence in conducting an interview or wrong recording by him.
- **Data processing error:** After the data have been collected, they are to be processed. This involves coding the responses, recording the codes, etc. so that data collection can be transformed into suitable tables. Mistake can occur during the processing stage of data.
- **Data analysis error:** As in the case of data processing, errors can occur on account of wrong analysis of data. Apart from simple mistakes in summation, division, etc., more complex errors can occur. For example, the application of a wrong statistical technique can cause such errors.
- **Interpretation error:** Sometimes wrong interpretation of data can cause this type of error. In order to support a particular line of action, the researcher may deliberately misinterpret data.

Evaluation and Control of Marketing Research

The need for evaluation and control in marketing research is found at two levels:

1. The individual project, and
2. The total research activity within a firm.

In respect of individual research projects, the management should determine what exactly is to be done and keep track of it on a weekly, fortnightly or a monthly basis. Below are listed certain tools for evaluating and controlling research projects:

1. Check List

To begin with, a checklist, which is a versatile and a useful tool, can be used. It can be short or long, consisting of a few or many questions, depending on the actual requirement of management. The list should contain specific questions on the objectives of projects and its research design. It serves as a reminder for the type of problems that are likely to come up during the course of the project and helps in resolving them.

Flow Chart

Another tool is the logical flow chart which indicates the sequence of a research project covering various activities. For example, library research, collection of data, analysis of data, and so on. Such a flow chart enables management to maintain overall control over the project. One major limitation of this tool is that it does not give the time dimension for the total activity.

Gantt Chart

A Gantt chart is used in order to provide a time dimension for controlling marketing research. Such a chart enables the management to develop an overall research schedule by allocating a time period to each component of research. It is very helpful to the management in controlling the total research activity.

Pert Technique

Finally, the Programme evaluation and review technique can be used. Although PERT has been used in administrative and production problems, hardly any application in marketing research is available. It can however be used effectively in this field as well, especially when the project is neither a routine nor a small one.

Advisory Committee

As regards control of the total research activity, it is necessary to set up meaningful control procedures. An advisory committee, comprising representative from all functions served by marketing research, is probably the most effective way to evaluating and controlling the total marketing research activity. Its main task is to provide direction to the marketing research programme so that it is problem oriented and useful to the company.

Marketing Research Audit

A marketing audit should provide an objective basis for answering three key questions:

1. Is the research programme in tune with the character of the company as well as its need?
2. How can the administration of research be made to set the pace for operating efficiency?
3. Is the research staff sufficiently in touch with the realm of ideas which determine sales growth and future market position for the company?

To make marketing audit effective, it must be undertaken as the joint responsibility of the research group and all department having a direct interest in the use of marketing research. The audit study should have four distinct stages:

- a Qualifying the company
- b Establishing bench marks for analysis
- c Auditing of internal research operations
- d Preparing an audit report.

In the first stage, auditor should develop a clear idea of the company's position in the industry, the organisation of the marketing activities and its emphasis on sales or production. The second step involves the setting up of standards to which the marketing research staff should conform. The third stage involves the audit of marketing research operations against the standards set earlier. Finally, the audit report covering (1) a critical evaluation of the existing research programmes, (2) an appraisal of the research needs, and (3) the programme and organisation recommended for installation, should be prepared and submitted. The management audit of marketing research could be done either by the company's own personnel under the direction of top management or by an outside consulting firm.

Budget Control

Budget is an important constraint not only for individual research projects but also for the research activity as a whole.

There are various ways by which budget allocation to the marketing research function can be decided. A rough and ready measure is to spend a certain specified percentage of the total sales on marketing research. This percentage may be based on

the prevailing average for firms of the same size in the same industry. Another method is that each department and functional area decides its budget on the basis of its on marketing research requirement. Yet another approach is that budget allocation is made on ad hoc basis, keeping in mind the requirements of a particular task.

Whatever may be the approach adopted for budget allocation, one thing must be made clear. A certain minimum budget must be available and there should not be any uncertainty and misunderstanding among researchers in this regard.

Let's Recapitulate the Lecture

• The Research Process

It involves different activities viz. formulating the research problem, choice of research design, determining sampling design and sampling size and evaluation and control of marketing research.

• Formulating the research problem

To find out the problem, three categories of symptomatic situations, namely *overt difficulties*, *latent difficulties* and *unnoticed opportunities* should be studied.

A complete problem definition must specify each of the following:

1. Unit of analysis.
2. Time and space boundaries.
3. Characteristics of interest- both the results that are of concern to management and the 'variables' that are to be tested for their relationship to the results.
- iv Specific environment conditions.

• Choice of Research Design

The research design can be grouped into three categories- exploratory, descriptive and causal research.

• Determining source of data:

The marketing researcher has to decide whether he has to collect primary data or spend exclusively on secondary data

• Designing Data Collection Forms

Two methods available are observational method and survey method.

• Errors In The Research Process

The Errors Are of Two Types

A Sampling Errors.

B Non-Sampling Errors

Evaluation and Control of Marketing Research

The need for evaluation and control in marketing research is found at two levels:

1. The individual project, and
2. The total research activity within a firm.

An Experiment:

The researcher changes an explanatory, independent, or experimental variable to observe changes in the dependent variable.

Causality:

When the occurrence of X increases the probability of the occurrence of Y.

Conditions for Causality (2)**Appropriate Time Order of Occurrence:**

- ✓ A change in an independent variable must occur before a change in the dependent variable

Conditions for Causality (1)**Concomitant Variation:**

- ✓ A predictable statistical relationship between two variables
- ✓ Positive relationship: ad. and sales
- ✓ Negative relationship: price and sales
- ✓ Concomitant variation by itself does not prove causation

- ✓ Spurious Correlation:

Conditions for Causality (3)**Elimination of Other Possible Causal Factors**

- ✓ The change in B was not caused by some factor other than A

Experimental Setting

Laboratory experiments:

Conducted in a controlled setting.

Advantages of laboratory experiments:

Disadvantages of laboratory experiments:

Field experiments:

Tests conducted outside the laboratory in an actual environment.

Extraneous Variables: Threats to Experimental Validity

•**History:** Specific events that are external to the experiment but occur at the same time as the experiment.

•**Maturation:** attributable to changes in the test units themselves that occur with the passage of time.

•**Instrument Variation:** Changes in measurement instruments that might explain differences in measurements.

Experimental Validity

Internal Validity:

- ✓ The extent to which competing explanations can be ruled out.
- ✓ Our ability to attribute the effect that was observed to the experimental variable and not other factors.

✓ External Validity:

- ✓ The extent to which causal relationships can be generalized to outside persons, settings, and times.

The controls needed for internal validity often conflict with the controls needed for external validity.

Extraneous Variables: Threats to Experimental Validity

•**Selection Bias:** attributable to the improper assignment of test units to treatment conditions.

•**Mortality:** Loss of test units or subjects during the course of an experiment.

Extraneous Variables: Threats to Experimental Validity

- **Testing Effect:** caused by the process of experimentation
 - **Main testing effect:** the possible effects of earlier observations on later observation
 - **Interactive testing effect:** the effect of a prior measurement on a subject's response to a later measurement

Controlling Extraneous Variables (Confounding Variables)

- **Randomization:** The random assignment of subjects to treatment conditions to ensure equal representation of subject characteristics.
- **Matching:** Matching respondents in regard to important personal characteristics before assigning them to different treatment conditions.
- **Statistical Control:** Adjusting for the effects of confounded variables by statistically adjusting the value of the dependent variable for each treatment condition
- **Design Control:** Use of the experimental design to control extraneous casual factors

Extraneous Variables: Threats to Experimental Validity

- **Regression to the Mean:** Tendency of subjects with extreme behavior to move toward the average for that behavior during the course of an experiment.

Application: Test Marketing

Test Markets Defined

Any research that involves:

- Testing a new product or change in an existing marketing strategy.
- The use of experimental or quasi - experimental procedures

Test Market Usage and Objectives

- Estimate of market share
- Effect on sales of similar products
- Characteristics of consumers
- Behavior of competitors

Application: Test Marketing

Costs of Test Marketing

- Costs include: commercials, advertising, research, coupons, sampling

Deciding Whether to Conduct a Test Market

- To obtain a good estimate of the sales potential under realistic conditions
- To identify weaknesses of the product

Application: Types of Test Markets

Simulated Test Market

Controlled Test Market

Standard Test Market

Q: Explain the process of Research problem formulation.

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LESSON 6:

SCIENTIFIC METHOD, RESEARCH DESIGN, TYPES OF RESEARCH, AND SOURCES OF EXPERIMENTAL ERRORS, CRITERIA OF RESEARCH DESIGN

Introduction

In this chapter we will study the about the scientific method of research, research design, types of research and source of experimental errors and criteria of research design.

Objectives of the Lecture

- Understand the meaning of scientific method of research.
- Different types of research.
- Experimental errors and criteria of research design.

Scientific Method and Research Design

Methods of Knowing:

There are four methods of knowing or arriving at beliefs. The first is the method of tenacity. Habit or inertia may induce us to believe a proposition to be true because we have always believed it to be so. As a result, we may close our minds to any evidence against that proposition. In other words, people generally insulate themselves against opinions and beliefs, which are contrary to those held by them. This method however fails to secure the stability of one's belief at times. When individuals come across views different to their own they react in various ways. Some may not hold to their own views in the wake of conflicting ones. In such cases, another more stable method is required.

The second method of knowing or fixing belief is sometimes found in the appeal to authority. Instead of holding on to one's beliefs, an appeal is made to some authority. If our holy scriptures say so, it is true. If a noted authority on the subject says it is true, then it must be true. Many religious propositions claim support from scriptures. In other spheres, too, such as the social, economic, or political, this method of authority is used to fix beliefs. Though superior to the method of tenacity, this method fails to lead to unanimity and stability of belief if there is more than one authority with differing views.

The third method of knowing or fixing belief is the *priori* method which has been called the method of intuition by Cohen and Nagel. This method holds that people believe propositions if they are obvious or self-evident. Such propositions 'agree with reason' and not necessarily with experience. It may be noted that propositions which have not been questioned so far are not necessarily true. They may turn out to be false at a later date when somebody questions them and proves that they are false. Many propositions in the past have met such a fate.

The fourth method is the method of science or reflective inquiry. It is independent of one's desires and wills and is radically different from the earlier methods.

Scientific Method

The scientific method encourages doubts and criticism so that what emerges is the real evidence which has stood the test of reasoning. It makes science progressive as it is never too sure

about its results. A unique characteristic possessed by this method is self-correction. A scientist does not believe any proposition without testing it. He has a number of built-in checks all along the way to enable him to adhere to the right path and arrive at the 'truth'. Such checks are free from personal beliefs, attitudes and values.

Karl Pearson, in his famous book *The Grammar of Science* observes that there are three distinct characteristics of the scientific method-

- a. Careful and accurate classification of facts and observation of their correlation and sequence
- b. The discovery of scientific laws with the aid of the creative imagination and
- c. Self-criticism and the final touchstone of equal validity for all normally constituted minds.

The first characteristic shows that the scientific method should enable us to classify facts accurately and carefully from the idiosyncrasies of the individual mind. In other words, there must be objectivity in this task. The second characteristic relates to the discovery of scientific laws with the help of imagination. A mere collection of facts will not be sufficient to bring about scientific discoveries which will be the result of disciplined imagination and painstaking effort of the scientists. Finally, the third characteristic is that of self-criticism, i.e. the scientist should critically examine his own research in a detached manner.

Wolfe expresses these characteristics in a different language.

According to him, the common characteristics of the science are – (i) critical discrimination, (ii) generality and system, and (iii) empirical verification. Critical discrimination implies that one must not be influenced by mere appearance or prevalent notions but must try to get at the naked facts. Second, science is not interested in individuals but is concerned with generality or the system, i.e. groups or classes of objects. Finally, science aims at the testing and verification of facts empirically so that they can be confirmed or rejected.

Comparison of the Scientific Method And Non-scientific Method

Having looked into the different methods of knowing, we may now turn to a comparison of scientific and non-scientific methods. While there are several distinguishing features of the scientific method, the more important ones are briefly described below:

1. The scientific method is more objective as compared to the non-scientific method. This is one of the strongest points in favour of the former. *For example*, hypotheses can be verified with the help of statistical principles, ensuring complete objectivity. Though there may sometimes be an element of subjectivity in the scientific method, that is more on account of the investigator than on account of the deficiencies of the method itself.

2. The scientific method is more precise than the non-scientific method. One great advantage of the former is that measurement and numerical analysis can be done, though measurement is not always attempted in every scientific investigation. Qualitative concepts are also defined precisely, which enables easier and more effective communication among researchers.
3. Finally, the scientific method takes cognizance of the existing knowledge in a particular field, carries out further investigations in it and compares the results with those obtained earlier. This leads to the expansion of knowledge. The scientific method contributes to the accumulation of systematic knowledge while the non-scientific method may not be able to do so.

Let us see whether marketing research satisfies these criteria. First, the marketing researcher is expected to be objective in his investigation. However, it is extremely difficult to remain completely objective during the entire research process, as one may be anxious at times to collect information to support and justify one's own position in regard to a certain issue.

Second, the marketing researcher is not so happily placed as the natural scientist in respect of the instructions of measurement. The latter can measure the minutest changes in his laboratory and is sure of the accuracy of his measurement. But the marketing researcher has to deal with such aspects as the attitudes of consumers, changes in their preferences and their impact on the consumption of a given product. The instrument of measurement that is often used in such problems is the questionnaire, which is relatively crude and cannot give a very high degree of precision. Added to this is the fact that it is used by several interviewers with varying backgrounds, training, experience and ability. As such, the information collected by them will have different degrees of accuracy.

Finally, the third criterion of the scientific method is that it is a continuous and unending process leading to the accumulation of systematic knowledge. Marketing research should ideally satisfy this criterion. However, as it is problem solving and problem-oriented research, the focus of investigation is narrow. Because of the urgent nature of problems handled by marketing researchers, they seldom undertake exhaustive studies as is done by the natural scientists.

Research Design

Having discussed the nature of the scientific method and the steps involved therein, we now turn to research design. Our first subject here is to clarify what is meant by "design" in the research context—and what it comprises. Then we will describe just what designs accomplish in relationship to the total research process. An important distinction then will be drawn between experimental and nonexperimental designs. And the balance of the chapter will describe some of the nonexperimental types and their uses

According to Kerlinger

Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance.

The definition consists of three important terms – plan, structure and strategy. The plan is an outline of the research scheme on which the researcher is to work. The structure of the research is a more specific outline or the scheme and the strategy shows how the research will be carried out, specifying the methods to be used in the collection and analysis of data.

Let us look into a few other definitions of research design.

Bernard S. Phillips has defined the research design as:

...the blueprint for the collection, measurement and analysis of data. It aids the scientist in the allocation of his limited resources by posing crucial choices – Is the blueprint to include experiments, interviews, observation, the analysis of records, stimulation, or some combination of these? Are the methods of data collection and the research situation to be highly structured? Is an intensive study of a small sample more effective than a less intensive study of a larger sample? Should the analysis be primarily quantitative or qualitative?

According to Green and Tull

A research design is the specification of methods and procedures for acquiring the information needed. It is the over-all operational pattern or framework of the project that stipulates what information is to be collected from which sources by what procedures.

From the foregoing definitions it is evident that research design is more or less a blueprint of research. It can be compared with the plan of house, which lays down the method and procedure for the collection of requisite information and its measurement and analysis with a view to arriving at certain meaningful conclusions at the end of the proposed study.

The Nature of Research Designs

The noun "design" has various meanings, but the one suitable for our subject is a pattern or an outline of a research project's workings. It is a statement of only the essential elements of a study, those that provide the basic guidelines for the details of the project. It comprises a series of prior decisions that, taken together, provide a master plan for executing a research project.

A master plan is comprehensive and gives a general statement of the methods to be used, in contrast to the details that should be written to be sure of the specific work to be done (and to be assigned to the staff or outside suppliers). A research design has some similarity to a description of a "model".

What is contained in a design may vary depending on the preference of the person responsible. It should be confined to the minimum of detail that is required for planning. It should include at least the following.

1. Statement of the study's objectives, the output of the researcher. In conclusive studies, this result is expected to solve the problem.
2. Statement of the data inputs, or causal data, on the basis of which the solution is to be reached.
3. The analytical method with which the inputs will be treated or calculated.

These three elements are illustrated in a very simple case, as follows:-

The Albus Company (which is imaginary) sells a broad line of Kitchen and household utensils by mail order. One of the managers believes that profits could be increased by inducing customers to order more on each purchase. The incentive would be offer a bonus of 10 percent additional merchandise on all orders above \$ 25.00. The other Albus managers are doubtful and so the hypotheses is to be tested by research. The design for that would have the three elements as described here.

1. The objective is to calculate the dollar margin change (price minus shipping costs and merchandise costs) earned on sales where the bonus is offered.
2. The data to be gathered are (a) dollar sales on order placed by a sample of customers who are offered the bonus and by another (equal sized) sample to whom it is not made available, (b) average merchandise margins earned during the period of the test (that of the spring catalog), (c) cost of the free bonus merchandise ordered during the period, and (d) cost of promotional inserts.
3. The analysis of those data will be
 - Dollar sales to sample A minus those to sample B, during period of March 1-July 31, multiplied by average merchandise margin earned during that period.
 - Subtract dollar cost of merchandise sent as bonuses to sample A.
 - Subtract also shipping costs of bonus merchandise and costs of promotional pamphlet.

Designs should comprise only what researchers need for a framework that is sufficient to (1) flesh out the details for costing and implementing the work and (2) explain the proposed study to others.

Benefits of Designs

A researcher design serves as a bridge between what has been established (the research objective) and what is to be done, in the conduct of the study, to realize those objectives. It anticipates what the client will need in terms of results and the analytical work on the gathered data that will convert it to useful findings.

If there were no explicit design, the researcher would have only foggy notion about what to do. It is extremely desirable that the design be put in writing, for it is obvious how a study may go astray when its concepts exist only in the researcher's memory. And unless the researcher is able to state the design in clear and written terms, it is questionable whether he or she truly understands what is to be done or why.

A formal design's benefits are particularly appreciated when the researcher is deciding specifically what data are needed. If data are gathered that prove to be irrelevant, that is both inefficient and confusing. It is even more serious to have overlooked some data that are vitally needed, which may not be discovered until too late, at the analytical stage.

A design also is appreciated when analyzing the data and interpreting their meaning. It helps to keep the computations and thinking on the path to solutions and recommendations. However, we are not suggesting that a design be a rigid framework. A design had been decided on the basis of

expectations, but surprises will be met as the study unfolds, in the character and availability of data and in new hypotheses that turn up during analysis. In short, the original design guides, but does not dictate, the conduct of the research.

The mail-order example, we may note, is a quantifiable example. It could be written in algebraic symbols rather than our long verbal description, which many would prefer. Descriptive studies do not produce quantifiable data of course, and so their designs would be described verbally.

Types of Research Design

At the outset may be noted that there are several ways of studying and tackling a problem. There is no single perfect design. As such, the researcher should not wait until he arrives at a unique and perfect research design. Research designs have been classified by various authors in different ways. Different types of research designs have emerged on account of the different perspectives from which a research study can be viewed. However, a frequently used classification system is to group research designs under three broad – exploratory, descriptive and causal.

Exploratory Research

In the case of exploratory research, the focus is on the discovery of ideas. In a business where sales have been declining for the past few months, the management may conduct a quick study to find out what could be the possible explanations – the sales might have declined on account of a number of factors, such as the deterioration in the quality of the product, increased competition, inadequate or ineffective advertising, lack of efficient and trained salesmen or use of the wrong channels of distribution. In such a case an exploratory study may be conducted to find the most likely cause.

An exploratory study is generally based on the secondary data that are readily available. It does not have a formal and rigid design as the researcher may have a change his focus or direction, depending on the availability of new ideas and relationships among variables. An exploratory study is in the nature of a preliminary investigation wherein the researcher himself is not sufficiently knowledgeable and is, therefore, unable to frame detailed research questions.

Since the objective of exploratory research is to generate new ideas, respondents should be given sufficient freedom to express themselves. Sometimes a group of respondents is brought together and a focus group interview is held. Such an interview may be very helpful provided respondents shake off their initial inhibition and participate in the discussion without any reservations. The interviewer should refrain from interfering in the flow of the interview as long as it does not sidetrack the main issue. The interviewer should allow the participants to discuss the issue fully and should intervene only when the feels that some important aspects in the discussion are likely to be left out by the group.

Some persons hold the view that all small studies are exploratory in nature, but this is not true. The fact is that an exploratory study uses a different approach to the problem than the conclusive study. It is not the size of the report that is important, but the type of research design which is relevant.

Sometimes, such studies may be based on the detailed case analysis of a few firms or individuals. An in-depth analysis of cases may reveal new relationships and give some fresh ideas on the subject of inquiry. The findings emerging from case studies should not be regarded as conclusive, but suggestive. Further, no generalisations should be made on the basis of the in-depth investigation of a few individuals or firms as the findings are based on special characteristics or peculiarities of a particular case.

Descriptive Studies

Descriptive studies are undertaken in many circumstances. When the researcher is interested in knowing the characteristics of certain groups such as age, sex, educational level, occupation or income, a descriptive study may be necessary. Other cases when a descriptive study could be taken up are when he is interested in knowing the proportion of people in a given population who have behaved in a particular manner. The objective of such a study is to answer the “*who, what, when, where, and how*” of the subject under investigation.

There is a general feeling that descriptive studies are factual and are very simple. This is not necessarily true. Descriptive studies can be complex, demanding a high degree of scientific skill on the part of the researcher.

Descriptive studies are well-structured. As was mentioned earlier, an exploratory study needs to be flexible in its approach, but a descriptive study, in contrast, tends to be rigid and its approach cannot be changed every now and then. It is, therefore, necessary that the researcher gives sufficient thought to framing research questions and deciding the types of data to be collected and the procedure to be used for this purpose. If he is not careful in the initial stages, he may find that either the data collected are inadequate or the procedure used is cumbersome and expensive.

Descriptive studies can be divided into two broad categories – **cross-sectional** and **longitudinal**. Of the two, the former type of study is more frequently used.

Cross-sectional studies

A cross-sectional study is concerned with a sample of elements from a given population. Thus, it may deal with households, dealers, retail stores, or other entities. Data on a number of characteristics from the sample elements are collected and analysed. Cross-sectional studies are of two types – **field studies** and **surveys**. Although the distinction between them is not clear-cut, there are some practical differences which need different techniques and skills.

Field studies are ex-post-facto scientific inquiries that aim at finding the relations and inter-relations among variables in a real setting. Such studies *are done in life situations like communities, schools, factories, organizations, and institutions*.

Field studies have their strengths and weaknesses. One major strength is that they are close to real life, and they cannot be criticised on the ground that they are remote from real settings or are artificial. Field studies are more socially significant than other types of study. While investigating the behaviour and preferences of people, many other related issues, though not so obvious, also get answered. Thus, studies of this type have considerable social significance. Further, in real settings,

variables exert their influence fully and, as such, the strength of variables is another advantage of field studies. Field studies are also strong in their heuristic quality. As an in-depth study of a few typical situations is made, many new questions crop up. Thus, additional hypotheses emerge during the course of investigation.

Field studies are also subject to certain weaknesses. Such studies are scientifically inferior to laboratory and field experiments. One of their major weaknesses is their ex-post facto character. As a result, interrelations among variables are weaker than they are in laboratory experiments. As there are several variables affecting the response of interest, such studies find it difficult to isolate their effects on account of there being almost no control on the variables. Another weakness is the lack of precision in the measurement of variables. This limitation arises on account of the greater complexity of field situations. Finally, such studies have practical problems in respect of feasibility, cost, sampling, and time. For instance, they are likely to take more time and involve a greater cost. The researcher has to look into these problems and satisfy himself that the proposed study is feasible and that sufficient time and money are available to him to undertake the study. In no case should he rush into a field study without examining these problems otherwise he may find himself in serious difficulties at a later stage.

Another type of cross-sectional study is survey research. A major strength of survey research is its wide scope. Detailed information can be obtained from a sample of a large population. Besides, it is economical as more information can be collected per unit of cost. Also, it is obvious that a sample survey needs less time than census inquiry.

Despite these advantages of survey research, it is subject to certain limitations. Generally, survey research does not penetrate below the surface as more emphasis is given to the extent of information sought rather than to an in-depth analysis. Another disadvantage is that survey research demands more time and more money, especially when it is conducted on a large scale. It may take months before a single hypothesis can be tested, because testing can be taken up only when the entire research process from the formulation of the problem through sample design, collection of data, and their tabulation is complete. These steps need quite some time. Another limitation of survey research is that the interview may make the respondent alert and cautious and he may not answer the questions in a natural manner. Such answers will make the survey invalid. Finally, survey research needs a good deal of knowledge on the part of the researcher. He must know the technicalities of sampling, the method of constructing questionnaires, interviewing the respondents, editing, coding and tabulation of data and the statistical techniques to analyse data. It is rare to find a single individual possessing knowledge and experience in all these diverse fields.

Longitudinal Studies

Longitudinal studies are based on panel data and panel methods. A panel is a sample of respondents who are interviewed and then reinterviewed from time to time. Generally, panel data relate to the repeated measurements of the same variables. Each family included in the panel, records its

purchases of a number of products at regular intervals, say, weekly monthly or quarterly. Over a period of time, such data will reflect changes in the buying behaviour of families.

There are several advantages of using panel data. First, such data enable the researcher to undertake detailed analysis. Thus, one can determine the characteristics of individuals who have changed brands and those who have not. This may help the firm in identifying the segment of the population on which promotional effort should be focused. Another advantage of the panel is that more comprehensive data could be obtained as individuals or families included in the panel are those who have accepted to provide data periodically. As panel members are willing persons, more data can be collected. Yet another advantage is that panel data have been found to be more accurate than data collected through surveys. Finally, costs of data collection through panels are generally lower than through personal interviews. A large proportion of the costs of the panel is fixed cost such as expenditure incurred on the recruitment, training and maintaining of panel members while the variable cost of collecting data from them may be moderate, particularly as the response rate will be extremely high.

There are certain limitations of panel data. A major criticism of panels is that they may not be representative samples. Since panel members are expected to put in some effort in furnishing data to the research organisation, some persons chosen in the original sample may refuse to serve on panels. This may distort the representative character of the original sample. To minimise refusals of this type, many organisations pay some money to panel members. This poses another issue – Does this payment attract a particular type of panel member? Another limitation is that panel members may report wrong data. Ordinarily, panel members are expected to act with a sense of responsibility and supply accurate information. However, this may not be the case when panels are not well maintained. Moreover, after the initial attraction of membership of a panel has faded, members may lose interest in this task and may not fully cooperate with the research organisation. This will affect the quality of information. Sometimes, panel members may deliberately give wrong information to show off their status, annoyance over periodical reporting or repeated interviews.

Let's Recapitulate the Chapter

- **Scientific Method**

Karl Pearson, in his famous book *The Grammar of Science* observes that there are three distinct characteristics of the scientific method-

- d Careful and accurate classification of facts and observation of their correlation and sequence
- e The discovery of scientific laws with the aid of the creative imagination and
- f Self-criticism and the final touchstone of equal validity for all normally constituted minds.

The Nature of Research Designs

4. Statement of the study's objectives, the output of the researcher. In conclusive studies, this result is expected to solve the problem.
5. Statement of the data inputs, or causal data, on the basis of which the solution is to be reached.
6. The analytical method with which the inputs will be treated or calculated.

Types of Research Design

1. Exploratory Research.
2. Descriptive Studies.
3. Cross-sectional studies.
4. Longitudinal studies.

[illegible]

LESSON 7:

SCIENTIFIC METHOD, RESEARCH DESIGN, TYPES OF RESEARCH, AND SOURCES OF EXPERIMENTAL ERRORS, CRITERIA OF RESEARCH DESIGN.

Introduction

In this chapter we will study the about the types of research and source of experimental errors and criteria of research design. Continue from last lecture first we will discuss causal design then proceed to experimental errors and criteria of research design.

Objectives of the Lecture

- Experimental errors and
- Criteria of research design.

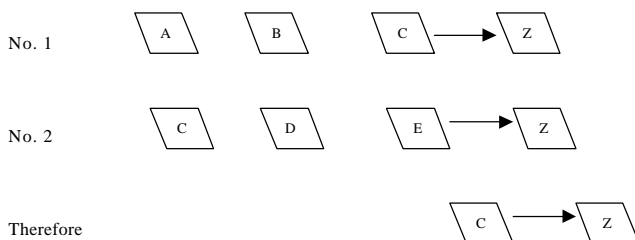
Causal Designs

Having looked into two designs – exploratory studies and descriptive studies, we now turn to causal designs. As the name implies a causal design investigates the cause and effect relationship between two or more variables. Suppose a manufacturer has sold his product at two points of time, t^1 and t^2 . The sale in t^2 is much higher than that in the previous year. During the year, the firm has also launched an advertising campaign for its product. The manufacturer is interested in knowing whether advertising has caused the increase in sales in the year t^2 .

The design of causal research is based on reasoning along well-tested lines. We are inductive logic for confirming or rejecting hypotheses with the help of further evidence. John Stuart Mill formulated a set of principles based on logic for causal research. The principles are – the method of agreement, the method of negative agreement and the method of concomitant variation.

The method of agreement states, “*when two or more cases of a given phenomenon have one and only one condition in common, then that condition may be regarded as the cause (or effect) of the phenomenon.*”

Thus, if we find observation Z in every case where we find condition C, we may conclude that C and Z are causally related. Figure below shows this method.



Method of Agreement

This method helps in eliminating factors that are not relevant. Thus, in the above case factors A, B, D and E are to be eliminated, as they are not likely to cause Z. This method has some limitations. One limitation is that it assumes that variables that have not been considered are not relevant. One may not like to accept this assumption as there are many variables not considered but which may influence Z. Another point is that C operates only when certain other conditions exist. Finally, it may not be true that Z has occurred because of C. There may

be a different cause of the occurrence of Z in each of the two situations. As against these limitations, it has some merits. First, it helps to rule out irrelevant factors, as a result of which the research problem becomes simpler. Second, it shows that certain factors do occur together. Third, it also shows that a particular factor, in this case C, always occurs before Z. It, thus, helps in eliminating extraneous factors, leaving factor C which may be the cause.

Mill's second principle is the negative canon of agreement which states that when condition non-C is found to be associated with observation non-Z, we may hold that a causal relationship exists between C and Z.

As the logical structure of both the methods is the same, the negative canon of agreement suffers from the same limitations as the first method. Here, too, perhaps other important factors might have been left out.

It may as well as that non-C leads to non-Z only when some other factors are present.

The method of agreement and the negative canon of agreement form the basis for a third method, known as the method of difference. This method states that when there are two or more cases, and in one of them observation Z can be made, while in the other it cannot; and if factor C occurs when observation Z is made and does not occur when observation Z is not made, then one can say that C and Z have a causal relationship. This relationship is shown in Fig.5.2. In simple language one can say that the first observation shows that C could cause Z and the second shows that other possible factors could not cause Z.

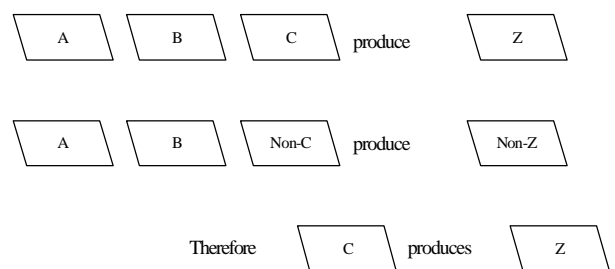


Fig. Method of Difference

Mill recognised that such categorical relationships as given by the foregoing method seldom exist and he suggested another method, known as the method of concomitant variation. This method holds that “*if a change in the amount of one variable is accompanied by a comparable change in the amount of another variable in two or more cases, and the latter change does not occur in the absence of the first change, one change is the cause (or effect) of the other.*” This method indicates the process of correlation which may be either positive or negative. Again, each of these can be linear or

non-linear. The causal relationship holds that changes in C lead to predicable changes in Z.

Although Mill's canons do not offer any conclusive method to ascertain causal relationship, it may be observed that no method is perfect in this regard. As such we have to use the existing methods, though imperfect, keeping in mind their major limitations and trying to minimise their impact so that we may not reach fallacious conclusions.

Causal Inference Studies

Having considered the meaning of causation and the types of evidence required to infer causal relationships in the preceding pages, we now turn to some specific designs of causal studies.

Causal inference studies can be divided into two broad categories – **natural experiments** and **controlled experiments**. The main point of distinction between the two is the degree of intervention or manipulation exercised by the investigator in a given study. Thus, a natural experiment will involve hardly any intervention of the investigator, except to the extent required for measurement. A controlled experiment, in contrast, will involve his intervention to control and manipulate variables.

Natural Experiments

There are three classes of designs for natural experiments – (i) **time-series and trend designs**, (ii) **cross-sectional designs**; and (iii) **a combination of the two**.

Time-series and Trend Designs

In a time-series design, data are obtained from the same sample or population at successive intervals. Generally, current data are obtained from a panel of individuals or households. Other panels such as wholesalers, retail stores or manufactures can also be used. While time-series data relate to the same sample, trend data relate to matched samples drawn from the same population at successive intervals. Thus, there is no continuity in the sample in trend designs, as a result of which data can be analysed in the aggregated form. Since time-series data relate to the same sample over time, change in individual sample units can be analysed. An analysis of this type is also called longitudinal analysis.

There can be several variants of time series and trend designs. At one extreme they need at least one treatment and a subsequent measurement, at the other extreme, they may have several treatments and measurements. A few types of time-series and trend designs are briefly discussed below.

The one-shot case study the design is also known as the 'try out' design. It is the simplest and can be shown symbolically as follows:

$$X \quad \quad O \quad \quad (1)$$

Where 'X' indicates the exposure of a subject or group to an experimental treatment whose effect is to be observed, and 'O' indicates the observation or measurement taken on the subject or group after an experimental treatment. Suppose that we provide training to a group of salesmen (X) for a certain period and then measure the sales effected by this group of salesmen(O). Since we do not have a prior measurement of sales made by each of the salesmen trained, it is not possible to measure the effect of training. On account of this major

limitation, the design is used only in exploratory research. It should be avoided as far as possible.

Before after without control group. This design differs from the preceding one in one respect, i.e. it has a prior measurement as well. Symbolically, it can be shown as

$$O_1 \quad \quad X \quad \quad O_1 \quad \quad (2)$$

And in an extended form as:

$$O_1 \quad O_2 \quad O_3 \quad X \quad O_4 \quad O_5 \quad O_6 \quad (3)$$

Taking out earlier example, the sales made by salesmen at period (1) are known to us. We now provide them training for a certain period, and then their sales. A comparison of sales after training is made with sales made during the corresponding period before training. Thus the effectiveness of training can be measured by O_2-O_1 . The extended form of the design (3), is an improvement over design (2) as it shows that sales made by a group of salesmen X are measured for three successive periods prior to training and three successive periods after their training.

Although this design is widely used in marketing studies, it fails to provide effective conclusions. For example, there may be several extraneous factors which effect the volume of sales. There may be a lack of competition or a spurt in income which may increase sales at a later period. There are other limitations as well such as the testing effect, which implies that measurement in a subsequent period may be affected by an earlier measurement.

Multiple time-series Another time-series design involves the control group. Symbolically,

$$\begin{array}{ccccccc} O_1 & O_2 & O_3 & X & O_4 & O_5 & O_6 \\ O'_1 & O'_2 & O'_3 & O'_4 & O'_5 & O'_6 & \end{array} \quad (4)$$

where the O's represent measurement of the control group. This design is an improvement over design (3) as it measures the effect of a specific treatment on the experimental group and compares it against the control group. Thus taking our earlier example of training salesmen, two comparable groups of salesmen are selected. Before the treatment i.e. training, sales made by them for three successive time periods are measured for both the groups. Now the experimental group is given training. After the training, sales made by the experimental group as also those made by the control group (which was not given training) are measured. The difference between the average sales for the experimental group and the control group may then be attributed to training.

This design is generally used by selecting panels of individuals or households. Although this design is a substantial improvement over design (3), it suffers from some of the same limitations as were pointed out earlier. Thus, it fails to control history and there may be certain environmental changes in the later period, which may affect effectiveness of the results. Also, results may be altered by the testing effect, i.e. respondents subjected to repeated testing show some peculiar reaction to the experimental stimulus.

Cross-Sectional Designs

In cross-sectional designs, the effect of different levels of treatments are measured on several groups at the same time. Symbolically, a cross-sectional design may be shown as follows:

$$\begin{array}{cc} X_1 & O_1 \\ X_2 & O_2 \\ X_3 & O_3 \\ X_4 & O_4 \\ (5) \end{array}$$

Thus, subscripts 1,2,3,4 show different groups of X given differing treatments. The corresponding measures after the treatments are indicated by O_1 , O_2 , O_3 , and O_4 . Cross-sectional designs are used when varying levels of advertising is done for the same product but in different territories or when varying prices are fixed in different territories. The impact of varying levels of treatment is studied on the basis of the sales of the product in different territories.

The design also suffers from some of the limitations applicable to earlier designs. Thus, there may be extraneous factors that may affect the sale in a particular territory.

Combination of Cross-sectional and Time-series Designs

These designs, as the name implies, combine the time-series and cross-sectional designs. While there can be many variants, a more frequently used design is the ex-post –facto test-control group. The design can be shown symbolically as follows:

$$\begin{array}{ccc} O_1 & X & O_3 \\ O_2 & & O_4 \end{array} \quad (6)$$

Such a design is well suited to continuous panel data. A certain advertisement (X) is run and panel members are then asked if they had seen it earlier. Those who had may constitute a test or experimental group and those who had not form the control group. It may be noted here that the experimental and control groups would not be known until after the advertisement was run. The impact of the advertisement is measured by comparing the difference in purchases made by the experimental and control groups before and after the advertisement.

It will be seen that the experimental and control groups were formed on the basis of whether the panel members had seen the advertisement or not. This self-selection feature of the design may be a source of systematic error. Besides, the testing effect may contribute to inaccuracy. Despite these limitations, this design provides data both cheaply and promptly if the panel already exists.

Controlled Experiments

We have seen in the preceding pages that ‘before-after’ experimental designs without control were subject to certain limitations, i.e. history, maturation, pre-testing and measurement variation. History may cause the ‘before’ and ‘after’ measurements to differ. There may be certain developments during the intervening period as a result of which the two measurements may not be comparable. The second factor is maturation which signifies biological and psychological changes in the subject which take place with the passage of time. For example, the subjects may react very differently ‘before’ a

television commercial is shown to them and after the programme. The third factor is the pre-testing which may affect the internal validity of the before-after design. If the consumers are asked about a particular product before the commercial on the television is shown, their responses to the after measurement could be influenced. Finally, variation in measurement may cause variations in the before and after measurements and these may be taken as the effect of the experimental variable. The foregoing limitations indicate the need for a control group against which the results in the experimental group can be compared.

In controlled experiments, two kinds of intervention on the part of the researcher are required. The first relates to the manipulation of at least one assumed independent or causal variable. In order to measure the effect of one or more treatments on the experimental variable, it is necessary that the researcher manipulates at least one variable. The second intervention relates to the assignment of subjects to experimental and control groups on a random basis. This is necessary so that the effect of extraneous factors can be controlled. As the size of the experimental and the control group increases the effect of extraneous factors on these groups on a random basis. This is necessary so that the effect of extraneous factors can be controlled. As the size of the experimental and control group increases, the effect of extraneous factors on these groups can be equalized or balanced by using a random selection procedure.

A few experimental designs are as follows:

After-only With Control Group

This is the simplest of all the controlled experimental designs. In this design, only one treatment is given and then both the experimental and the control groups are measured. Symbolically, it can be shown as follows:

$$\begin{array}{ccc} R & X & O_1 \\ R & & O_2 \end{array}$$

It has been criticised on the ground that it does not concern itself with the pre-test. However, by avoiding the pre-test, the design provides control over the testing and instrument effects. This design is particularly suitable in those cases where before measurement or pre-testing is not possible or where testing and instrument effects are likely to be serious.

Before –After With One Control Group

This design provides for pre-testing or before measurements. It can be shown symbolically as follows:

$$\begin{array}{cccc} R & O_1 & X & O_2 \\ R & O_3 & & O_4 \end{array} \quad (8)$$

Unlike design (6), this design provides for the selection of the experimental and control groups through the random method. The design is able to control most of the sources of systematic error. Both maturation and the testing effect may be taken as controlled in this design because of their presence in both the experimental and control groups. As the two before measurements, O_1 and O_3 and the two after measurements, O_2 and O_4

are made at the same points in time, the design is able to control history.

With the help of this design, one can measure the effect of treatments in three ways: $O_2 - O_1$, $O_2 - O_4$ and $(O_2 - O_1) - (O_4 - O_3)$. If these measures show similar results, the effect of experimental treatments can be inferred with greater confidence.

Four –Group, Six-study Design

When the investigator has to obtain data from respondents in an undisguised manner, the 'before-after with control group' design, such as the preceding one, is not suitable. This is because both the experimental and control groups are likely to be influenced by the before measurement. To overcome this difficulty, a four-group, six-study design may be used. Such a design is extremely suitable in all those cases where some sort of an interaction between the respondent and the questioning process takes place. Symbolically, the design can be shown as follows:

R	O_1	X	O_2
R	O_3		O_4
R		X	O_5
R			O_6

This is a combination of designs(7) and (8). The effect of the treatment can be measured in several ways such as $O_2 - O_1$, $O_4 - O_3$, $O_6 - O_5$, $O_4 - O_3$ and $(O_2 - O_1) - (O_4 - O_3)$. The after measurements can be shown in a 2x2 table as follows:

	NoX	X
Before measurements taken	O_4	O_2
No before measurements taken	O_6	O_5

The difference between 'No X' and 'X' column means shows the effect of the treatment. Similarly, the difference between the row means indicates the basis for estimating the testing effect. Further, the interaction of testing and treatment can be estimated from the differences in the individual cell means¹⁵. Finally, the combined effect of history and maturation may be estimated by $O_6 - O_1$, $O_6 - O_3$ and $O_4 - O_1$.

Our discussion of controlled experimental designs was confined to a single variable.- At this stage, it may be necessary to make some observations on experimental research. It is decidedly better than descriptive research as it enables the researcher to ascertain cause and effect, provided a proper hypothesis is formulated. Experimental research is likely to be more useful to management in decision making and in recent years, it gained popularity which shows that it is a very promising area for researchers. While both laboratory and field experiments are useful in marketing, the latter are generally preferred as they are more helpful to management on account of their being more realistic.

Sources of Experimental Errors

After having described the different types of experiments, we now turn to sources of potential errors in experiments. There are several errors which may distort the accuracy of an experiment. These are briefly described below.

- **History:** History refers to the effect of extraneous variables as a result of an event that is external to an experiment

occurring at the same time as the experiment. For example, consider the design $O_1 X O_2$ where O_1 and O_2 represent the sales affected by salesmen in an enterprise in the pre-training period and post-training period, respectively and X represents a sales training programme. This experiment is expected to indicate the effectiveness of the sales training programme by showing higher sales in the post-training period as compared to sales in the pre-training period. If the general business conditions have improved during the training period, when the sales could have risen even without the sales training programme.

- **Maturation:** Although maturation is similar to history, it differs from it, as the actual outcome is usually less evident. Maturation refers to a gradual change in the experimental units arising due to the passage of time. *In our earlier example* of training programme, salesmen have become more matured and more experienced due to the passage of time. As a result, the improvement in sales performance cannot be attributed to the training programme alone. Another example could be of consumer panels. The members of such panels forming test units may change their purchase behaviour during the period when an experiment is on. As the time between O_1 and O_2 becomes longer, the chance of maturation affects also increases.
- **Pre-measurement effect:** This error is caused on account of the changes in the dependent variable as a result of the effect of the initial measurement. *For example*, consider the case of respondents who were given a pretreatment questionnaire. After their exposure to the treatment, they were given another questionnaire, an alternative form of the questionnaire completed earlier. They may respond differently merely because they are now familiar with the questionnaire. In such a case, respondents' familiarity with the earlier questionnaire is likely to influence their responses in the subsequent period.
- **Interactive testing effect:** This error arises on account of change in the independent variable as a result of sensitizing effect of the initial measurement. In other words, the first observation affects the reaction to the treatment. *For example*, consider the case that respondents have been given a pretreatment questionnaire that asks questions about various brands of hair oil. The pretreatment questionnaire may sensitise them to the hair oil market and distort the awareness level of new introduction, i.e. the treatment. In such a case, the measurement effect cannot be generalised to non-sensitised persons.
- **Instrumentation:** Instrumentation refers to the changes in the measuring instrument over time. *For example*, consider the case when the interviewer uses a different format of a questionnaire in O_2 as compared to that used in O_1 . This would cause an instrumentation effect. A similar example could be of an interviewer who in his enthusiasm and interest in the survey in O_1 , explained to the respondents whenever there was any difficulty. But the same interviewer gradually loses his interest in the survey and does not explain properly to the respondents in the post-measurement period- O_2 . Yet another example could be when sales are

measured in terms of revenue and the company has increased the prices of its products in the intervening period.

- **Selection bias:** Selection bias refers to assigning of experimental units in such a way that the groups differ on the dependent variable even before the treatment. Such a situation arises when test units may choose their own groups or when the researcher assigns them to groups on the basis of his judgment. To overcome this bias, it is necessary that test units be assigned to treatment groups on a random basis.
- **Statistical regression:** Statistical regression effect occurs when test units have been selected for exposure to the treatment on the basis of an extreme pretreatment measure. *For example*, a training programme may be devised only for salesmen whose performance have been very poor. Sales increases in the post-treatment period may then be attributed to the regression effect. This is because random occurrences such as weather, health or luck may contribute to the better performance of salesmen in the subsequent period. Thus the effect of training programme may get distorted on account of this factor.
- **Mortality:** Mortality refers to the loss of one of more test units while the experiment is in progress. It may be emphasised that mortality leads to the differential loss of respondents from the various groups. This means that respondents, who left, say group A are different from those who left group B, thus making the groups incomparable. In case the experiment pertains to only the group, mortality effect occurs when responsiveness of the respondents who have remained in the experiment differs from responsiveness of those who have ceased to be in the experiment.

Criteria of Research Design

Having discussed a number of research, and sources of potential experimental errors, we now turn to the criteria which is good research design should have.

The main criterion of a research design is that it must answer the research questions. To do this, it is necessary that proper hypotheses be formulated otherwise there may be a lack of congruence between the research questions and hypothesis.

The second criterion relates to control of independent variables – both the independent variables of the study as also extraneous independent variables. In order to achieve this, it is necessary to follow the random procedure of selection wherever possible. Thus, subjects should be selected at random, they should be assigned to groups at random and experimental treatments should also be assigned to groups at random. Research design will be good to the extent that randomisation is followed. It must be used wherever it can be. This will ensure confidence in the results as there will be adequate control over the independent variables. Wherever it is not possible to follow this criterion of randomisation, the intrinsic weakness of the research design must be recognized.

The third criterion is generalisability. To what extent can we generalise the results of the study? It is an extremely difficult question to answer. This criterion does indicate that generalisability is a desirable feature of good research for one

would certainly like to apply the results to other situations. This is more true in the case of applied research.

Let's Recapitulate The Chapter

- Sources of Experimental Errors.
- History
- Maturation
- Pre-measurement effect.
- Interactive testing effect.
- Instrumentation.
- Selection bias.
- Statistical regression.
- Mortality

[illegible]

LESSON 8: TUTORIAL

Q: Compare the scientific and non-scientific methods of research?

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings present.

Q: Enumerate the various types of designs for natural experiments?

[illegible]

LESSON 9: RESEARCH OBJECTIVES RESEARCH PLAN

Introduction

Dear students here in this section we will discuss research objectives and research plan. We will get answer to various questions in this section viz. why marketer do marketing research, how do they go for it what strategies they followed.

Learning Objectives

- What are the research objectives of a firm.
- Objectives of monitoring research.
- Objectives of exploratory research.
- Objectives of Conclusive research.
- What is research plan.

Research Objectives

While we take any job or task, firstly we think about the objective of that task. Would you tell me that what do you understand from objectives, now correlate it with research objective.

To be profitable, applied research must be targeted on the decision-making process of the manager or client being served. That is, efficient research contributes to the evolution of a decision and to its final resolution in the choice of actions taken-at any stage where the benefits of research justify its time and cost.

This chapter mainly considers what is involved in those early decisions and, for each, the appropriate marketing research. Most of this discussion will be referring to problems and decisions. These are different subjects, and since it is important to have in mind their distinction, we begin with that.

1. A problem exists when the decision maker (or problem solver) faces uncertainty regarding which action to adopt in the situation. If only one action is available (or none at all), or if there is certainty about the outcomes of the alternatives, there really is no problem.
2. A decision is the determining of which is the preferable course of action to take. (Decision makers then will proceed to implement the action, if they have the will to do so.

Underlying the problem is a situation that is composed of either-

1. Opportunities whose exploitation the decision maker has not yet determined how to solve or
2. Difficulties that are manifest already or are anticipated.

We have already discussed in our earlier chapters about the application of marketing research this chapter will follow our that discussion. Generally four stages leading to a decision:

1. Discover and define the problem.
2. Determine the problem environment.
3. Determine alternative actions.

4. Decide on action to take.

Four types of research will be noticed, entering the decision making at certain stages. We will deal with those that are inputs to the first three decisions:

1. Monitoring research.
2. Preliminary research.
3. Exploratory research

We are going to describe both the decision stage and the type of research that contributes to it.

Objectives of Monitoring Research

A major task of management is to recognize and diagnose problems. No problem exists until someone asserts that it does, although the particular situation may have existed for sometime unrecognized. *Problem discovery is the first stage of any decision process, and is the main objective of monitoring research.* We first will consider the problem-solving task.

As said earlier, there is a problem when a decision maker faces uncertainty, which may concern either *difficulties* or *opportunities*. Difficulties are situations or developments that have negative or counterproductive consequences. Some of them are overt, which already are causing trouble. To these, a manager can only react. If instead a difficulty has not yet caused negative effects, it is latent and may be tractable. If a manager has a monitoring system that would detect a latent trouble, that manager can be proactive and move to solve the difficulty before it causes serious trouble.

Opportunities, on the other hand, are situations with positive potentials that, if recognized and capitalized on, are profitable to the enterprise. Of course, competitors may have recognized and moved on them earlier, and their preemption of opportunities may create a competitive gap in their favor—another sort of difficulty. Opportunities are more subtle to identify and challenging to solve, but they may lead to profitable innovations.

Managers need to be alert and sensitive to problem, but also must be informed. Most problem recognition is done by the managers themselves, through their own observations and various channels of communications—both within the organization (e.g., the sales force) and from outside (e.g. true shows and industrial media). This is hardly enough, though, in organizations that are remote from their markets and operations, which is true of all large firms.

A feedback system that includes monitoring research of markets and of marketing operations is highly advisable in modern business. Marketing managers of consumer goods are particularly active in monitoring their competitors and their customers “The more you know about the customer the better.” Says R. Stephen Fountaine the vice president of market research at Kimberley-Clark Corp. “You never know when a small fact might lead to a better product.”

Objectives of Preliminary Research

After discovering the problem, it needs to be defined, and this should be a statement in the terms used by the decision maker. Problem formulation should be done carefully, for one can jump too easily to the wrong premises. This statement targets the area of consideration; its accuracy determines whether the action to be taken is appropriate to the opportunity or difficulty that is being faced. There may be a number of plausible concepts of what the problem is. When that is recognized, it may be evident that deeper probing is needed. In other words, one should have “second thoughts” about the original perception of the problem.

Another issue at this stage is that of priorities. How serious does the particular problem seem to be compared with other current problems? Only the more significant problems should have priority for formal research. Only the problems involving the greater risk and unknown are profitable to study. When there is serious doubt and risk is involved, there not only should be very careful probing of the problem identification, but *also-preliminary research*.

The objective of preliminary research is to gather data on the situation surrounding the supposed problem to determine

- 1 A correct definition of the problem,
- 2 An understanding of its environment, and
- 3 Whether the initial feed back data—which triggered problem recognition—accurately pictured the situation.

Preliminary research has no standard techniques. A marketing researcher would use whatever means are appropriate to the problem and to the relevant phenomena. For instance, a preliminary study in a market for surgical instruments would proceed differently from one in a market for beer. The investigation's scope tends to be limited, particularly for gathering original data. Some field inquiries are likely to be worthwhile, to discover customer', dealers', or sales representatives' views of the problem's nature and gravity.

The results of a preliminary research project should enable the “right” problem to be identified—whether that deals with some difficulties or with some opportunities to exploit.

Objectives of Exploratory Study

The next question is whether there is sufficient need to conduct an exploratory (or alternative-oriented) study. Such a study's main purposes would be to determine the approximate area where the problem lies and also to identify some attractive courses of action to solve it. It may incidentally also enable a sharper definition of the problem to be made.

When the decision is a routine or low-risk one, there would be no exploratory study because the solutions already apparent can be selected safely enough. Often, too, time for an exploratory study cannot be afforded. When there is time and a serious situation, though, the decision maker should not be hasty about confining the decision to just the immediately apparent alternative solutions. By carrying on an exploratory study, alternative causes and solutions may be discovered together with insights on which ones are the more probable ones that the final decision should consider.

If an exploratory study of alternatives is conducted, it would begin with identifying a number of hypotheses that are known already in the firm. Discussions with managers in the company would probably bring out a number of hypotheses without having to leave the office. To obtain evaluation of these and additional hypotheses, a researcher should go to outside information sources, mainly of these types:

Statistics More careful analysis of company and industry data may be suggestive of alternatives, especially when correlated with the actions taken by various firms in the past.

Informed Specialists They tend to have the most ideas and usually considerable experience to draw upon. Observant members of one's sales department are an easy starting point. Externally and less biased, for consumer goods there are retailers, advertising agencies, and consultants, Industrial product explorations might go to engineers, purchasing agents, research personnel, and distributors.

Consumers or Users Here can best be found the needs and dissatisfactions that point to difficulties or opportunities. Industrial users may have excellent ideas about alternative solutions, but consumers are rare who can articulate them. Either can be gold mine in the right interview situation.

Exploratory research usually is small scale because some sources of information are relatively few in total number (e.g. informed specialists). Also the purpose is merely to find and to evaluate possible actions, not to obtain final direction of what should be done. The client is looking for good options and does not need large quantities of observations. This research should, however, methodically delve into all aspects of likely significance, not missing what may be the critical area by assuming too much. With the findings of an exploratory study, the decision maker should be in a position to define operationally the decision that is faced.

We pause here to make two points: preliminary and exploratory studies are not necessarily conducted as formal projects, and the exploratory is rarer than is preliminary. Managers often believe that the existence and nature of a problem is obvious (which it may be), and so they move directly to their final decision. Prudent managers do give serious consideration to conducting a conclusive research study as the basis of that big decision—which they would ignore only at their peril. Our second point is that preliminary and exploratory research are hard to differentiate, and we do not insist on doing so. What has been established in this discussion is that there are two *different decision phases* during the development of decision—one calls for preliminary research while the other is served with exploratory.

Operational Definition of the Decision

That every important decision should be expressed in a clear, sharp statement is an obvious requirement. That need may be obvious to readers, but in practice manager often make major decision without any precise definition of them. The concept of a decision should have been developing much earlier than the phase we now are discussing—that is before the exploratory studies at hand (in our example), a client can write a lucid and correct statement that frames the coming decision.

Various decision-making models may be found in decision science literature. Since a researcher is not responsible for that choice, we are not treating that subject. But researchers should learn how a client is going to make the decision on which they are working together, for the design of a conclusive study needs to be based on how the client has defined that decision. Researchers often have frustrations in eliciting this from a client. Often client do not want to spend the time or reveal just how they are going to make a decision; persistence is needed.

Assuming that there are no communication barriers, let us move on to our meaning of an “operational decision”. It would be one that is amply clear when applied to solving the problem. That decision definition should include these elements: (1) the decision’s objectives, (2) the hypothetical solutions that are to be considered, (3) the payoff or criteria on which the determination will be judged, and (4) any constraints that will limit the acceptable solutions.

All four of the elements in such a decision, that we prescribed, will be found in this decision statement.

When a mutually satisfactory statement is reached, the researcher can turn to determining the objectives for conclusive research.

Setting Objectives for Conclusive Research

This step accomplishes the last task covered in this phase and should prepare the researcher for designing a conclusive study (if one is to be done, which will be discussed shortly). As conclusive studies tend to be the major ones, their objectives deserve the most care.

The objectives’ statements needs to scope of define all aspects of the study that require planning. One of these is the limiting factors, obviously including how much time there is before decision deadline and the maximum that might be spent (at this point perhaps a guess). Most subtle limits might be the willingness of the client to use sophisticated analyses and detail. If the client’s demands for precision are known, this can substantially affect and plan and serve as an objective. The more vital objectives are those that describe what is required of the data to fit the decision needs. The data to be sought will be determined at a later stage, and here guidelines are being chosen for planning the specific data.

The Research Plan

Now we will discuss the remaining phases of planning research. At this point the rest of the planning tasks will be summarized. Also we will discuss briefly the proposal to conduct the study and the process of obtaining approval to proceed with it.

Design of the Research

A research design is the determination and statement of the general research approach or strategy adopted for the particular project. It is the heart of the planning. If the design adheres to the research objective, it will ensure that the client’s needs will be served.

Many types of design have been classified into certain categories. Experimental designs (Discussed earlier). In developing the particular design for a certain study, a researcher will be anticipating the needs and circumstances of the proposed study and will specify in advance what to obtain and what to do. All

this should adhere to the objectives, the subject last discussed. We dealt with objectives for conclusive research, which is more critical and needful of being formally designated. The three other types of research (monitoring, preliminary and exploratory) also should have explicit designs, but more simple ones.

Then, we shall present various kinds of data that might be specified in a design. Since a research design would be tailored to the particular decisions and situation, there can there can be a great variety. They can be categorized, however, into certain classification.

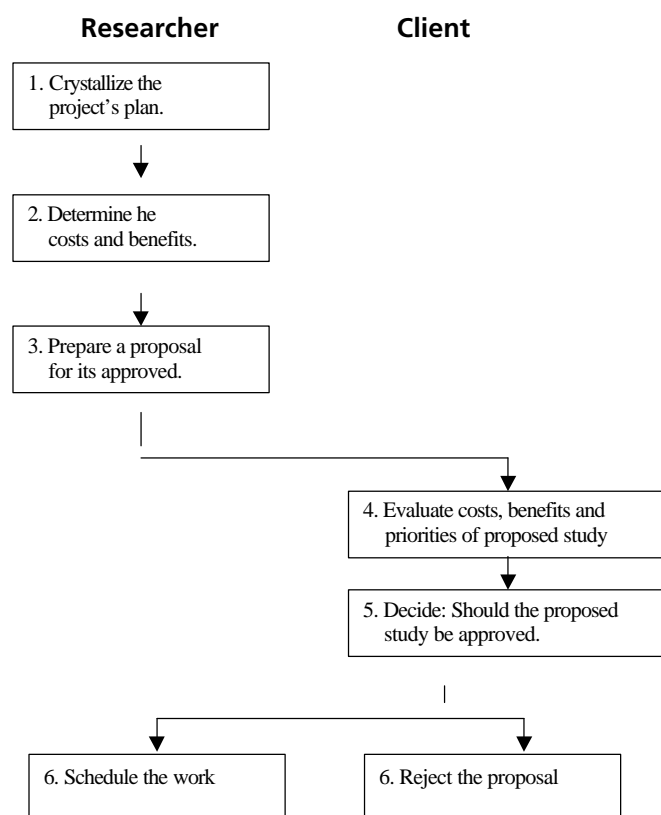
Proposing and Approving a Project

Any project that entails significant costs to an organisation is going to require approval at higher levels. Approvals also must be given to projects conducted by any outside organisation. Although proposals and approvals normally take place after all a project’s methods have been decided, we insert a brief description of them now, for an advance understanding of what a researcher must plan for a project.

Proposing a project The first part of the tasks dealt with here is primarily the researcher’s; the second part is the client’s in their interface. There are six tasks, which are charted in Figure given below.

For every study that is considered, two critical questions are faced: (1) What are its probable costs? and (2) Will its benefits or profits be greater than the costs? Often a new study involves similar methods to the organisation’s past experience. This bound to happen in a big marketing research department

Figure



Most projects differ somewhat—and some radically—from those of past experience, and our two questions are challenging. A sort of cost/benefit analysis should be made, in which the costs usually are the easier part to estimate. Any marketing research firm or department should have developed a formula for doing this.

A project's value or benefit is capable of being described when its plans have developed systematically. They would have been clarified in the dialogue between client and researcher. However, quantifying them to calculate a cost benefit ratio is an exacting process. Evaluation of a study's value may be just an informal judgment for a project of low cost. Large ones, instead, usually must be approved at levels above the client, which means that a formal justification in writing is required. For those, there must be a careful evaluation and rationale.

The evaluation may have any of the three following approaches.

1. Intuition which could be right but is not explicit and recorded.
2. Calculated judgement. Using explicit and stated reasoning.
3. Decision theory, which applies modern decision models that incorporate the decision maker's best assessments of uncertainties and their probabilities or occurrence. These assessments are quantified so that there is a numerical basis of decision. This approach needs explanation, which is given with an example in Appendix B, at the back of the book.

The Proposal serves as the justification for a project. If client and researcher have themselves concluded that it is well worth conducting, there remains the convincing of the executives who have power of approval or rejection. This is important for a research department within a firm, but it is an absolute requirement for outside agencies, if they are to be awarded the research job. Preparing a proposal is therefore a meticulous task. There usually is a standard format in which they should be written.

A proposal written by an inside research department should include:

- Statement of the problem and why the study is desired.
- Objective—questions to be answered and data inputs.
- Methodology, including demonstration that the data will provide suitable conclusion.
- Requirements (funds and time) and scheduling.

An outsider research agency needs to cover more in its proposals. They would include qualification of the agency, the person who will direct the project, verification procedures, exactly what will be reported, financial arrangement, and security measures.

Approval The evolution of the project would lead to writing a proposal for its adoption, which we have covered. Then it should be evaluated and approved by the client. If the researcher is part of the in-house marketing department and has collaborated with the client during its developing plans, approval at that level is basically assured. If it is an outside agency that submits the proposal, approval by the individual client definitely is required. Then the proposal goes “up the line” to whoever is designated to authorize the proceeding and the budget for the project.

Many studies may be requested of marketing research by various managers, normally more than can be funded. In the practical work, getting budgetary approval is key to undertaking any project (in research of elsewhere). There probably will be established procedures for such decisions, and those should include

Who is authorized to give approval?

Whose budget will be charged for the work?

When are projects to be approved?

What are the criteria for approving a project, which usually are printed on forms that are sent up the time for approval?

If a project is approved, the marketing research department has the task of setting up schedules. Arranging and charting schedules and then keeping control of progress are among the necessary tasks of every department or firm in marketing research. If the authorizing person does not approve, as Figure shows, the proposal is simply rejected or held for resubmission

when the situation is more favourable for adoption.

Let's Recapitulate the Chapter

In problems where conclusive research is to be conducted, those three types would lead to setting objectives for a conclusive study. One should recognize that each of those levels of research is optional, depending on the needs in a particular problem and on the client's preference.

This chapter began with reasons why research is undertaken: to indicate problem solution and to guide decisions. Background to the setting of research objectives included explaining the distinction between problems and opportunities. The first category of research as shown in Figure 3-1 was monitoring studies, whose nature and objectives were discussed. Then began a continuing and fictitious example, which illustrated monitoring research.

We proceeded to the objectives for preliminary research and continued the example with it. Similar treatment then was given to exploratory research. Information sources for preliminary research had been noted to be too various for description, whereas those for exploratory studies were embraced in just three types of sources: statistics, informed specialists, and consumers.

At that point ended our discussion of monitoring, preliminary and exploratory research. The balance of the text will emphasize conclusive research—although with some applicability to those early levels. We describe operational definitions of the decision being faced, which was followed with the setting of objectives for conclusive research to guide those decisions. And this included the final episode of our continuing example.

Research Objectives

Four stages leading to a decision

1. Discover and define the problem.
2. Determine the problem environment.
3. Determine alternative actions.
4. Decide on action to take.

Objectives of Monitoring Research

- Problem discovery is the first stage of any decision process, and is the main objective of monitoring research. As said earlier, there is a problem when a decision maker faces uncertainty, which may concern either difficulties or opportunities. Difficulties are situations or developments that have negative or counterproductive consequences. Some of them are overt, which already are causing trouble
- Opportunities, on the other hand, are situations with positive potentials that, if recognized and capitalized on, are profitable to the enterprise. Of course, competitors may have recognized and moved on them earlier, and their preemption of opportunities may create a competitive gap in their favor—another sort of difficulty

Objectives of Preliminary Research

The objective of preliminary research is to gather data on the situation surrounding the supposed problem to determine

- 1 A correct definition of the problem,
- 2 An understanding of its environment, and
- 3 Whether the initial feed back data—which triggered problem recognition—accurately pictured the situation.

Objectives of Exploratory Study

- By carrying on an exploratory study, alternative causes and solutions may be discovered together with insights on which ones are the more probable ones that the final decision should consider. If an exploratory study of alternatives is conducted, it would begin with identifying a number of hypotheses that are known already in the firm. Discussions with managers in the company would probably bring out a number of hypotheses without having to leave the office. To obtain evaluation of these and additional hypotheses, a researcher should go to outside information sources, mainly of these types:
 1. Statistics.
 2. Informed specialists.
 3. Consumers or users.

Operational Definition of the Decision

- That decision definition should include these elements:
 1. The decision's objectives,
 2. The hypothetical solutions that are to be considered,
 3. The payoff or criteria on which the determination will be judged, and
 4. Any constraints that will limit the acceptable solutions.

The Research Plan

- Design of the Research.
- Proposing and Approving a Project.
- Approval

A Comparison of Basic Research Designs

	Exploratory	Descriptive	Causal
Objective	•Discovery of ideas and insights	•Describe market characteristics or functions	•Determine cause and effect relationship
Characteristics	•Flexible •Versatile	•Marked by the prior formulation of specific hypotheses	•Manipulation of one or more independent variables
Methods	•Often the front end of total research design •Expert surveys •Pilot survey •Literature search •Qualitative	•Pre-planned and structured design •Secondary data •Surveys •Panels •Observation	•Control of other mediating variables •Experiments

Exploratory Research

- Can be good at diagnosing a situation
- Good at providing a preliminary screening of alternatives
- Useful to generate new ideas

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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- This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

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This image shows a full page of blank, lined paper. It features approximately 28 evenly spaced horizontal grey lines across its entire width, providing a template for writing or drawing. The margins are consistent on all sides.

LESSON 10 :

DATA OBJECTIVES, SOURCES OF DATA

Introduction

We now have proceeded through two steps in planning a research project:

- 1 Setting objective(s) that it is (are) intended to serve.
- 2 Selecting the right design. Both client and researcher should collaborate in these first determinations, which are comprehensive decisions. Given these, the time has arrived for specific decisions. The questions next dealt with include: What objective would each item of data serve? What specific type of data should be suitable for them? And how should it be gathered?

Learning Objective of the Chapter

- To understand the purpose to collect data.
- Different sources of data.

Specifying Data and Acquisition Methods

Data Objectives

The research objectives were derived from the decision objectives. That served as a basis of understanding to assure the client of relevant findings. That does not, though suffice to direct the project's planning.

The statement tells the nature of the results expected from the study, what it should enable the client to conclude or predict. It states the particular marketing actions (in pricing and composing) whose effects are to be measured (in general terms, which can be defined more sharply). It does not tell what data are to be obtained, or from whom, to make the predictions. And it fails to specify the methods to be employed.

The data objectives are derived from the research objectives and comprise what we have observed to be lacking in the example. Their determination rests mainly on the researcher, to translate what the decision maker wants into a specific description of the needed data.

Let us first look at the general qualities that should be required of the data:

The measurements will be relevant to the decisions faced and will guide their key aspects. The data will be accurate in both

1. Validity, that is, they will measure what they are supposed to, and
2. Reliability, that is, repeating the same methods would produce the same results.

That data can be obtained quickly enough and at an affordable cost.

Those three principles are obviously generalities, but they are essential. As the researcher works toward precise data objectives, those that are tailored to the client's particular decisions, the task becomes more difficult. When clients have clearly described their

perception of the task becomes more difficult. When clients have clearly described their perception of the problems and their decision methods. The researchers in turn can put the data objectives on target for the client's use.

Besides considering decision requirements, the researcher should consider the personal objectives and decision-making style of the clients. Unless these needs are met, clients may lack confidence in a style of the clients. Unless these needs are met, clients may lack confidence in study findings and reject them. Sometimes researchers are too fascinated with sophisticated methods and novel concepts to recognize what the client really wants.

Data Types

A nearly endless variety of data now exist or can be obtained, but only a few types are relevant to each study's data objectives. Researchers have a substantial task a selecting the prices types of data to acquire. To be able to make this selection efficiently, one should sift through a number of data types to focus one the suitable once. For that reason, we now will describe numerous data classifications that indicate something of that background. It may seem tedious to read still more lists, but recognize that they are here as examples and not as things to memorize. We will just indicate what is done during it and first give clues to specifying data by describing two types of classification:

1. The data's nature and
2. Its function in the ultimate interpretation and analysis.

Nature of the Data

We are categorizing data here in general terms of their meaning. There are distinct differences among the meanings of facts, knowledge, opinions, intentions, and motives.

Facts include the measurements of anything that actually exists or has existed. Usually, facts describe tangible things. Although they can be intangible as long as they can really be determined. It may be a fact that Smith and Sons sold 417 new Plymouths last year and that this bettered the previous year by 55 units. It may be a fact too that Joe Smith dominates the partners who own the firm, but this fact might defy measurement.

Facts are ideal in the sense of possible measurement accuracy. The interpretations we place on real facts, through, may be inaccurate. We must beware of the danger that what we are dealing with the "quasi-facts: - as we would call them –which are seemingly facts or reality. We are often learning that long – accepted truth were never valid. Many "facts" too are based on estimates or on samples that have a degree of unreliability. These latter may be used in research. But should not be treated as absolute truth. Some of our fundamental data (like the gross national product) have to be based on quasi-facts.

It helps data specifications also to recognize that facts have many subtypes, and the relevance to us are those descriptive of people. We will mention four of them;

1. **Demographic:** - These are facts that describe the population to which the data refer, and in marketing, much of our description is economic, for example, that a family responding in a survey has an annual income of \$21,700. The composition and age of family members or of one person also would be a form of demographics.
2. **Sociological:** - These data describe how people are organized in and relate to society, for example, groups or churches to which they belong.
3. **Psychographics:** - Facts that describe the life – style of an individual or of a group, in some respect pertinent to the study. For a hypothetical example, automobile sales people tend to live in apartments rather than in single homes (more often than average U.S. adults). That might be quantified, that 69 percent of them rent.
4. **Behavioral:-** What people do, how they actually behave, are facts of high importance in many marketing studies. If a large proportion of new car buyers visits three to five dealers, all with the same make of car; this could be very significant in a dealer's decision on how to treat them.

Knowledge (that is, what people know) also may be desired data, since that information (be it true or false) may be a determinant of what they do. Consumers' knowledge or awareness of products or brands is an example that is an indicator of the effectiveness of past communication, when setting goals or deciding the scale of future advertising.

Opinions are how people perceive something – what they believe about it and what those beliefs signify. The most potent form of opinions tends to be attitudes, which are mental sets or predispositions to act in some manner (e.g., to decide in advance not to accept the trade – in offered by the first dealer visited). Another form is images of what something is like (e.g., how a New Yorker envisions the New York Telephone Co., Opinions are significant, of course, as they affect behavior, and attitudes exert a general and consistent influence.

For example, Mrs. R believes that her balanced diet supplies plenty of vitamins and that she has no need to pay a premium price to obtain them in breakfast cereal. As a result, her behavior is to buy those cereals with the lower prices per ounce.

Intentions are the acts that people have in mind to do, expectations of their behavior. The extent to which people intend to commit a particular marketing behavior and changes in these intentions may be key information. If Union Motors Corporation learns from a monthly data service that 14.1 percent of consumer families intend to buy a new car within the next 12 months, as against 14.4 percent in the previous report, it may receive its production plans.

Motives are the internal forces that cause people to behave as they do. Marketers would dearly like to have accurate data on the motives that impel buyers' actions relative to the marketer's product categories. Many motives are quite obvious or are subjects about which people will speak freely. The basic causation of behaviour instead may lie deeply and be difficult to draw out. You will meet some techniques, their, that may elude motivational data. That often cannot be done, so the researcher

needs to select other kinds of data with which the motives might be inferred.

Functions of the Data

Also relevant in specifying data needs is to have it classified in terms of how it will be utilized, at the stage of analysis, when the researcher brings together various bits of data and synthesizes conclusions from them. As that implies, one needs to anticipate early the future analysis and synthesis of the data and how they would function in that process. This takes time and it is challenging. But it avoids wasted time and money gathering redundant data while making it likely that the collected data will fit the decision needs.

Let us begin by thinking about a simple experiment, in which one hypothesis (or possible cause) is to be measured in terms of its effects. If we have one cause (x) and one effect (Y), this hypothesis is simply expressed as

$$Y = f(X)$$

To make this determination, the reader needs to conceive of and specify just two kinds of data: the causation (X) and the effect or payoff (Y). These are our two first functional categories.

The researcher in Union Motors wants to find out whether taking a demonstration ride (the cause) affects whether a car is bought (the payoff).

Considering this example further, we may recognize that the character of the person of family buying a car may have significant effects on the payoff. That is, some kinds of people or those in certain circumstances may be more affected by the causal variable than others. Therefore, the researcher needs to obtain an adequate description of them. With certain data. These comprise our third functional classification of data, description. This category of data is needed also to describe the sample or cross section of the population that the study has covered.

As an example, consider again the proposed study for Union Motors. For interpretation purposes an important factor might be whether the subject(s) in each car-buying incident was an individual man or woman or some combination of two or more people. To check the sample, maybe the researcher wants to know the make of car(s) now owned by the shoppers(s). Thus descriptive data would play important functions and must be specified to be gathered.

There is still a fourth function to be served by the data; that of identification of the person who obtained an interview or made observations, the name or address the subject, or the location where the data were obtained.

Identification data for the Union Motors, study could be the date and the place of obtaining the information (e.g., at Smith and Sons on March 18, 1986) and the field staff member who made the interview (Sam ide).

To summarize our terminology for functional classifications of data, they are these four:

1. Causation.
2. Payoff
3. Description
4. Identification

Sources of Data

There are numerous possible sources of data, and again we cannot list them in detail. Anyway, this is a determination that is special to each project. A step toward that determination is having, first, general classification of sources, which we now offer in several dimensions.

Secondary sources should first be considered, which refer to those for already gathered and available data (in contrast with primary data). There may be internal sources within the client's firm. Externally, these sources may include books or periodicals, published reports, data services, and computer data banks. These are so important that Chapter 7 will be devoted to them.

Primary data may be obtained from individuals, from families' representatives, or from organizations. There is increasing use of panels, which are groups of people (usually with some factor in common) that supply information. These may be one-time or ad hoc panels that are utilized for just one occasion. There are also more or less permanent panels that are used repeatedly, which tends to make the information more comparable over time. This also avoids the costs of recruiting new sets of people for each data gathering, valuable also for repeated measurements.

Location of the data sources is another option to be considered. Traditionally there have been three common types of locations:

- 1 Where the subject lives (at home),
- 2 Where the subject, their congregating in shopping malls has been a boon to gathering information.
- 3 "Mail intercepts" in which people are importuned in shopping malls to participate in a study (typically in a small facility that a research agency maintains) have rapidly increased in usage.

As these several kinds of options suggest, today's marketing researcher has a variety of source possibilities. This also must be stipulated in the data specification. Next we will discuss a different data decision: By what means of communication should it be obtained?

Communication Approaches

In deciding on which of the various means of communication means to choose, a researcher has much to consider. We introduce this subject with a simple division of communication media into two broad types: observation and questioning. Also we will consider the matters of whether to use structure and disguise. After that, each of the main media will be discussed and then their merits will be compared.

Through perceiving situations or actions, one can record and measure some descriptive facts. Observation includes both human means of perception and recording, which might be termed manual, and human means or mechanical. Manual is carried out by personal observers who see or hear the phenomena specified in the study.

Observation

A number of mechanical means of observation are in use today, some quite ingenious. Some have been around for many years, including attachments placed on television sets to record the time and channels when turned on to telecasts. Tape

recorders, traffic counters, and photography have long been used in marketing studies. An example of the last is the eye camera. Set up in laboratory to record the gaze motion of the eyes of a subject who is looking at an advertisement.

A very notable development, in observation, stemmed from the adoption by food manufactures of the Universal Product code (UPC) and its symbols (each one unique for a product) printed on labels. This was accompanied by electronic recognition devices to "read" or scan those codes at retail checkout counters. Projection of growth in scanners, by A.C. Nielsen Company, is that about 14,000 supermarkets will be using them when this book appears – all of them sources of quick and exact data on movement through supermarkets."

Another important innovation, in observation methods, has been devised to "cut into" cable television reception of selected homes. With this, a commercial under test may be substituted for the scheduled commercial being transmitted to the rest of the homes on that cable service. This created data for determining the tested commercial's effects. One drawback has been that homes not hooked up to the cable were excluded. A more recent electronic creation enables commercials also to be cut into noncable households.

In this Nielsen service, both forms of scanning (of supermarket purchases at checkouts and of home viewing of commercials) are combined with a third observation measurement that uses a 2500-member consumer panel who present an identification card when they purchase at the supermarket checkouts. With this, their particular purchases can be specifically identified in the UPC and can be linked with the scanning of their TV viewing. Other variables in the sales environment, observed by the agency's field personnel, are gathered that measure the promotional variables in each supermarket (e.g., displays, special pricing, and store advertising). These variables are reported along with the scanner information, enabling them to be analyzed for their effects on sales (for any segment of the consumer panel).

The Nielsen service was chosen as our example, but other agencies offer similar services. This illustrates the amazing innovations that are changing marketing research. Also it shows the extent of information and analysis that can be gained from observation alone.

Questioning

Attractive as observation may be as the medium for gathering data, it is very limited in its uses and its data. In the majority of research problems, the required information can be gained only by asking for it. This is done mainly by interviewing, but also data may be obtained through self-administered questionnaires distributed by main and other ways. There are several means by which questioning can be carried out, which we will categorize as personal, telephone, and mail. Each will be discussed under separate headings.

Lets Recapitulate This Chapter

Data Objectives

Let us first look at the general qualities that should be required of the data:

The measurements will be relevant to the decisions faced and will guide their key aspects. The data will be accurate in both

- 4 Validity, that is, they will measure what they are supposed to, and
- 5 Reliability, that is, repeating the same methods would produce the same results.

• **Data Types**

We will just indicate what is done during it and first give clues to specifying data by describing two types of classification: (1) the data’s nature and

- 6 Its function in the ultimate interpretation and analysis.

• **To Summarize Our Terminology For Functional Classifications Of Data, They Are These Four:**

- 1. Causation.
- 2. Payoff
- 3. Description
- 4. Identification

• **Sources of Data**

Three common types of locations of data source:

- 1 Where the subject lives (at home),
- 2 Where the subject, their congregating in shopping malls has been a boon to gathering information.
- 7 “ Mail intercepts” in which people are importuned in shopping malls to participate in a study (typically in a small facility that a research agency maintains) have rapidly increased in usage.

• **Communication Approaches**

Observation

Questioning

LESSON 11: COMMUNICATION APPROACHES

Introduction

We now have proceeded through two steps in planning a research project:

- 1 Setting objective(s) that it is (are) intended to serve.
- 2 Selecting the right design. Both client and researcher should collaborate in these first determinations, which are comprehensive decisions. Given these, the time has arrived for specific decisions. The questions next dealt with include: What objective would each item of data serve? What specific type of data should be suitable for them? And how should it be gathered?

Learning Objective of the Chapter

- Factors in decision on Media.
- Selecting the media.
- Formulating a Data plan.

Factors in Decisions on Media

The word “media” is being used in its general sense, during this discussion, to refer to a means of communication (and not confined to published means like newspapers or radio). In making plans for gathering primary data, a basic question for the researcher is: What attributes should the communication method have to obtain the desired information accurately and efficiently? (That is, what are the key criteria in choosing the medium in this study?)

We are going to discuss the chief media, with strengths and weaknesses of each. Before that, consider two general aspects:

1. What degree of structure is desirable?
2. What degree of disguise is required?

A *structured* formal method standardized the questionnaires to be used in gathering the data. The question would be printed so that interviewers will ask them exactly as given. The answer categories may be standardized and printed also. The contrary, or informal, interviewing approach leaves the wording of questions to interviewers’ discretion. Answer categories are unstructured when the respondents (people interviewed) are free to word their replies. The degree of structure would dictate which media to use.

Disguise is the concealing of purpose or sponsorship of a study. This may be fair, as well as desirable, when used to avoid people slanting their answers when those aspects are revealed. However, it would be unethical when respondents are misled into divulging information that they would refuse if actual sponsorship was revealed.

An example of legitimate disguise was in a National Broadcasting Company survey of factors that underlie aggressive behaviour among teenage boys. It was evident that should the boys be aware that the questions were seeking links between TV exposure and aggressive behaviour, they would either slant

replies or refuse to answer the questions. This outcome was avoided by describing the purpose as a study to find out what boys their age were really like.

There are various attributes, of the media that might be used for gathering information, that may be the criteria used for choice among them. We will list ten such criteria.

Bias freedom (from interviewer’s effects)

Control over data collection

Depth of questioning possible

Economy, or low cost per response obtained

Follow-up ability, to reach those not responding

Hard-to-recall information obtainable

Rapport, or ease of establishing a good relationship with respondents

Sampling, or completeness of covering desired population

Speed of obtaining responses

Versatility, or ability to use a variety of questioning methods of course, one would like to find a communication method with all those attributes. Actually, each method is going to be deficient in some of them. For that reason, a researcher should have decided on the right criteria before evaluating the alternative media. We will comment on each medium’s virtues and faults, with respect to those criteria.

Selecting the Media

In considering which of the plausible communication methods to use more than the foregoing criteria should be considered carefully. Practical consideration of the people or sources of information and of such factors as the time required and the costs is needed too. Next we will look at the three main categories of media and subtypes within them, starting with personal contact with data sources.

Personal

The personal medium is that of an interviewer being face to face with the respondent (the data source). This was the traditional medium, and it may take place in various types of locations. We will speak first of interviewing at a subject’s home.

Home interviews, if obtainable, tend to find the respondent at ease and perhaps with ample time for extensive questioning. Home interviews are advantageous in the versatility of questioning – for instance, either structured or unstructured – as well as the showing of scales or such other visuals as lists and pictures, since respondents can see them. In addition, interviewers can see when respondents misunderstand questions. Also, observing the situation may yield significant information. Too, a better rapport with the respondent may be gained. But the personal medium may have serious faults, including bias from obtrusion of the interviewer and the time involved in

locating and gaining willingness of the respondent. We summarize some pros and cons:

	Favourable		Unfavourable
1.	By physically being there, the interviewer may persuade the person to supply answers.	1.	Travel time and expense to find respondents is often excessive.
2.	Information on the situation may be observed, without asking.	2.	People are becoming more reluctant to talk with strangers.
3.	Questioning methods and use of visual materials may be varied.	3.	Interviewer's presence, mannerisms, and inflections may bias responses.
4.	Long questionnaires may be used successfully under interviewers' urging.	4.	Respondents know that they can be identified, which may inhibit their willingness to give information.
5.	If respondent is having trouble understanding, interviewer may notice and remedy this.	5.	Difficulty is encountered in trying to supervise and control field interviewers.
6.	Selection of sample members can be more precise.	6.	Staffing with capable interviewers, especially when conducted in distant places, is difficult.

Variants is personal interview methods are preferable to structured home interviews in many cases. The cost and time of going to respondents' homes are avoided by encountering them elsewhere. So-called traffic interviews may be held on streets, in public buildings like air terminals, and in other places where many people are passing. Election polling is virtually forced to use this approach to make quick measurements to forecast voting, but obviously only short queries can be used with people on the move.

A form of traffic interviews that has become second in frequency of use is the mall intercept. Staging surveys in shopping malls takes them to the most popular gathering point of today's consumers. The research agency that is making the survey usually rents space in the mall adjacent to the point

of intercepting possible respondents. Short screening interviews may be held out in the mall, and then selected respondents can be brought into the interviewing facility where longer interviews can take place, using films, simulated stores, and other aids. Lower costs and more control over selection of respondents are afforded. This method, like all traffic interviewing, can be flawed by the inability to include a full cross section of the desired population.

Another variant is to substitute self-administered responses for the normal question-and-answer method. The question forms are simply handed to respondents, who are to fill them out and return them. It clearly is best to have this take place right where respondents are met. If instructions are clear to all – and the subjects are willing to do this task – savings are likely. Only wholly structured questions can be used, and answer categories may have to be structured too since few subjects would be willing to write in their free responses.

The opposite of structure characterizes depth interviews. In these, only some introductory and classification questions may be formally printed on the interviewing form. For the principal information, interviewers are given guidelines to conducting informal questioning. The intent is to elicit information through probing with a series of questions determined by interviewers on the spot, going to depths of memory or the subject's psyche. If well conducted with cooperative respondents, much may be learned about attitudes and experiences that no other method may obtain. Responses may be stimulated with projective techniques that cause subjects to bring out their own personalities as they respond to ambiguous situations presented to them with visual aids. Against the benefits of the unstructured probing are a number of dangers in lack of control, bias, costs and small samples that may be unrepresentative.

The varieties of personal communication methods just described illustrate some alternatives to the formal at-home interview that were traditional. That method suffers from problems of finding people at home, of their reluctance to talk with strangers there, of intrusion of the interviewer into the situation, and of lack of supervision. Each alternatives, of course, must be considered in relationship to the peculiar needs of each study. Now we will look at the telephone and mail media, after which the three media will be compared.

Telephone The most convenient means of reaching survey respondents is clearly the telephone. This depends on their having home phones. Since those people tend to do have home phones tend to be the more affluent, the small minority without phones causes no serious error in most surveys' coverage. Low-income, single or transient people without telephones are significant segments in many studies, however, and telephones would be a deficient medium in these cases.

The cost and time of reaching remote people by long-distance phoning used to be cited as a deficiency of this medium. That has been overcome by volume discounts and wide-area services throughout the United States and Canada. These generally are called "WATS lines," although that is a trade name of the AT & T system, but comparable services also are offered by its rivals (such as Sprint or MCI). Modern field research firms now have central offices where a large number of wide-area phones are

directly supervised. They now heavily use telephone surveys, which justifies that investment.

Another great advance has been gained from the combination of computers and cathode ray tubes, which are like television sets in placing a console screen in front of the interviewer. The computer can store banks of telephone numbers and questions with answer categories. Thus the desired phone numbers are automatically dialed, and each question is flashed before the interviewer in sequence. The interviewer becomes free to concentrate on communication with the people called, and responses are processed by computer. We will say more about this in chapter 13.

There can be severe drawbacks in the telephone medium. One is inability to show anything visual to a respondent. Who must be able to conceive of the purpose, the questions, the questions, and the forms of answer desired wholly by listening. An interviewer must be able to establish rapport with the unseen persons at the other end and to sense and cope with problems in the situation without seeing it. Long interviews are tedious, and unlisted phones are a problem to overcome. The pros and cons of telephone media mainly are these.

	Favourable		Unfavourable
1.	Dialing respondent's phone number is efficient, especially when a number of callbacks are needed.	1.	Respondent and his or her communication problems cannot be observed.
2.	Personal travel to place of interviews is avoided.	2.	Interview is limited to audio materials. Precluding everything that has to be seen.
3.	Respondent does not have to open door to stranger.	3.	Retaining attention for long interviews is difficult, there is no way to prevent the interviewee from hanging up the phone.
4.	Coverage of even widely scattered sample is repaid.	4.	Respondent cannot see interviewer, so may be suspicious or hostile.
5.	Distance is no obstacle or serious cost with WATS lines.	5.	Only homes with telephones may be reached. Problems arise with unlisted numbers and lines out of order.
6.	By interviewing from one central point, supervision and training can be excellent.		

Mail The postal service will deliver questionnaires to an address, where the probability of receiving it is high. The respondent may answer at leisure when thought can be given to pondering answers or data may be looked up in records to give

accuracy. With anonymity assured, a person may feel willing to tell about confidential matters that would never be divulged to a person interviewing. Almost any sort of printed material can be mailed. Costs amount only to those of address lists, printing, postage, and handling.

The negatives are considerable, however, particularly that responses may be slow in trickling in and that the majority of addresses may never be reached. Unless current mailing lists of the types of persons or organizations sought are available, a proper sample may be impossible. Respondents may become very confused about instructions, and people of low literacy may not even try. We would say that the major points for and against the mail medium are these.

	Favourable		Unfavourable
1.	Respondent reads and answers questions without being influenced by interviewer.	1.	A majority may not respond, and those that do may not be typical.
2.	Interviewee may respond whenever convenient and without any pressure.	2.	Weeks and longer may pass before the bulk of responses are received.
3.	Addresses may be widely dispersed and include persons inaccessible by any other medium.	3.	Nothing can be learned about respondent and situation except what he or she writes on the questionnaire.
4.	Any visual materials can be used.	4.	The apparent low costs become relatively high when response is poor.
5.	Cost is confined to mailing lists, forms, and postage.	5.	No one present to stimulate replies or offer instructions
6.	More confidential information may be divulged.	6.	A person will read the entire form before answering any questions, so later questions can influence answers to earlier ones.

The drawback of low response rates can be overcome through mailing to an established panel of respondents. A number of research organizations have created and maintain panels of consumers, with as many as 75,000 names to draw from and with consistent records of obtaining 70 to 85 percent response rates. Some of these panels maintain diaries, which makes detailed purchase records available. Since panel members are so likely to respond, more costly materials such as product samples can be afforded than is true in ordinary mail surveys with their likelihood of low responses. Techniques for small surveys will be found in Chapter 13.

Compassions of the Media

In the planning of each marketing research project, the choice of the best communications media rests on a number of considerations. This choice should be made on explicit criteria. We set forth ten factors to consider on page 104. Now that we have discussed the nature of the three principal methods that may be used for questioning, they are compared in Table 6-1 with regard to the same ten factors.

These rankings should not be interpreted too literally, because this table compares only three media in general. If all the forms of personal interviews and if observations were included, that would more than double the columns. Special factors might have to be considered, in many cases. And there are situations in which medium for gathering primary data. Table provides some crude comparisons for making the choice.

Combinations of Media

A single study is not limited to using only one of the communications media. When a project has more than one phase or purpose, a different medium

FACTOR	MEDIUM		
	MAIL	PERSONAL	TELEPHONE
Bias freedom (from interviewer)	1	3	2
Control Over collection	3	2	1
Depth of questioning	3	1	2
Economy	2	3	1
Follow-up ability	3	2	1
Hard-to-recall data obtainable	1	2	3
Rapport with respondent	3	1	2
Sampling completeness	3	1	2
Speed of obtaining responses	3	2	1
Versatility to use variety of methods	2	1	3

May be appropriate in each. Or there are situations in which use of more than one medium commends to both the volume of various brands sold through retailer and to the purchasing by several consumer market segments. Choice of communications media are.

Observation and mail A beverage manufacturer wants to relate the viewing of its television commercials to both the volume of various brands sold through retailers and to the purchasing by several consumer market segments. Choice of communications media are

Observation:	To measure mechanically the TV viewing patterns of selected families. To measure manually the sales of all brands through stores in the areas being studied.
Mail questioning :	To obtain consumers' reports on their beverage purchases.

Telephone and mail A cosmetics manufacturer selling directly to the home needs to learn about the representatives. Past studies have shown difficulty in persuading many women to be cooperative in interviews and also in finding them at home.

Mail Questioning:	Sending a letter to gain consumer's confidence and rapport together with a post card to tell when the consumer would find a call convenient. (Offer a premium incentive to reply).
Telephone questioning:	To obtain from the consumer the desired data.

Telephone and personal An airline wishes interviews in some depth with business travelers who are in certain types of managerial and technical positions and who travel frequently in certain regions.

Telephone Questioning:	To screen individuals to qualify them for interviewing, to gain their interest, and to agree on specific time for holding interviews.
Personal questioning:	To conduct depth interviewing of the selected people at the appointed time.

These are merely illustrative of useful combination of media.

Formulating a Data Plan

We have discussed four stages in determining the data needs and gathering, individually. Actually, of course, this planning should not be piecemeal, deciding each stage in isolation. Rather, one united plan is to be fashioned, which would fulfill the data objectives. The work of combining these four aspects into an integral plan is intricate, and each plan is situation specific—decided uniquely for each study.

We will indicate what may be comprised in a data plan. Three actual marketing studies are described in terms of four major

Q: What are the various objectives of exploratory research?
Q: Write a note on various communication techniques?

[illegible]

LESSON 13:

PRIMARY DATA, SOURCES OF DATA, OBSERVATION, METHOD OF OBSERVATION, RETAIL AUDIT, CONSUMER PANEL, DIARY METHOD, INTERNET AS A SOURCE OF DATA.

Introduction

In this chapter we will study about Primary data, different sources of primary data and what are their advantages and disadvantages.

Learning Objectives of the Lecture

- Definition of Primary data.
- Different sources of primary data.
- Advantages and limitations of different sources

Collection of Primary Data

The marketing researcher should, first of all, explore the secondary data from various sources and examine the possibility of their use for his study. In several cases, he may find the data inadequate or unusable and therefore, he may realize the need for collecting first-hand data. As in the case of everyday life, if we want to have first hand information on any happening or event, we either ask someone who knows about it or we observe it ourselves, or we do both. The same is applicable to marketing research. Thus, the main methods by which primary data can be collected are:

Sources of Market Data

- 1 Observation,
- 2 Retail Audit,
- 3 Consumer Panel,
- 4 Diary Method,
- 5 Internet as a source of Data,
- 6 Interviewing.
- 7 Questionnaire.

Observation

Observation is one of the methods of collecting data. It is used to get both past and current information. For example, instead of asking respondents about their current behaviours, we may observe it and record our observation. Although it is not possible to observe past behaviours, we may observe the results of such behaviour. In a way, secondary data reflect the results of the past behaviours of people as also of past occurrences.

In marketing research, the observational method is not used frequently. All the same, as is used especially in marketing experimentation, a brief discussion is provided here.

At the outset, let us go through a few examples indicating how observation may be used in marketing research.

- One of the factors influencing the sale of a branded product is how readily it is kept in stock. An interested manufacturer may send some observers to a sample of stores to find out how frequently the product is out of stock. Likewise, sales are also influenced by its display position in a store. A prominently displayed product will receive greater attention

of the people visiting the store as against another product displayed in an obscure corner. Here, too, a manufacturer can ascertain from observers what sort of display his product is getting in selected stores and with what results.

- In order to ascertain what prices competitors charge, a manufacturer may depute some observers to go round the stores.
- Today, certain mechanical devices are used for observation, for example, the eye-camera, the pupilometric camera and the motion-picture camera. A device known as the audiometer is attached to radio sets for recording automatically the station to which the radio-set is tuned. This is supposed to give an idea of the size of audience for a particular programme. Similarly, the size of audience watching a particular television programme can be ascertained through mechanical devices, which enable the manufacturer, who has sponsored that programme, to analyse whether it has been viewed by a sizeable number or not. Furthermore, he can ascertain the reaction of those who actually viewed the programme by interviewing a sample of them. Thus, the observation method in conjunction with interviewing the respondents provides very useful information.

There are some advantages of observation as a method of collecting information. To begin with, the direct observational technique enables a researcher to record behaviour as it occurs. In contrast, other techniques record the data mostly retrospectively on the basis of the respondent's report after the event. Another merit of direct observation is that it can be used regardless of whether the respondent is willing to report or not. In a field survey, if an enumerator comes across an unwilling and hostile respondent, he cannot collect the desired information. But, this problem does not arise at all in the case of direct observation. Yet another advantage of observation is that it can be used even when it pertains to those who are unable to respond such as infants and animals.

There are, However, Some Limitations of this Method

- Firstly, only the current behaviour can be observed, not a person's future behaviour because the act of observation takes place in the present.
- Secondly, observation does not help us in gauging a person's attitude or opinion on a certain subject nor his knowledge of the same.
- Thirdly, the observational method is very slow and as such, when a large number of persons are to be contacted, it becomes of the long time required for this purpose.

Apart from these inherent limitations of observation, there are certain difficulties too.

Difficulties in Observation

Certain difficulties come in the way of accurate observation and cause it to become distorted.

These difficulties arise on account of

- (i) inadequacies of our sense organs,
- (ii) Interdependence of observation and inference, and
- (iii) Effects of interaction between the observer and the observed.

The first set of difficulties arises on account of inadequacies of our sense –organs, which “operate in a highly variable, erratic and selective manner.” Several studies, conducted by psychologist, how that the perception of a man depends on several factors such as his freshness, interest, and freedom from interruption. The more favourable the conditions, the more receptive the person will be to outside impressions. Further, objects that are large or clear and sounds that are repetitive are likely to receive greater attention of the person.

Other difficulties arise on account of the interdependence of observation and inference.

All perception, arise on account of the interdependence of observation and inference.

All perception, after the first weeks of life, is compounded to the immediate experience and of the stored experience.

Anything that impinges on our senses conveys a meaning to us largely to the extent that we relate it to what we already know. Observation and inference are inseparable.

This means that whatever an observer sees he tries to explain or interpret it on the basis of his past experience. Thus, the observer inference problem is the main difficulty in as much as the observer can draw wrong inferences from observations.

The third set of difficulties crops up because of the effects of interaction between the observer and observed. This may have two distinct dangers. First, persons being observed may become self-conscious of the observation and this may influence their normal behaviour. Second, observation may get distorted merely because one more person-the observer-is present and people are conscious of his presence.

Methods of Observation

There are several methods of observation of which any one or a combination of some of them can be used by the observer. Thus, there are structured or unstructured methods, disguised or undisguised methods, or observation made in a natural setting or laboratory setting, direct-indirect observation, or human-mechanical observation. These are briefly discussed below.

Structured –unstructured Observation

Structured observation is used when the research problem has been formulated precisely and the observer has been told specifically what is to be observed. They may be given a simple form to record their observations. Unstructured observation implies that observers are free to observe whatever they think is relevant and important. While structured observations are free from subjective bias, unstructured observations are subject to this limitation. The extent of the bias may vary to the extent an observation is unstructured.

Disguised –undisguised Observation

In the case of disguised observation, the subjects do not know that they are being observed. In some cases, disguised observation may be made by the observer by posing as one of the shoppers who are being observed. This type of observation is often preferred because it is feared that people may behave differently when they know they are being observed, it may be difficult to completely disguise an observation, though this apart, it poses an ethical question of its desirability when those who are being observed are kept in the dark.

Observations Under Natural Setting – Laboratory Setting

Another way to classify observations is on the basis of their setting, i.e. natural or laboratory. Observations in field studies are in their natural setting and are, therefore, undertaken in extremely realistic conditions. Sometimes, an experimental manipulation may be introduced in a field study. Observation in a laboratory setting, on the other hand, enables the observer to control extraneous variables which influence the behaviours of people. Observational studies in laboratory settings have certain advantages over field studies. They enable the collection of data promptly and economically and in addition, permit the use of more objective measurements.

Direct –indirect Observation

In the case of direct observation, the event or the behaviour of a person is observed as it occurs. In contrast, indirect observation implies that some record of past behaviour is observed. In other words, the behaviour itself is not observed, rather its effects are observed. An observer engaged in indirect observation generally looks for physical traces of behaviour or occurrence of an event. Suppose, he is interested in knowing about the liquor consumption of a household, he would look for empty liquor bottles in the garbage. Similarly, the observer may seek the permission of the housewife to see the pantry. He may carry out a pantry audit to ascertain the consumption of certain types of products. It may be noted that the success of an indirect observation largely depends on how best the observer is able to identify physical traces of the problem under study. Direct observation is far more common than indirect observation.

Human-mechanical Observation

Another way of classifying observations is whether they are made manually research based on human observation wherein trained observers are required to observe and faithfully record their observations. In some cases, mechanical devices such as eye cameras and audiometer are used for observation. One of the major advantages of electrical / mechanical devices is that recordings are free from subject bias. As against this advantage, such observations may be less valid than human observation. This is because the observer's power of interaction can lead to a more valid evaluation of the observation.

Retail Audit

Retail Audit is a common term in marketing research..

During the 1990s, it became increasingly important to develop a strong brand image. It's not just the product that needs to be sold, but also the brand, charged with values such as ethics, quality, feelings and identity that put over a positive message to consumers.

Today, many companies are moving their production from their home countries to nations where manufacturing costs are considerably lower. However, the role of the company extends beyond just financial issues; every organisation has a social responsibility. Consumer and pressure groups are increasingly concerned about the social conditions in which workers from developed and developing countries are subjected. They expect companies to accept its responsibilities and to conduct its activities in accordance with the ethical and moral values accepted in the country in which their product is sold. Forced labor, child labor, low pay, poor conditions and dangerous working environments are all areas of serious concern to the reputable retailer or brand owner.

The audit process includes an opening meeting, factory tour, document review, interviews with employees and a closing meeting.

The Key Parameters That We Look at When Carrying Out Retail audits are

- In-store availability of product/brand;
- Types of outlets (by owner, location, specialty);
- Sales volume cross-tabbed with type and location;
- Pricing of product/brand cross-tabbed with type/location of outlet;
- Display value;
- Customer demand;
- Resulting market share and rank/position of product/brand.

It must be noted that there are no readily available retail universe data. The design of a retail audit is critical to the success of the project. The data obtained from the retail audit is useful for carrying out

- Identification of market opportunities
- Trend analyses and forecasting
- Studying market structure
- Prioritization of markets
- Conducting analyses of competitors
- Product portfolio analysis
- Understanding changes in distribution
- Pricing trend analyses.

Consumer Panel

There's nothing (consumer) panel data can tell us that we don't already know from scanner data.

Consumer panels are a unique tool that can enable a clever researcher to examine dynamic longitudinal changes in behaviors, attitudes, and perceptions. Consumer panels can also be an overly costly, excessive generator of unused data

What are Consumer Panels?

There are two basic kinds of consumer panels.

In the first kind, respondents report essentially the same information repeatedly over some period of time. The chief examples of these kinds of panels are the syndicated purchase panels using store and home, termed as, continuous panels.

The second kind of panel consists of samples of pre-screened respondents who report

over time on a broad range of different 1. The effect of a special offer can be measured through a before-and-after design using a panel approach. Thus, a sample of families might be interviewed initially to gather information on their purchases of soft drinks, possibly over several weeks to obtain a good idea of their "steady state" purchasing patterns. A special deal for a particular brand is then introduced, and the purchases of the same sample are monitored for perhaps every week for three months. In this way, sampling variation is minimized and both short-term and long-term effects of the deal are obtained. topics, termed as discontinuous access panels.

Both kinds of panels come in all different forms. Panel studies can involve data collection

at widely different intervals varying anywhere from a day to several years between waves of interviews. Panel operators are continuously faced with the decision about how often panel members should be contacted and asked to report. Contacting the panel either too frequently or too infrequently may lead to reduced cooperation,

The Benefits of Continuous Consumer Panels

1. The effect of a special offer can be measured through a before-and-after design using a panel approach. Thus, a sample of families might be interviewed initially to gather information on their purchases of soft drinks, possibly over several weeks to obtain a good idea of their "steady state" purchasing patterns. A special deal for a particular brand is then introduced, and the purchases of the same sample are monitored for perhaps every week for three months. In this way, sampling variation is minimized and both short-term and long-term effects of the deal are obtained.
2. A static consumer panel of families with young children might be set up to monitor the acceptance of new line of toys. In this case no type of experimental treatment is involved. Rather, information is obtained, say, every month on the toy purchases of the families. In this way, data are compiled on the types of families that are buying any of the new toys, how soon the toys are purchased after they have been placed on the market, and how many of the toys are purchased by each family.
3. A dynamic consumer panel might be used to keep track of the purchases of frozen foods of one brand in relation to other brands. By obtaining such data every week for several years, very detailed information can be obtained on what sorts of families are purchasing each major brand and on the change in market shares of the different brands over time among different groups of consumers. Also estimates can be derived of the extent to which purchasers remain loyal to different brands.
4. Diary Method,
5. Internet as a source of Data,
6. Interviewing.
7. Questionnaire.

LESSON 14:

PRIMARY DATA, SOURCES OF DATA, OBSERVATION, METHOD OF OBSERVATION, RETAIL AUDIT, CONSUMER PANEL, DIARY METHOD, INTERNET AS A SOURCE OF DATA

Introduction

In this chapter we will study about Primary data, different sources of primary data and what are their advantages and disadvantages. We have already discussed several sources of data collection. In this lecture, We will discuss Diary method and we will see how internet can be used as a source of data.

Learning Objectives of the Lecture

- Definition of Primary data.
- Different sources of primary data.
- Advantages and limitations of different sources

Using Diaries in Social Research

Biographers, historians and literary scholars have long considered diary documents to be of major importance for telling history. More recently, sociologists have taken seriously the idea of using personal documents to construct pictures of social reality from the actors' perspective (see Plummer's 1983 book *Documents of Life*). In contrast to these 'journal' types of accounts, diaries are used as research instruments to collect detailed information about behaviour, events and other aspects of individuals' daily lives.

Self-completion diaries have a number of advantages over other data collections methods. First, diaries can provide a reliable alternative to the traditional interview method for events that are difficult to recall accurately or that are easily forgotten. Second, like other self-completion methods, diaries can help to overcome the problems associated with collecting sensitive information by personal interview. Finally, they can be used to supplement interview data to provide a rich source of information on respondents' behaviour and experiences on a daily basis. The 'diary interview method' where the diary-keeping period is followed by an interview asking detailed questions about the diary entries is considered to be one of the most reliable methods of obtaining information.

The Subject Matter of Diary Surveys

A popular topic of investigation for economists, market researchers, and more recently sociologists, has been the way in which people spend their time. Accounts of time use can tell us much about quality of life, social and economic well being and patterns of leisure and work. The 'time-budget' involved respondents keeping a detailed log of how they allocated their time during the day. More qualitative studies have used a "standard day" diary, which focuses on a typical day in the life of an individual from a particular group or community.

One of the most fruitful time-budget endeavors, initiated in the mid 60s, has been the Multinational Time Budget Time Use Project. Its aim was to provide a set of procedures and guidance on how to collect and analyse time-use data so that valid cross-national comparisons could be made

Two other major areas where diaries are often used are:

- Consumer expenditure and
- Transport planning research.

Other topics covered using diary methods are social networks, health, illness and associated behaviour, diet and nutrition, social work and other areas of social policy, clinical psychology and family therapy, crime behaviour, alcohol consumption and drug usage, and sexual behaviour. Diaries are also increasingly being used in market research.

Using Diaries in Surveys

Diary surveys often use a personal interview to collect additional background information about the household and sometimes about behaviour or events of interest that the diary will not capture (such as large items of expenditure for consumer expenditure surveys). A placing interview is important for explaining the diary keeping procedures to the respondent and a concluding interview may be used to check on the completeness of the recorded entries. Often retrospective estimates of the behaviour occurring over the diary period are collected at the final interview.

Diary Design and Format

Diaries may be open format, allowing respondents to record activities and events in their own words, or they can be highly structured where all activities are pre-categorized. An obvious advantage of the free format is that it allows for greater opportunity to recode and analyse the data. However, the labour intensive work required to prepare and make sense of the data may render it unrealistic for projects lacking time and resources, or where the sample is large. Although the design of a diary will depend on the detailed requirement of the topic under study, there are certain design aspects, which are common to most. Below are sets of guidelines recommended for anyone thinking about designing a diary. Furthermore, the amount of piloting required to perfect the diary format should not be under-estimated.

1. An A4 booklet of about 5 to 20 pages is desirable, depending on the nature of the diary. Disappointing, as it might seem, most respondents do not carry their diaries around with them.
2. The inside cover page should contain a clear set of instructions on how to complete the diary. This should stress the importance of recording events as soon as possible after they occur and how the respondent should try not to let the diary keeping influence their behaviour.
3. A model example of a correctly completed diary should feature on the second page.
4. Depending on how long a period the diary will cover, each page denoting either a week, a day of the week or a 24 hour

period or less. Pages should be clearly ruled up as a calendar with prominent headings and enough space to enter all the desired information (such as what the respondent was doing, at what time, where, who with and how they felt at the time, and so on).

5. Checklists of the items, events or behaviour to help jog the diary keeper's memory should be printed somewhere fairly prominent. Very long lists should be avoided since they may be off-putting and confusing to respondents. For a structured time budget diary, an exhaustive list of all possible relevant activities should be listed together with the appropriate codes. Where more than one type of activity is to be entered, that is, primary and secondary (or background) activities, guidance should be given on how to deal with "competing" or multiple activities.
6. There should be an explanation of what is meant by the unit of observation, such as a "session", an "event" or a "fixed time block". Where respondents are given more freedom in naming their activities and the activities are to be coded later, it is important to give strict guidelines on what type of behaviour to include, what definitely to exclude and the level of detail required. Time budget diaries without fixed time blocks should include columns for start and finish times for activities.
7. Appropriate terminology or lists of activities should be designed to meet the needs of the sample under study, and if necessary, different versions of the diary should be used for different groups.
8. Following the diary pages it is useful to include a simple set of questions for the respondent to complete, asking, among other things, whether the diary-keeping period was atypical in any way compared to usual daily life. It is also good practice to include a page at the end asking for the respondents' own comments and clarifications of any peculiarities relating to their entries. Even if these remarks will not be systematically analysed, they may prove helpful at the editing or coding stage.

Data Quality and Response Rates

In addition to the types of errors encountered in all survey methods, diaries are especially prone to errors arising from respondent conditioning, incomplete recording of information and under-reporting, inadequate recall, insufficient cooperation and sample selection bias.

Diary Keeping Period

The period, over which a diary is to be kept needs to be long enough to capture the behaviour or events of interest without jeopardizing successful completion by imposing an overly burdensome task for collecting time-use data, anything from one to three day diaries may be used. Household expenditure surveys usually place diaries on specific days to ensure an even coverage across the week and distribute their fieldwork over the year to ensure seasonal variation in earnings and spending is captured.

Reporting Errors

In household expenditure surveys it is routinely found that the first day and first week of diary keeping shows higher reporting of expenditure than the following days. This is also observed

for other types of behaviour and the effects are generally termed "first day effects". They may be due to respondents changing their behaviour as a result of keeping the diary (conditioning), or becoming less conscientious than when they started the diary. Recall errors may also extend to 'tomorrow' diaries. Respondents often write down their entries at the end of a day and only a small minority are diligent (and perhaps obsessive!) diary keepers who carry their diary with them at all times. Expenditure surveys find that an intermediate visit from an interviewer during the diary keeping period helps preserve 'good' diary keeping to the end of the period.

Literacy

All methods that involve self-completion of information demand that the respondent has a reasonable standard of literacy. Thus the diary sample and the data may be biased towards the population of competent diary keepers.

Participation

The best response rates for diary surveys are achieved when diary keepers are recruited on a face-to-face basis, rather than by post. Personal collection of diaries also allows any problems in the completed diary to be sorted out on the spot. Success may also depend on the quality of interviewing staff that should be highly motivated, competent and well briefed. Appealing to respondent's altruistic nature, reassuring them of confidentiality and offering incentives are thought to influence co-operation in diary surveys. One research company gives a 10-pound postal order for completion of their fourteen-day diary and other surveys offer lottery tickets or small promotional items.

Coding, Editing And Processing

The amount of work required to process a diary depends largely on how structured it is. For many large-scale diary surveys, the interviewer while still in the field does part has the editing and coding process. Following this is an intensive editing procedure, which includes checking entries against information collected in the personal interview. For unstructured diaries, involving coding of verbatim entries, the processing can be very labour intensive; in much the same way as it is for processing qualitative interview transcripts. Using highly trained coders and a rigorous unambiguous coding scheme is very important particularly where there is no clear demarcation of events or behaviour in the diary entries. Clearly, a well-designed diary with a coherent pre-coding system should cut down on the degree of editing and coding.

Relative Cost of Diary Surveys

The diary method is generally more expensive than the personal interview, and personal placement and pick-up visits are more costly than postal administration. The interviewers usually make at least two visits and are often expected to spend time checking the diary with the respondent. If the diary is unstructured, intensive editing and coding will push up the costs. However, these costs must be balanced against the superiority of the diary method in obtaining more accurate data, particularly where the recall method gives poor results. The ratio of costs for diaries compared with recall time budgets are of the order of three or four to one

Computer Software For Processing and Analysis

Probably the least developed area relating to the diary method is the computer storage and analysis of diary data. One of the problems of developing software for processing and manipulating diary data is the complexity and bulk of the information collected. Although computer assisted methods may help to reduce the amount of manual preparatory work, there are few packages and most of them are custom built to suit the specifics of a particular project. Time-budget researchers are probably the most advanced group of users of machine-readable diary data and the structure of these data allows them to use traditional statistical packages for analysis. More recently, methods of analysis based on algorithms for searching for patterns of behaviour in diary data are being used. Software development is certainly an area, which merits future attention. For textual diaries, qualitative software packages such as The ETHNOGRAPH can be used to code them in the same way as interview transcripts.

Archiving Diary Data

In spite of the abundance of data derived from diary surveys across a wide range of disciplines, little is available to other researchers for secondary analysis (further analysis of data already collected). This is perhaps not surprising given that the budget for many diary surveys does not extend to systematic processing of the data. Many diary surveys are small-scale investigative studies that have been carried out with very specific aims in mind. For these less structured diaries, for which a common coding scheme is neither feasible, nor possibly desirable, an answer to public access is to deposit the original survey documents in an archive. This kind of data bank gives the researcher access to original diary documents allowing them to make use of the data in ways to suit their own research strategy. However, the ethics of making personal documents documents public (even if in the limited academic sense) have to be considered

Internet as a Source of Data

The expansion of the Internet over the past decade has provided the researcher with a range of new opportunities for finding information, networking, conducting research, and disseminating research results.

Through the use of tools such as online focus groups, electronic mail, and online questionnaires, the Internet opens up new possibilities for conducting research. It offers, for example:

1. Shorter timeframes for collecting and recording data: e-mail messages can be saved and analyzed in qualitative data packages, for example, while online surveys can be captured directly into a database
2. The possibility of conducting interviews and focus groups by e-mail, with related savings in costs and time
3. New “communities” to serve as the object of social scientific enquiry
4. Opportunities for including mixed multiple media in questionnaires

On the other hand, these opportunities also raise new challenges for the researcher,

such as:

- Problems of sampling
- The ethics of conducting research into online communities
- Physical access and skills required to use the technologies involved
- Accuracy and reliability of information obtained from online sources
- The changed chronology of interaction resulting from asynchronous communication

Internet is a useful media to get valuable information and results of various surveys. Access to computer-led data becomes handy in solving many complex mysteries, related to the market place. The 10 ‘C’s outlined here, provide criteria to be considered while evaluating Internet resources:

1. Content

What is the intent of the content? Are the title and author identified? Is the content “juried?” Is the content “popular” or “scholarly”, satiric or serious? What is the date of the document or article? Is the “edition” current? Do you have the latest version? (Is this important?) How do you know?

2. Credibility

Is the author identifiable and reliable? Is the content credible? Authoritative? Should it be? What is the purpose of the information, that is, is it serious, satiric, humorous? Is the URL extension .edu, .com, .gov or .org? What does this tell you about the “publisher”?

3. Critical Thinking

How can you apply critical thinking skills, including previous knowledge and experience, to evaluate Internet resources? Can you identify the author, publisher, edition, etc. as you would with a “traditionally” published resource? What criteria do you use to evaluate Internet resources?

4. Copyright

Even if the copyright notice does not appear prominently, someone wrote, or is responsible for, the creation of a document, graphic, sound or image, and the material falls under the copyright conventions. “Fair use” applies to short, cited excerpts, usually as an example for commentary or research. Materials are in the “public domain” if this is explicitly stated. Internet users, as users of print media, must respect copyright.

5. Citation

Internet resources should be cited to identify sources used, both to give credit to the author and to provide the reader with avenues for further research. Standard style manuals (print and online) provide some examples of how to cite Internet documents, although these standards are not uniform.

6. Continuity

Will the Internet site be maintained and updated? Is it now and will it continue to be free? Can you rely on this source over time to provide up-to-date information? Some good

.edu sites have moved to .com, with possible cost implications. Other sites offer partial use for free, and charge fees for continued or in-depth use.

7. Censorship

Is your discussion list “moderated”? What does this mean? Does your search engine or index look for all words or are some words excluded? Is this censorship? Does your institution, based on its mission, parent organization or space limitations, apply some restrictions to Internet use? Consider censorship and privacy issues when using the Internet.

8. Connectivity

If more than one user will need to access a site, consider each users’ access and “functionality.” How do users connect to the Internet and what kind of connection does the assigned resource require? Does access to the resource require a graphical user interface? If it is a popular (busy) resource, will it be accessible in the time frame needed? Is it accessible by more than one Internet tool? Do users have access to the same Internet tools and applications? Are users familiar with the tools and applications? Is the site “viewable” by all Web browsers?

9. Comparability

Does the Internet resource have an identified comparable print or CD ROM data set or source? Does the Internet site contain comparable and complete information? (For example, some newspapers have partial but not full text information on the Internet.) Do you need to compare data or statistics over time? Can you identify sources for comparable earlier or later data? Comparability of data may or may not be important, depending on your project.

10. Context

What is the context for your research? Can you find “anything” on your topic, that is, commentary, opinion, narrative, statistics and your quest will be satisfied? Are you looking for current or historical information? Definitions? Research studies or articles? How does Internet information fit in the overall information context of your subject? Before you start searching, define the research context and research needs and decide what sources might be best to use to successfully fill information needs without data overload.

Let’s Recapitulate the Chapter

Primary Sources of Market Data

1. Observation,
2. Retail Audit,
3. Consumer Panel,
4. Diary Method,
5. Internet as a source of Data,
6. Interviewing,
7. Questionnaire.

LESSON 15: TUTORIAL

Q: Define ‘Primary Data’ and enumerate the various sources of collecting such data.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
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LESSON 16: DESIGNING THE QUESTIONNAIRE

Introduction

Dear students today we will start learn how to prepare questionnaire, as we know that this is one of the instrument to get raw data from the respondents. Here in this section we will discuss about the questionnaire, its design, its characteristics.

Learning Objective of The Questionnaire:

- What is questionnaire?
- Designing of a questionnaire
- Criteria of a good questionnaire
- Pros and cons of a questionnaire

Questionnaire

The communication method, in effect, is the method of designing with a view to collect the requisite information. The questionnaires can be classified into four main types –

1. Structured-non-disguised,
2. Structured –disguised,
3. Non-structured-non-disguised, and
4. Non-structured-disguised.

It may be mentioned here that some authors prefer to call the ‘non-disguised’ as direct and the ‘disguised’ as indirect questionnaires.

A structured questionnaire is a formal list of questions framed so as to get the facts. The interviewer asks the questions strictly in accordance with a pre-arranged order. If, for example, the marketing researcher is interested in knowing the amount of expenditure incurred on different types of clothing. i.e. cotton, woolen or synthetic, by different households classified according to their income, he may frame a set of questions seeking this factual information. If the marketing researcher appoints some interviewers to collect information on his behalf, the interviewers are expected to adhere to the same order in asking questions as contained in the questionnaire.

A structured questionnaire can be of two types, namely, disguised and non-disguised. This classification is based on whether the object or purpose of the survey is revealed or undisclosed to the respondent. Thus, a structured-non-disguised questionnaire is one where the listing of questions is in a prearranged order and where the object of enquiry is revealed to the respondent. Most marketing research studies use this type of questionnaire. In the case of a structured – disguised questionnaire, the researcher does not disclose the object of the survey. He feels that if the respondent comes to know the object of the survey, he may not be objective in giving the necessary information and, as such, its purpose may be defeated. He is, therefore, very particular not to divulge the purpose of the investigation.

It may be mentioned that in a large majority of cases, it is felt that the respondent should be taken into confidence and clearly told

why the survey is being undertaken, so that he would realize its relevance and give the desired information accurately. Questionnaires of this type are known as structured and non-disguised questionnaires. It may be pointed out that most of the surveys of marketing research use this type of questionnaire.

A non-structured questionnaire is one in which the questions are not structured and the order in which they are to be asked from the respondent is left entirely to the researcher. He asks the questions in the manner in which he deems fit in a particular situation. In fact, he may only have certain main points on which he may develop the questions at the time of the actual interview. As it will be seen, a non –structured questionnaire is devoid of rigidity and allows considerable freedom to the researcher in choosing the order as well as the specific content of questions. Normally, unstructured questionnaires are used in exploratory research when some respondents are contacted. It is only subsequently, on the basis of answers received, that a well –structured questionnaire is developed. This is because the interviewer has a better understanding of the problem on hand only after the exploratory research. Questionnaires of this type can be split into two sub-types. Where the purpose of the enquiry is disclosed to the respondent, the questionnaires are known as non-structured and non-disguised while in other cases, the questionnaires are classified as non-structured and disguised questionnaires.

Let us briefly discuss the relative strengths and weaknesses of the different types of questionnaires. The structured-non-disguised questionnaire has several advantages. Firstly, it facilitates the collection of information in a systematic and orderly manner as the questions have been formulated in advance. Secondly, since the questions asked by each interviewer happen to be identical and are asked in the same order, the information is generally not vitiated on account of the varying characteristics of the different interviewers. As such, even less qualified interviewers can be deployed in canvassing such a questionnaire. Thirdly, such a questionnaire makes it far easier to edit, tabulate and interpret the data it contains. Finally, a structured questionnaire can be conveniently pre-tested so that suitable modifications can be made in the phraseology of questions or in their sequence or both.

As against these advantages of a structured questionnaire, it suffers from major limitations. This arises when the respondent is asked questions concerning personal or motivational aspects. Despite this weakness, the structured –non—disguised questionnaire is most frequently used in marketing research, as was mentioned earlier.

An unstructured questionnaire is most suitable when motivational factors are involved. The interviewer is free to ask probing questions to get at the key motivational factor or factors. Questionnaires of this type are normally used in depth interviews- as subject to which we shall revert later in the book.

Such questionnaires facilitate the conducting of interviews in an informal manner. They also lend flexibility to the whole process of interviewing. A point worth emplacing is that in the case of unstructured questionnaires, the role of the interviewer becomes for more important as compared to the one when a structured questionnaire is used. In view of this, more capable interviewers are required to handle is unstructured. This also enhances the overall cost of the field survey. Finally, the researcher faces problems while editing and tabulating an unstructured questionnaire.

Having discussed the relative strengths and weaknesses of the structure and unstructured questionnaires, we now turn to the designing of structured questionnaires.

Designing a Questionnaire

Designing a questionnaire is not as simple a job as it looks at first sight. A marketing researcher intending to collect primary data has to be extremely careful in deciding what information is to be collected, how many questions are to be formulated, what should be their sequence. What should be the wording of each question, and what should be the layout of the questionnaire. All these aspect need considerable time and effort of the marketing researcher. If he is able to develop a questionnaire suitable for his field investigation, he will find that his task of collecting the data has become much easier than otherwise.

Type of Information to Be Collected

While attempting to design a questionnaire, the marketing researcher has to first ask himself what type of information he needs from the survey. He should seriously consider this question as it will have considerable repercussion on the usefulness of the survey. For, if he omits to collect information on some relevant and vital aspects of his survey, his research study is unlikely to be useful. At the same time, if he collects information on some issues not directly relevant to his study, he not only raises the total cost of the survey but also increases the time factor, This being the case, the survey will take much more time than is really necessary. It will also led to greater inaccuracy as the respondent will have to answer many more questions than are strictly necessary and he will, therefore, not be sufficiently careful in giving the exact answer. In either case, the marketing researcher will be the loser. To avoid this situation, he should give serious thought to the specific information to be sought. It will considerable facilitate him if he looks ahead to the analysis stage so that he could enlighten himself on the type of tabulation as also the statistical methods that are to be used.

Crisp has very lucidly explained the different types of information which are generally sought in marketing research. The information could be one or more of the following type:

1. Facts
2. Quasi facts
3. Awareness, or penetration of information
4. Opinions
5. Attitudes
6. Future action plans and
7. Reasons.

Factual information is perhaps sought most frequently in marketing research. *For example*, the question- *Do you own a car?* Is intended to seek such factual information. In addition, sometimes information collected belongs to the second category, namely, quasi facts. This implies that the information received from respondents is not factually corrected though it may appear to be so. Thus, a question in continuation of the earlier one about the ownership of a car, could be – If yes, when did you buy the car? Here, the respondent may not remember on the spur of the moment, the year when he bought the car respondent. For example, the respondent owing a car, may be asked why he bought that particular make. He is expected to give one or more reasons in support of his choice. Here too, there is an apprehension that the respondent may not come out with genuine reasons.

Type of Questions

The second important aspect in the designing of questionnaire is to decide which types of question are to be used. Questions can be classified in various ways. One way of classification is as follows.

Open –ended question

Dichotomous question

Multiple –choice questions

An open –ended or simply ‘open’ free answer’ question gives the respondent complete freedom to decide the form. Length and detail of the answer. Open questions are preferred when the researcher is interested in knowing what is uppermost is the mind of the respondent. However, open questions pose certain problems. At the time of the actual interview, it becomes difficult for the interviewer to note down the respondents answer verbatim. It the interview has to take down the answer all by himself without any mechanical aid, he is quite likely to miss some vital information contained in the respondent’s answer. Further, if several interviews are conducting interviews and each one recording the answers to opinion questions according to his understanding, and in his own way. Then there is likely to be an element of bias in the recorded answers. Another difficulty in respect of open questions is that it is extremely difficult to compress lengthy answer in a meaningful manner. Such answers may be good qualitatively but their quantification becomes extremely difficult, if not impossible. The dichotomous questions has only two answers in the form ‘yes’ or ‘no’ ‘false’.’ use’ or’ do not use’ etc.

An example of a Dichotomous Question is

Do you use tobacco in any way?

Yes _____ No _____

There cannot be a third answer. However, in some cases, there may be a third answer which may come from those who do not want to take a definite stand one way or the other. For example, take the following question:

Do You Like to Watch Movies?

Yes _____ No _____

Neither like no dislike _____

The third alternative may be included so as to provide for those respondents who do not have a positive preference or aversion to movies.

It may be pointed out that dichotomous questions are most convenient or least bothersome to respondents. Who have simply to indicate their choice from the two possible answers. As such, these questions require the minimum possible time to the respondents. Also, answers to such questions are easy to edit, tabulate and interpret.

In the case of multiple-choice questions, the respondent is offered two or more choices. The marketing researcher exhausts all the possible choices and the respondent has to indicate which one is applicable in his case.

For example, the following is a multiple-choice question:

Which of the following brand/brands do you use for washing clothes?

Rin _____, Det _____, 501 Blur Bar _____, Super 777 Bar _____, Wheel _____, Bonus _____, Swastic _____, Any other (please specify) _____.

Obviously, the respondent is likely to take more time to answer a multiple-choice questions as compared to dichotomous one. Also, more time is required in the editing, tabulation and interpretation of data.

Phrasing of the Question

The next issue in the preparation of a questionnaire is how to phrase the questions. The way in which a question is draft is very important as a slightly suggestive wording elicit a very different answer from the respondent. Consider, for example, the following question.

Don't you think that this is a sub-stranded product?

A question of this type would prompt respondents to answer in the affirmative. Many of them, who do not have a definite opinion about the product, are likely to agree that it is of sub-standard quality. However, if the above question is worded a little differently, the answer is likely to be different. Suppose the question is put as follows:

Do you think that this is a sub-standard product.

A question of this type is not a suggestive question. It is a straight forward question and respondents are not likely to be prompted to say 'yes' as was the case in the earlier question.

It will be interesting to know that a little difference in the answers. Payne cites an example in this regard. He gives the following three questions and the related affirmative responses:

	Question	Percentage of respondent saying 'yes'
1.	Do you think anything should be done to make it easier for people to pay doctor's or hospital bills?	82
2.	Do you think anything could be done to make it easier for people to pay doctor's or hospital bills?	77
3.	Do you think anything might be done to make it easier for people to pay doctor's or hospital bills?	63

These questions were put to three matched samples of respondents – one questions to each type. The only difference was in the words 'should' 'could', and 'might'. This change in one word changed the percentage of affirmative responses by as much as 19 per cent, which clearly proves that the phasing of questions has to be done with great care so that there is no room for any ambiguity.

In order to ensure the appropriate phrasing question, one should be particular about the following factors:

Difficult words should be avoided as far as possible. Likewise, technical or special terms which an average respondent may not understand, should be excluded.

Vague words such as 'many' 'often' 'generally', 'on the whole' and 'reasonably', should not be used.

Lengthy questions should be avoided. Too much verbosity makes questions lengthy, and is likely to confuse the respondent.

One should avoid combining two questions into me. For example, the questions –Which of the following modes of transport is cheaper and more convenient?

(i) Train (ii) Bus

It is quite likely that according to the respondent both the attributes, namely cheapness and convenience may not be applicable to either of the two modes of transport. One may be cheaper while the other may be more convenient.

Question lacking specificity should be avoided or modified suitably so that they become more precise: For example, the questions-Are you satisfied with your job? –is sufficiently specific because it does not provide the necessary frame of reference to the respondent. One may be satisfied, say, from the viewpoint of emoluments but one may not be satisfied with the type or nature of one's work. These are two distinct aspect which perhaps cannot be taken care of by one question.

Order of Questions

Another aspect that should receive the attention of the researcher is the sequence or order of questions to be contained in a questionnaire. Since, in the beginning, the researcher has to establish some rapport with the respondent, it is necessary that questions asked at the beginning are simple and thereby helpful in establishing the report. Difficult questions or those on sensitive issues should be relegated to the end of the questionnaire. Further, question of a general type should be asked in the beginning while those which are specialized, needing some in –depth information from the respondents, should be left to the end.

However, care should be taken the interest of the respondent until so that he is able to answer specialize question in a normal manner without fatigue and indifference. If the questionnaire is very lengthy, two or three sets of the same can be printed where the order of questions can be changed by a scheme of rotation for the sampled units. In such a case, some respondents would can be changed by a scheme of rotation for the sampled units. In such a case, some respondents would answer the specialized questions towards the middle of the questionnaire instead to towards its end.

How Many Question to be Asked?

The researcher has also to decide how many questions are to be asked. We may add that the number of questions is not so important as the actual length of the questionnaire. We have just mentioned above that the researcher has to sustain the interest of the respondent until the last moment so that the interview can be completed successfully and the requisite information obtained. Too lengthy a questionnaire would obviously be a disadvantage and the response to it may be quite poor.

While deciding on the number of questions or the length of the questionnaire, the researcher should put himself in the respondent's shoes and imagine how he would react to that questionnaire. He can calculate the probable time that might be required by the respondent in answering the entire questionnaire. He can also canvass the questionnaire amongst some of his friends and acquaintances. Their opinion and reaction will be very helpful to him in finally deciding how lengthy the questionnaire should be. This is, in a way, pre-testing of the questionnaire which will be discussed towards the close of this chapter.

Layout of the Questions

Finally, the researcher on his behalf has to decided about the layout of the questionnaire. This implies that the documents should be set in such a way that it leaves a favourable impression in the mind of the respondent. It should be neatly pages should not have too many questions so as to appear crowded. Proper spacing between the question and within a question should be provided for. The more important wordings to which the researcher would like to draw the attention of the respondent, should be set in bold types or underlined. If it is really a lengthy questionnaire, special care should be taken to reduce its size by providing two columns in a page and by using finer types. But, this can be done up to certain point for too fine a print may cause inconvenience to the respondent. The questionnaire should have 'easy looks' which means that it should be short and printed on superior quality paper so that writing with pen or pencil is smooth.

Mail Questionnaire

So far the discussion was confined to the designing of questionnaires to be filled in by personal interviews. In fact, the type of questionnaire to be designed depends on the type of survey. Broadly, there are three types of survey namely, personal, mail and telephone. As far as the telephone survey is concerned, it is not commonly used in India. As such, the personal interview and mail survey are the only two methods. Since a mail survey needs a questionnaire which should have some additional characterizes. It is necessary to look into this aspect in some detail. First, we should would the advantages and limitations of a mail survey.

Advantages

1. It is much easier to approach a large number of respondents spread all over the country through post.
2. A mail questionnaire will not have distribution bias as it will not show any particular preference or dislike for a certain neighborhood, household or individual. This, however, is not the case with the personal interview as it is likely to be

affected by the personal preferences or dislikes of the individual interviewer.

3. Likewise, a mail questionnaire is free from any interviewer's bias and errors which may undermine the reliability and validity of the results emerging from the survey.
4. Where the question asked such that it cannot be answered immediately and needs some thinking on the part of the respondent. It is the mail questionnaire which will be most appropriate. A respondent can think over the question leisurely at home before giving his answer. The quality of answers is, therefore, likely to be superior to that obtained in the personal interview.
5. Since a large number of respondents can be approached all over the country through mail in a short period, a mail questionnaire saves a lot of time in collecting the desired information.
6. There is a good deal of saving in the total cost of a mail survey as cost of traveling, boarding and lodging of interviewers is not to be incurred. This enables the organizers of the survey to complete the investigation within a limited budget.
7. Incase of mail questionnaires, there is no difficulty in having central supervision and control over the survey operations over a large region. This, however,, is not the case when a large number of interviewers are appointed to cover different territories. As they have to be instructed, supervised and checked, these tasks cannot be managed from one center along.
8. Mail questionnaires also avoid the bias arising from any inhibitions in answering questions. In particular, when questions are of a personal nature, the respondents may hesitate to answer them in the presence of an interviewer. This type of inhibition will not be there if the mail survey is undertaken.
9. Finally, mail questionnaires will not have the problem of non-contacts in the strict sense as might be the case in personal interviews when the interviewer finds that the respondent, being away from home, is not available.

Limitations

The mail questionnaire suffers from some major limitations which are mentioned below:

It is not suitable when questions are difficult and complicated. In such a case, the help of interviewers is required to offer some introductory explanation to the respondent. Further, in all such surveys where the main object is to get the respondent talking or to undertake deep probing, mail questionnaires are completely unsuitable.

When the researcher is interested in the spontaneous answers of the respondent or his own answer uninfluenced by others who may influence his thinking, the mail questionnaire is inappropriate.

In case of mail questionnaires, it is not possible to verify whether the respondent himself or herself has filled in the questionnaire. If a questionnaire is addressed to a housewife concerning expenditure on durable items in the family., it is she

who is supposed to answer it. However, she may ask her husband or someone else in family to fill in the questionnaire on her behalf. It should be evident that such answers may not be correct. Further, they may not reflect the opinion of the particular respondent whose opinion was sought.

The researcher has to accept the answers as they are provided in the mail questionnaire. In case there is any inconsistency or ambiguity in the answers, it will be difficult for the researcher to make use of such questionnaire. He cannot further probe into the same to get some additional information or to remove the inconsistency or ambiguity.

The respondent, in case of a mail questionnaire, may go through his answers after he has filled in the entire questionnaire and may make certain modification in his original answers as a result of which these answers cannot be regarded as independent.

A mail questionnaire does not allow the researcher to supplement the information by his personal observations. That will be possible only when the questionnaire is canvassed by him personally.

Finally, a mail questionnaire normally has a relatively poor response compared to a questionnaire canvassed personally. In the latter case, even if the respondent is initially reluctant to answer the questionnaire, the interviewer can explain the purpose of the survey and point out its relevance to the respondent who may then agree to answer the questionnaire. Additional consideration for the preparation of a mail questionnaire.

As the interviewer is just not available for any explanation or clarification that a respondent is likely to need, it becomes necessary to prepare a mail questionnaire with greater care and more thought. It would, therefore, be worthwhile to look into additional factors that can significantly improve the quality of a mail questionnaire.

1. Mail questionnaires should be shorter than the questionnaire to be used personally otherwise the response rate would be affected adversely.
2. The wording should be extremely simple so as to avoid any misunderstanding.
3. In case a lengthy mail questionnaire has to be used, it may be desirable to send an advance letter, seeking the cooperation of the respondent. This may be followed by the questionnaire. Such a practice will prepare the respondent mentally to receive a lengthy questionnaire and a reasonably high response rate can be maintained.
4. Wherever necessary, suitable explanations should be provided so that respondents understand the question in the proper perspective and in the manner in which the researcher intended.
5. A covering letter must invariably be enclosed with the mail questionnaire. The covering letter should explain the purpose and importance of the survey and solicit the cooperation of the respondent. It should be emphasized in a covering letter that the information to be given by the

respondent will be kept strictly confidential and that his identity will not be disclosed.

6. A mail questionnaire should also be accompanied by a pre-addressed and stamped envelope to facilitate and respondent to return the same as soon as it is filled in without incurring any expenditure himself.

Pre-testing the Questionnaire

Once the questionnaire is ready, it should be pre-tested. Pre-testing of the questionnaire implies that it is tried out on a few respondents and their reaction to questionnaire is observed. It helps the researcher decide whether any changes in the question—content or the wording of questions are called for. If so, specific changes that are desirable can also be ascertained and incorporated in the questionnaire. This would improve it and if it is a mail questionnaire. It would perhaps increase the response rate as well.

The other benefit of pre-testing questionnaire is that the researcher can know the suitability of the instructions given to the interviewers as also their capability. In case certain changes are required. The same can be introduced. Interviewers will also have an opportunity to familiarize themselves with the problems they might face in the collection of data. This apart, pre – testing may indicate whether a particular sample design is feasible or some other sample design, which maybe more appropriate, should be selected. Sometimes, pre-testing of a questionnaire is undertaken to find out the suitability of data for particular needs. For this purpose, the researcher may be and prepare dummy tables. With the help of these tables, one can examine whether such data would be appropriate and adequate for the objectives of the survey. In the light of this investigation, the questionnaire can be revised to elicit additional information.

In the appendices to this chapter, two specimen questionnaires are given. The first one relates to the passenger survey conducted by the Quick Airlines Corporation. The second one was used for a National Readership survey in 1997.

The questionnaire on the passenger survey (Appendix) was designed specifically to collect data from passengers who availed themselves of the services of the Quick Airlines Air lines Corporation during the two weeks when the survey was on. It will be seen that the first four questions give the passenger identification data. The next four questions relate to the flight details including the date and number of the flight. Subsequent questions aim at collecting information on the views of passengers on the quality of service provided by the Quick Airlines Corporation. Some of the questions are dichotomous. Resulting in only two responses. Yes or no, while others provide five options on a scale such as excellent (5) to very poor (1) in regard to a particular service. There are only three open ended questions in the entire questionnaire. The last question invites suggestions from the passengers for improvement of the quality of service rendered by the corporation. It will also be noticed that this questionnaire is extremely simple and it would not take much time of the respondents in providing the information sought.

As was mentioned earlier, the second questionnaire is on the National Readership Survey 1997. This survey was conducted by the National Readership Studies Council (NRSC), Mumbai. In fact, two questionnaires were used in the National Readership Survey- one for collecting information from individuals and the other from households. The questionnaire meant for individuals is given in the Appendix 2. A perusal of this questionnaire will show that it is extremely comprehensive and complicated in contrast to the first questionnaire on the passenger survey.

The respondent's classification data are shown in the beginning just after the information sought for office use. The acidification data too are quite comprehensive, seeking information on sex, age, education, working status, occupation and marital status of the respondent. Several of these questions have two or more sub-questions within them. Questions are asked on languages read and understood by respondents, their reading habits-what particular periodicals they generally read, the frequency of reading as also which newspapers they read. Questions are also asked on television viewing, listening radio programmes and on visiting cinema theaters, halls/video parlors, etc. for want of space, these have not been given in the appendix, as a result, the appendix contains 7 questions instead of 18 contained in the questionnaire used in the National Readership Survey, 1997.

It will also be seen that the question contains at some specific instructions for interviewers. Advising them to proceed in a particular manner to elicit information from the respondents. Since the questionnaire is extremely comprehensive, it should provide appropriate instructions to the interviewers to enable them complete their task quite satisfactorily. It may also be mentioned that the use of such questionnaires in any survey puts enormous responsibility not only on the interviewers but also on organizers. The latter have to be very vigilant and into every minute detail or else the survey will fail to provide adequate and accurate information.

The Questionnaire — Pros and Cons

First of all it is important for you to understand the advantages and disadvantages of the questionnaire as opposed to the personal interview. This knowledge will allow you to maximize the strengths of the questionnaire while minimizing its weaknesses.

The **advantages** of administering a questionnaire instead of conducting an interview are:

The primary advantages of questionnaire are

1. It is economical in terms of money and time
2. It gives samples which are more representative of population
3. It generates the standardized information
4. It provides the respondent the desired privacy

We will discuss these advantages of Questionnaire technique of collecting primary data

1. Economical In Money And Time

The questionnaires will save your **time and money**.

- There is no need to train the interviewers, thereby reducing the time of operation and is economical.

- The questionnaires can be sent to a large group and can be collected simultaneously, however when personal interview is done the interviewer has to go to each and every individual separately.
- The questions reach the respondents very efficiently. Finally, the cost of postage should be less than that of travel or telephone expenses.

Recent developments in the science of surveying have led to incorporating computers into the interview process, yielding what is commonly known as computer automated telephone interview (or CATI) surveys. Advances in using this survey technique have dramatically reshaped our traditional views on the time-intensive nature and inherent unreliability of the interview technique.

2. Better Samples

Many surveys are constrained by a limited budget.

Since a typical questionnaire usually has a lower cost per respondent, you can send it to more people within a given budget (or time) limit.

This will provide you with **more representative samples**.

3. Standardization

The questionnaire provides you with a standardized data-gathering procedure.

- The effects of potential human errors (for example, one can alter the pattern of question asking, calling at inconvenient times, and biasing by “explaining”) can be minimized by using a well-constructed questionnaire.
- The use of a questionnaire also eliminates any bias introduced by the feelings of the respondents towards the interviewer (or vice versa).

4. Respondent Privacy

- Although the point is debatable, most surveyors believe the respondent will answer a questionnaire more frankly than he would answer an interviewer, because of a greater feeling of anonymity.
- The respondent has no one to impress with his/her answers and need have no fear of anyone hearing them.

To maximize this feeling of privacy, it is important to guard, and emphasize, the respondent's privacy

The primary **disadvantages** of the questionnaire are discussed on the grounds of:

1. Non return
2. Mis-interpretation
3. Validity

We will discuss them in detail.

1. Non Returns

Non returns are questionnaires or individual questions that are not answered by the people to whom they were sent.

For example, You may be surveying to determine the attitude of a group about a new policy. Some of those opposed to it might be afraid to speak out, and they might comprise the majority of the non returns. This would introduce non-random (or systematic) bias into your survey results, especially

if you found only a small number of the returns were in favour of the policy.

Non returns cannot be overcome entirely. What we can do is try to minimize them. Techniques to accomplish this we will be studying later on.

2. Misinterpretation

Misinterpretation occurs when the respondent does not understand either the survey instructions or the survey questions.

If respondents become confused, they will either give up on the survey (becoming a nonreturn) or answer questions in terms

Instructions

- The cover letter should be followed by a clear set of **instructions** explaining how to complete the survey and where to return it.
- If the respondents do not understand the mechanical procedures necessary to respond to the questions, their answers will be meaningless.
- If you do not want respondents to provide their names, say so explicitly in the instructions, and tell them to leave the NAME column blank

Set of Questions

The **third and final** part of the questionnaire is the **set of questions**.

- Since the questions are the means by which you are going to collect your data, they should be consistent with your survey plan.
- They should not be ambiguous or encourage feelings of frustration or anger that will lead to nonreturns or validity problems.

In each of these cases, the business owners gain valuable information to help them make major

decisions about their businesses. Remember that if the results of the survey aren't very positive, you

need to find out WHY. The questionnaire is used as a guide. It doesn't mean you can't go into

business.

A. The first questionnaire is for a select group, the customers of Speedy Photos. The owner

conducted the survey during a one week period, reaching both weekday and weekend

Customers

Speedy Photo Survey

In order for us to serve our customers better, we would like to find out what you think of us. Please

take a few minutes to answer the following questions while your photographs are being printed. Your

honest opinions, comments and suggestions are extremely important to us.

Thank you,

Speedy Photo

- 1. Do you live/work in the area (circle one or both)

- Close to home

- Close to work

2. Why did you choose Speedy Photo (circle all that apply)

- Convenient

- Good service

- Quality

- Full-service photography shop

- Other

3. How did you learn about us? (circle one)

- Newspaper

- Flyer/coupon

- Passing by

- Recommended by someone

- Other

4. How frequently do you have film printed? (please estimate)

- _____ time per month

- _____ other

5. Which aspect of our photography shop do you think needs improvement?

6. Our operating hours are from 8 am to 5:30 pm weekdays and Saturdays from 9:30 am to 6 pm. We are closed on Sundays and legal holidays. What changes in our operating hours would be better for you?

7. Your age (circle one)

- Under 25

- 26-39

- 40-59

- Over 60

8. Other comments:

Created by Women's Enterprise Society of BC 2

B. This survey was done by a business man interested in opening public storage buildings.

Before he committed any time and money to the project, he sent a questionnaire to consumers

within a 15 mile radius of the proposed site.

Public Storage Questionnaire

1. Are you presently renting any public storage space? Yes _____ No _____

If no then go to question 2

If yes, then continue with 1a.

1a. Where are you currently renting storage space (name and address)

1b. How many times a month do you visit your storage space? _____

1c. Is your storage space heated? Yes _____ No _____

1d. Approximately how much space are you renting? _____ square feet

1e. Do you think you'll need additional space in the future Yes _____ No _____

1f. Are there any changes or improvements you would like to see in your present storage space arrangement? If yes, what would you like to see?

2. Are you planning on using any public storage space? Yes _____ No _____

2a. If you are planning to rent public storage space or may rent such space, how far of a distance are you willing to travel to use your space? _____ miles

2b. Approximately what size storage space would you need? _____ square feet

2c. How much monthly rent would you be willing to pay? \$ _____ per square foot/month

2d. Would you require heat for your space?

Name:

Title:

Address:

Thank you very much for your co-operation

Created by Women's Enterprise Society of BC 3

C. This questionnaire was developed by a woman who was interested in selling southwestern

jewelry made by Native Indians.

Southwestern Jewelry Questionnaire

1. Have you ever purchased or received southwestern jewelry? Yes _____ No _____

2. Have you ever purchased or received southwestern jewelry made by native Indians?

Yes _____ No _____

If Yes, what type of jewelry?

Necklace _____ Ring _____ Bracelet _____ Earrings _____ Other _____

3. Would you be interested in purchasing the above mentioned jewelry made by native Indians?

Yes _____ No _____

4. Do you know where to shop for such jewelry? Yes _____ No _____

5. When buying jewelry, what do you value the most? On a scale of 1 through 5, list in order according to your preference. One represents your most valued choice.

Craftsmanship _____ Cost _____ Uniqueness _____ Other _____

D. The Last Questionnaire Was Developed By a Woman Who Wanted to Open a Fitness Center And

Offer One-on-one Training Fitness Center Questionnaire

1. Do you exercise Yes _____ No _____

If no, please answer questions to Part A

If yes, please answer questions to Part B

A. Please check reasons for not exercising:

_____ Lack of time _____ Lack of motivation _____ Cost

_____ No convenient fitness centers _____ medical reasons

B. Check the type of exercise you do:

_____ aerobic _____ Nautilus _____ Free weights

_____ running _____ Swimming

_____ Other, please specify

C. Check your age group

_____ under 25 _____ 26-35 _____ over 35

D. Where do you normally exercise?

_____ at home _____ fitness center

E. How far do you live from (town of proposed center)?

_____ in town _____ 10-15 miles _____ out of town

F. Do you think your town needs a fitness center? Yes _____ No _____

G. Would you be interested in one-on-one training? Yes _____ No _____

H. Please note any other suggestions or comments you might have.

Examples Of Good Survey Questions

1. How do you rate the convenience of our location? (ranking)

_____ poor _____ good _____ very good _____ excellent

2. Please rank the following factors in the order of important to you when making a buying decision for this

service (1 being most important, 5 being least important)

(multiple choice & ranking)

_____ price _____ referral _____ location _____ availability _____ guarantee _____ other

3. Are there any other services you would like to see offered? (open-ended)

4. Do you believe that our competitors prices are too high? (two-choice)

_____ Yes _____ No

5. What price would you be willing to pay for this product/service? (two-choice) Note: This is an important

question to ask because the answer will affect one's sales revenue projections

_____ \$10 - 20 _____ \$20 - 30

6. Which of the following services would you like to see offered? Choose one. (multiple choice)

_____ loans program _____ mentoring _____ counselling _____ research _____ other

Examples of Poor Survey Questions

Do you like this hotel?

(This does not give any valuable information, but it could be reworded, "What do you like about this hotel, what

don't you like about this hotel?)

How do you rate the service received?

_____ poor _____ fair _____ good _____ very good _____ excellent

(This should have an even number of choices)

Which of these services would you be interested in?

____ loans ____ mentoring ____ business counselling ____
information referral

(This question should have an “other” category)

What beverages do you drink?

____ Milk ____ coke ____ non-cola drink ____ coffee ____
tea ____ juice

(This question is too broad. Most of us will have drunk some
of these at some time. Is the respondent to check a
number of boxes or only one?)

Let's Recapitulate The Lecture

The questionnaires can be classified into four main types –

1. Structured-non-disguised,
2. Structured –disguised,
3. Non-structured-non-disguised, and
4. Non-structured-disguised.

Designing a Questionnaire

Type of Questions

Open –ended question

Dichotomous question

Multiple –choice questions

Order of Questions

Since, in the beginning, the researcher has to establish some rapport with the respondent, it is necessary that questions asked at the beginning are simple and thereby helpful in establishing the report. Difficult questions or those on sensitive issues should be relegated to the end of the questionnaire. Further, question of a general type should be asked in the beginning while those which are specialized, needing some in –depth information from the respondents, should be left to the end.

The Questionnaire — Pros and Cons

Advantages

5. It is economical in terms of money and time
6. It gives samples which are more representative of population
7. It generates the standardized information
8. It provides the respondent the desired privacy

Disadvantages

1. Non return
2. Mis-interpretation
3. Validity

LESSON 17: TUTORIAL

Q: What is a questionnaire?

Q: What are the different types of questionnaires?

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LESSON 18:

INTERVIEWING, CHOICES OF SURVEY METHOD

Introduction

In this lecture today we will study about the interviewing method of collecting data. This is tactical approach to get important information from the respondents.

Learning Objectives of The Lecture

- To understand what is interviewing.
- Conditions of successful interviewing.
- Interviewing Errors.
- Depth Interviews.
- Focus group interviews.
- Survey method and choice of survey method.

Interviewing

Having looked into the designing of questionnaires, scaling techniques and major aspects in sampling in some of the preceding chapters, we now turn to an important aspect of the field survey, namely, interviewing. It is one of the most difficult tasks in marketing research and yet it has not received adequate attention. It is difficult because it requires a rare combination of intelligence, initiative and tact on the part of interviewers to enable them to get the desired information from the unknown respondents.

Conditions for a Successful Interview

An interview is a purposeful conversation between the interviewer and the respondent aimed at eliciting certain information from the latter. Though this appears to be a simple task, in reality, it is not so. It is necessary that certain conditions are fulfilled in order to ensure its successful completion. These conditions are explained below.

Availability of Information with the Respondent

First, the respondent must have the information which is sought by the interviewer. It may well be that the respondent had the information but due to the passage of time, he has now forgotten it. Alternately, he might have repressed it due to some emotional stress.

Cognition

Second, the respondent should understand what is required and expected of him. He should be in a position to decide what information he should give, how much he should give and in what manner he should give it. The interviewer should ensure that the respondent understands his role when he is interviewed. Whenever the respondent's answer to a question is incomplete or irrelevant, the interviewer should again explain it clearly or probe further to get the necessary details.

Motivation

Finally, the respondent should feel motivated to answer questions accurately. He should be cooperative right from the beginning to the end of the interview. At the same time, he

should realise the seriousness of the interview and give correct answers.

An interview is in fact an interaction of the interviewer and the respondent. Unless they are cooperative and talk on the same wavelength, the interview cannot be successful. Much responsibility, therefore, falls on the interviewer to remove any distrust and misgiving on the part of the respondent at the beginning of an interview, as also his confusion in answering questions as the interview proceeds.

A number of errors do creep in on account of the interviewers, which are termed as interviewer bias. This aspect is discussed later in the chapter.

The Interviewer's Task

The interviewer's task has four aspects: (i) Locating sample members, (ii) Obtaining interviews, (iii) Asking questions, and (iv) Recording the answers. The amount of time spent on these aspects will vary on account of such factors as the nature of the inquiry, the type of sample, the extent of the respondent's cooperation and length of the questionnaire. The time spent by interviewers on actual interviewing is much less than what is generally imagined. Sudman found that contrary to general expectation, interviewers spend only one-third of their time on actual interviewing and two-thirds on other aspects of their task.

Locating the Respondents

In probability sampling, the interviewer cannot choose his respondents on his own. He has to approach only those persons who have been selected in the sample. This fixes a responsibility on the interviewer to find the sample members. In area sampling, where maps are used, the interviewer has to concern himself with either listing dwelling or segmenting within selected blocks. This needs great care as a casual handling of the job may have some dwelling unlisted. From these listed dwelling, a sample is chosen and the interviewer has to call on the sample members. Sometimes he may have to call back when the members are not available or unable to spare time on the first call.

Obtaining the Interview

Having located the respondent, the interviewer has to initiate the interview. He may have to show his identity and authorisation letter/card of his organization. After this, it is necessary to inform the respondent about the purpose of the survey, to impress upon him how his response will be helpful for the survey and to convince him of the need for his cooperation. While he should fully justify to the respondent the reasons for the information sought, he need not be too much apologetic about it. He should also give some idea about what is expected to emerge from such a survey and to whom the results may be of interest. He should refrain from overstating or inflating the importance of the survey.

Initially, when the interview proceeds, the respondent is usually reserved. In such a case, the interviewer should be very patient and courteous while persuading the respondent lest he may be forced to abandon the interview altogether. Such a situation is, no doubt, challenging but if handled carefully, it will give added self-confidence to the interviewer. He should assure the respondent that his answers will be kept confidential and that his identity will not be disclosed. He should also point out that the interview is not a test nor is it intended to educate the respondent. What is important at the beginning is that the interviewer establishes a rapport with the respondent. He has to put the respondent at ease so that he does not have any reservations while talking to the interviewer. The more free and frank the respondent is in answering questions, the better will be the interview. The interviewer must be careful not to assume an air of superiority. This is necessary to ensure the respondent does not put off the interviewing.

Asking the Questions

Having initiated the interview, the interviewer must ask the necessary questions. In the case of a structured questionnaire, he has to ask the questions in the same phraseology and sequence as contained in the questionnaire. He has to ensure that whatever is asked, is understood by the respondent in the sense in which it is intended. He has also to ensure that he understands what the respondent says. He has to be extremely careful not to influence the respondent by his own ideas and prejudices. It has been rightly said that

... the interviewer's function is neither that of an educator nor missionary, but that of an impartial observer of public opinion as he finds it. No matter how much he may privately disagree with the attitudes he encounters, it is not his business to enlighten or convert but to listen and understand.

If he directly or indirectly influences the respondent by his ideas and opinions, the answers of the respondent will not reflect his own ideas and opinions. The interviewer should not emphasise a particular word or part of the question as it could be suggestive to the respondent. Particularly when a question has more than one alternative answer, the interviewer should not, by the manner of asking or by the tone in which it is asked, suggest that he prefers one particular alternative to the remaining ones. In short, he must maintain neutrality and objectivity throughout the interview process.

During the course of the interview, in addition to asking questions, the interviewer must satisfy himself that the answers given by the respondent are adequate. The symptoms of inadequate response, as given by Kahn and Cannell are: partial response, non-response, irrelevant response, inaccurate response and the verbalised response problem. While the first four symptoms are self-explanatory, the last one needs some explanation. At times the respondent explains to the interviewer why he is unable to answer the question. He might not have understood the question or he does not possess the information sought, or he thinks that the question is irrelevant or inappropriate. In all such cases the interviewer should gently probe further to get the necessary information. It may be difficult at times to develop supplementary questions on the spur of the moment. This apart, the phrasing of a supplement-

tary questioning a particular manner may introduce an element of interviewer-bias. On the other hand, no single supplementary question will be suitable in all possible situations. It is difficult to lay down any rigid guidelines in this regard. However, one important measure that can be taken is to provide adequate training to interviewers with a set of standard techniques that should be used by them for handling inadequate responses.

Recording the Responses

Recording the responses is the last aspect of the interviewing task. Except when mail questionnaires are sent out, or a panel survey is undertaken in which the respondents are requested to keep diary records, the recording of answers is done by the interviewers themselves.

The interviewer has to record the answers honestly, as they are obtained from the respondent. In no case should he add or delete something on his own. In the case of open-ended questions, he is expected to be more careful in recording the answers otherwise he is likely to forget or miss some part. If answers are improperly or partially recorded in the hope that when the interviewer returns to his organization, he will write them in full, he may find that he is unable to recollect all the answers. This is likely to pose a serious problem at the time of the editing of the questionnaire or the tabulation of data.

While closing the interview, the interviewer should thank the respondent for this cooperation in the survey and for the time that he has spent in providing the answers. He should close the interview on a friendly note so that in exceptional cases when some crucial additional information is needed, he can approach the respondent again. However, the interviewer should avoid approaching the respondent again as far as possible as this would take more time and enhance the total cost of the survey.

A New Interviewing Technique

At this stage, we may mention that advances in electronic and communication technologies have evolved a new interviewing technique. The traditional questionnaire interview is being replaced by computer-assisted personal interview (CAPI). In CAPI, the interviewer visits the respondent with a laptop computer which has the entire questionnaire loaded on it.

There are several advantages of using CAPI. First, a correct sequence of questions is maintained. Second, it is easy to display colour pictures and visual aids for the better understanding of the respondent. Third, there is no need for any subsequent data entry if the interview is based on a structured questionnaire. Almost immediately after the field work, data can be processed. In view of these advantages, it should be clear that the use of CAPI will considerably cut down the time for the survey-based marketing research. This will provide impetus to marketing research in the country.

Although the cost of using CAPI will be higher than the traditional method of interviewing, the advantages are substantial. One has to carefully weigh the cost-benefit before deciding to use the new device.

Interviewing Errors

Although the researcher may have taken sufficient care in the recruitment and training of interviewers before they are deputed

for interviewers, there are likely to be certain errors which arise while interviewing.

First, errors may arise if the interviewer is unable to establish a proper rapport with the respondent. If the rapport is too weak, the respondent may give answers half-heartedly or give incorrect replies. On the other hand, if the rapport is too strong, it may obsess the respondent on account of excessive influence of the interviewer. This too would not help in obtaining accurate responses. Both these situations have to be avoided and a reasonable rapport between the interviewer and the respondent is to be established, as was pointed out earlier.

Errors interviewing may also arise if the interviewer has deliberately or inadvertently not followed the instructions. For example, he might not have explained the background and purpose of the survey to the respondent or he might have done so vaguely, as a result of which the answers received may not be accurate.

Further, if the interviewer gives undue emphasis to a particular word or a part of the question, it might be suggestive to the respondent. This too would be a source of an interviewing error.

Interviewing demands much patience on the part of both interviewers and respondents. If the interviewer omits any questions in haste, the answers will not be complete. This will cause an error of omission. Besides, when the response to a question is inconsistent with that of an earlier one, it means that one of the responses is wrong. The interviewer is expected to identify such inconsistencies when he comes across them during the course of the interview itself. He should then further probe or ask an additional question to clarify the situation.

Finally, the interviewer may commit some error in the recording of responses. As was mentioned earlier, he should record answers as given by the respondent without adding or deleting anything.

Several studies have been conducted to find out interviewer effects in marketing research. Boyd and Westfall have conducted an extensive research of the literature on interviewer bias. One of their main findings shows that interviewers are a major source of error in marketing field studies and that little is known about the magnitude of such errors under varying conditions. In a subsequent study they observe that despite the need for research in a large number of areas dealing with interviewer bias, extremely limited research has been done in this field. Some more work has been done since then. In the field of social surveys, Sudman and Bradburn analysed the results of a large number of surveys. One of their findings is that the use of self-administered questionnaires reduces not only the amount of interviewer time but also provides a better indication of the respondent's real feelings than personal interviews, under certain conditions.

In a more recent study, McKenzie has investigated interviewer effects in marketing research. As the author has put it: "This survey afforded the opportunity to measure interviewer effects on a variety of long or involved questions, where they might be expected to be greatest; emphasis is on effects due does not allow us to go into the technical rather than selective non-response." As the scope of this book does not allow us to go into the technical details of the survey, we only mention some

of the conclusions of the study. One of these showed that interviewer differences accounted for more than 10 per cent of the basic random sampling variance. Where a large number of interviews per interviewer are carried out, such differences would be a major source of additional variance. Another conclusion showed that for several questions, there were sizeable interviewer differences. These questions were mostly either of a repetitive type or involved possible difficulty in interpretation. Another conclusion showed that there was a certain relationship between the respondents' replies and the interviewers' own answers to the survey questions. All the same, the authors could not find any evidence for casual inference from this relationship. These are some of the conclusions reached in the study.

The sum up, we may say that the best way to reduce interviewer bias or effect still continues to be the improvement of interviewer selection, training, supervision and increasing the respondent's motivation to cooperate. We shall deal with the first three aspects in the subsequent sections.

Selection of Interviewers

It has been recognised in all quarters that the success of any enterprise depends largely on the quality of manpower employed. This applies all the more in the case of surveys where the interviewers are to collect data from different respondents.

To begin with, we should know what are the major characteristics which an interviewer should possess. First, as interviewing is a tiresome job involving strenuous field work for long hours, the interviewer should be in good health. Second, he should be an extrovert. Any person who is very reserved will not enjoy meeting respondents and talking with them, and would perhaps fail miserably in canvassing the questionnaire. As such, a person should be sociable and inclined to contact strangers whom he has not met earlier. Third, he should be well-dressed and possess a pleasing personality. Many a time appearance coupled with good manners decides whether the respondent will cooperate with the interviewer or not. Fourth, the knowledge of the local or regional language must be possessed by the interviewer. In a vast country like India where so many different languages are spoken, it becomes necessary to recruit those interviewers who are proficient in the local or regional language. Fifth, an interviewer must be educated and well-qualified to conduct the interview. For example, in the case of a highly technical survey, a person who knows the technicalities of the subject should be appointed. Sixth, as wide discrepancies in the class or status of the interviewer and respondent inhibit certain types of responses, these should be avoided as far as possible. Finally, an interviewer must be capable of communicating with the respondent. The major problem that arises in field investigation is that of a lack of communication. The interviewer should be communicative so that the respondent can easily understand what he wants.

Training of Interviewers

Before the interviewers are sent out for collecting data, it is necessary that they should be given some training. In case the subject of enquiry is of a very general nature, the training need not be very elaborate. The interviewers should be given some guidance aspects should be fully explained and the necessary

literature should be given to them so that they can familiarise themselves with the subject. The duration and content of training will vary from survey to survey. Even so, normally, training of 2 to 4 weeks may be considered sufficient. The content of training must be decided carefully.

Initial Training

It may be necessary to provide two types of training – initial training and training for individual studies. Soon after the appointment of the interviewer, initial training may be given which should familiarise him with the relevance of marketing research and the role of interviewers in marketing research studies. General aspects such as locating the respondents, obtaining interviews, asking questions, recording responses and closing interviews, problems of non-response, etc. should be covered fully. The entire training should not be in the form of classroom lectures and discussions. A part of it should be practical – the interviewer should be asked to accompany and observe a supervisor who actually conducts the interview. In the next visit, the interviewer may be asked to initiate and conduct the interview in the presence of the supervisor. Later on, the supervisor should comment on his interview, pointing out specific mistakes committed and suggesting improvements. Finally, the interviewer should be sent out on his own. Each recorded interview should be discussed by the supervisor, indicating its deficiencies. Such a training will go a long way in improving the competence of interviewer.

Training for Individual Studies

In addition to initial training, it is necessary that training for individual studies should be given. The purpose of the research study should be explained. If a consulting firm is undertaking research for an outside firm, it is desirable to inform the interviewers as to which is the sponsoring organization and to give them some background information about it. Further, if the study involves any technical aspects, these must be clearly explained to the interviewers.

In case of studies using area sampling, the interviewer is required to exercise great care in locating the sample respondents. Specific instructions must be given to the interviewers so that the job can be done efficiently. It may further improve the quality of interviewing if interviewers are issued written instructions with respect to a particular survey. In case of doubt, they can refer to them and resolve the difficulty on their own. Finally, certain hypothetical problem-situations should be covered in a specific study and explanations given as to how such problems can be handled if they occur at the time of interviewing.

Supervision of Interviewers

In conducting a survey, it is necessary to organise it on the right lines and to ensure its timely completion. The role of supervisors is important in this respect.

A supervisor's work should include:

1. Gathering and training interviewers on the fundamentals of interviewing, including application forms.
2. Alerting and briefing interviewers for a particular job.
3. Allocating territory, in some cases requiring map work of a fairly detailed nature.

4. Carefully studying the first day's work, and correcting errors.
5. Editing all work.
6. Validating some of the reports (10 per cent or whatever percentage is required).
7. Keeping careful production records.
8. Reviewing time sheets.
9. Rendering a detailed bill for the work.

From this list it is evident that a supervisor's task involves several functions, which remain the same whether he is a full-time employee of a company or an independent functionary.

To minimise the chances of interviewer cheating, supervisors may visit the places, without any prior intimation, where the interviewer is expected to be present. Such sudden inspection visits by without contacting the respondents. Apart from this, questionnaires filled in by the interviewer unaided by the respondent, are frequently self-disclosures in the sense that they contain rather unusual or inconsistent answers. Supervisors have to cross check such questionnaires very carefully so that they may detect the fraud. Thus, they can compare the data recorded by a particular interviewer with those recorded by other interviewers. If his data are very different from those of others, then two possibilities exist. First, the interviewer may have deliberately entered wrong data or he may not even have visited the respondent. Second, the respondents assigned to him may be different from the rest of the population. In either case, the supervisor has to closely look into the problem. Further, to minimise interviewer cheating, it may be desirable to boost up the interviewer's morale and offer him a reasonable compensation for his work. If he is poorly paid, then he is unlikely to work hard and may be tempted to cut short interviews. In addition, he may be given an assurance that if his work is found quite satisfactory, he will be sought in the next survey or his services may be retained in the organization.

Apart from these measures, two methods may be used to ascertain and control cheating. The first is the re-interview method which implies that a sample of respondents covered by each interviewer may be interviewed again. This method is helpful not only in checking whether the interviewer has followed sampling instructions but also whether the respondent was really interviewed and whether the information collected in the first interview was accurate. The main limitation of this method is that it is expensive. Besides, it is time-consuming.

The second method is the post-card check. Instead of holding re-interviews of selected respondents, a post-card is sent to them to find out whether the interview was held. The method is unable to check the quality of interviews though it will reveal if they were not held. No doubt, this method is much cheaper. This advantage is offset to a certain extent on account of the failure of the respondents to send back the post-cards. This method too is time-consuming. Further, sometimes these cards are likely to reach persons other than the respondents and when these are sent back, the supervisor may receive inaccurate information.

Perhaps the more important job of a supervisor is to evaluate the interview itself rather than to ascertain whether it was

conducted or not. One way is to conduct a re-interview, but the method is both time-consuming and expensive as was mentioned earlier. Another method is to evaluate the filled-in questionnaire. The supervisor should read through the questionnaire carefully to detect inconsistencies and inaccuracies. Sometimes one may not be able to detect these shortcomings. However, certain checks can be used. For instance, the supervisor may select a few important questions where the interviewer was particularly required to follow instructions, the non-compliance of which would be reflected in the responses. A check of this type may be helpful in evaluating the quality of the interviewer's work, though it is not complete by itself. Again, such a check may sometimes reveal that the instructions themselves were deficient.

Another method is to use free response questions in which the interviewer verbatim records the answers given by the respondent. A close perusal of such answers helps the supervisor to find out whether the interviewer has adhered to the instructions given. The method is subjective but it can be helpful in evaluating the quality of the interviewer's work as revealed by selected parts of filled-in questionnaires.

There are other methods for evaluating the interviewer's performance. One method is by assigning comparable interviewing tasks to interviewers and then comparing their performance relative to each other. Another method is that of direct observation, though it may not be possible always for the supervisor to accompany every interviewer. In addition, it is very expensive, though, at the time of initial training, the method can be followed. Yet another method is to invite comments from the interviewers on the work done by them, problems encountered in the field and measures taken by them to collect information. The supervisor may be able to identify interviewers having greater initiative, intelligence and who are hardworking.

Qualitative Research

So far the discussion was confined to formal interviewing involving direct questioning to get the necessary information from the respondents. However, there are certain problems or situations when direct questioning of respondents does not help the interviewer. Respondents are either unwilling to give the information sought or unable to provide it. In such cases, other techniques, which are generally referred to as qualitative research, are used. Qualitative research is mainly useful in understanding the consumer behaviour and attitudes. It probes rather than counts. As such it is impressionistic rather than conclusive. It comprises three major techniques – depth interviews, focus group interviews and projective techniques. A brief discussion of these techniques is given as follows.

Depth Interview

So far we have discussed the direct and structured interview. When an interview is held without the aid of a structured questionnaire, the interviewer has freedom in conducting it in the manner he desires. Such interviews are not subject to a well-defined and rigid procedure and are known as informal interviews. They are more appropriate in case of 'sensitive' issues which may require more probing.

Largely as a result of the influence of clinical interviewing and anthropological field work, a varied assortment of interviews have been developed in which neither the exact questions the interviewer asks nor the responses the subject is permitted to make are predetermined. Such interviews take various forms and go under various names – the 'focused' interview, the 'clinical' interview, the 'depth' interview, the 'non-directive' interview, etc.

When a researcher is interested in in-depth investigation of perceptions, attitudes or motivations of the respondents, a formal or structured interview will not be suitable. For this purpose, an unstructured interview, which is more flexible, is used. On account of this flexibility, such interviews enable the interviewer to bring out "the affective and value-laden aspects" of the respondent's answers. Such interviews are helpful in understanding the beliefs, feelings and attitudes of respondents in their personal and social contexts.

In depth interviewing, a procedure similar to that used by a psychiatrist, is followed. A person trained in the techniques of probing conducts such an interview. He does not have a formal questionnaire with him. He asks such questions as are appropriate and in an order developed during the interview. He keenly observes and records subtle reactions of the respondents. The questions which centre around the product or problem involved are largely indirect.

The technique of depth interview has certain advantages. First, it is able to discover hidden motivations which really determine consumer behaviour. Through data obtained in depth interviewing, the interviewer may discover the strength of a new appeal. As a result of such a finding, an altogether different approach to marketing problems can be made. Second, depth interviewing may lead to the development of a motivational pattern with respect to a particular brand or other action under investigation. Finally, it provides a strong stimulus to the insight of the interviewer. It has been noticed that the major contribution in marketing research has been made by the 'clinical insight' of the researchers using this technique rather than by those conducting structured interviews.

As against the foregoing strengths of the depth interviewing, it has certain weaknesses or limitations. First, it does not provide a systematic structure for interpretation of the information obtained. Second, the information obtained is non-quantifiable and is based on human judgement. There is thus too much of subjectivity. This means that different results will be obtained by different people even though the situation is the same. Finally, it needs far more vigilance and training on the part of the interviewer, since depth interviews are normally conducted by untrained and incompetent interviewers. This may give rise to several inaccuracies in the information obtained.

Advantages of Depth Interviews

- Attitudes and emotions of the test persons can be explored in detail and close to reality and without laying down fixed response alternatives
- Motivations and resistance towards certain markets, products, services or marketing measures can be determined

- Very complex research subjects or new questions for which there is currently no information at hand, can be worked on
- Mutual trust between the interviewer and the test person develops which enables them to talk about difficult questions or about so called “taboo themes”
- What questions are depth interviews suitable for?
- Depth interviews are used by psychonomics for various questions.
- Market segmentation and typologising
- Purchasing motivation analysis and usage congruencies
- Market potential and product innovations
- Image and brand positioning
- Customer satisfaction and customer loyalty
- Customer relationship management

Focus-Group Interviewing

Concept: In the focus group interviewing method, the interviewer collects a small number of representative consumers for discussion on a particular subject. The optimal size of a focus group is usually taken to be about eight people. Any number less than this is insufficient for the focus group. On the other hand, if the number is say, 10 or 12, it is regarded as too large. The larger the size of the group, the longer people have to wait for their turn.

Generally, the group selected is a relatively homogeneous one so that a meaningful discussion can take place. On the other hand it may be preferable to form a varied group so that diverse views on a particular topic are expressed. This will depend largely on the nature of the research problem.

Groups are formed in a number of ways. Sometimes telephone screening is used. Field workers may scout around in the neighbourhood for persons conforming to their requirements. Certain organisations, especially in the advanced Western countries, may have names and address of respondents conforming to certain characteristics, in their records.

Who Uses Focus Groups?

- *Political pollsters* use **focus** groups to ask potential voters about their views of political candidates or issues
- *Organizational researchers* use **focus** groups to learn how employees and managers feel about the issues confronting them in the workplace.
- *Marketing firms* use **focus** groups to determine how customers respond to new products.
- *Public agencies* find **focus** groups an important tool in improving customer service.
- *Survey designers* use **focus** groups to pretest their ideas and to interpret the quantitative information obtained from interviewing.

Why use Focus Groups and not Other Methods?

The main purpose of focus group research is to draw upon respondents’ attitudes, feelings, beliefs, experiences and reactions in a way in which would not be feasible using other methods, for example observation, one-to-one interviewing, or

questionnaire surveys. These attitudes, feelings and beliefs may be partially independent of a group or its social setting, but are more likely to be revealed via the social gathering and the interaction which being in a focus group entails. Compared to individual interviews, which aim to obtain individual attitudes, beliefs and feelings, focus groups elicit a multiplicity of views and emotional processes within a group context. The individual interview is easier for the researcher to control than a focus group in which participants may take the initiative. Compared to observation, a focus group enables the researcher to gain a larger amount of information in a shorter period of time. Observational methods tend to depend on waiting for things to happen, whereas the researcher follows an interview guide in a focus group. In this sense focus groups are not natural but organised events. Focus groups are particularly useful when there are power differences between the participants and decision-makers or professionals, when the everyday use of language and culture of particular groups is of interest, and when one wants to explore the degree of consensus on a given topic.

The Role of Focus Groups

Focus groups can be used at the preliminary or exploratory stages of a study; during a study, perhaps to evaluate or develop a particular programme of activities; or after a programme has been completed, to assess its impact or to generate further avenues of research. They can be used either as a method in their own right or as a complement to other methods, especially for triangulation and validity checking.

Focus groups can help to explore or generate hypotheses and develop questions or concepts for questionnaires and interview. They are however limited in terms of their ability to generalise findings to a whole population, mainly because of the small numbers of people participating and the likelihood that the participants will not be a representative sample.

Examples of research in which focus groups have been employed include developing HIV education in New Delhi, understanding how media messages are processed, exploring people’s fear and distance interviewing of family doctors

Potential and limitations

Interaction is the crucial feature of focus groups because the interaction between participants highlights their view of the world, the language they use about an issue and their values and beliefs about a situation. Interaction also enables participants to ask questions of each other, as well as to re-evaluate and reconsider their own understandings of their specific experiences.

Another benefit is that focus groups elicit information in a way which allows researchers to find out why an issue is salient, as well as what is salient about it. As a result, the gap between what people say and what they do can be better understood. If participants reveal multiple understandings and meanings, multiple explanations of their behaviour and attitudes will be more readily articulated.

The benefits to participants of focus group research should not be underestimated. The opportunity to be involved in decision-making processes, to be valued as experts, and to be given the chance to work collaboratively with researchers, can be empowering for many participants. If a group works well, trust develops

and the group may explore solutions to a particular problem as a unit, rather than as individuals. Not everyone will experience these benefits, as focus groups can also be intimidating at times, especially for inarticulate or shy members. Hence focus groups are not empowering for all participants and other methods may offer more opportunities for participants. However if participants are actively involved in something which they feel will make a difference, and focus group research is often of an applied nature, empowerment can realistically be achieved.

Another advantage of focus groups to clients, users, participants or consumers is that they can become a forum for change, both during the focus group meeting itself and afterwards.

For example, the participants in a research experienced a sense of emancipation through speaking in public and by developing reciprocal relationships with the researchers. In another study, patients in hospital were invited to give their views about services and to provide ideas about improvements. In this instance change occurred at the management level as a direct result of patients' input.

Although focus group research has many advantages, as with all research methods there are limitations. Careful planning and moderating can overcome some, but others are unavoidable and peculiar to this approach. The researcher, or moderator, for example, has less control over the data produced, than in either quantitative studies or one-to-one interviewing. The moderator has to allow participants to talk to each other, ask questions and express doubts and opinions, while having very little control over the interaction other than generally keeping participants focused on the topic. By its nature focus group research is open-ended and cannot be entirely predetermined.

It should not be assumed that the individuals in a focus group are expressing their own definitive individual view. They are speaking in a specific context, within a specific culture, and so sometimes it may be difficult for the researcher to clearly identify an individual message. This too is a potential limitation of focus groups.

On a practical note, focus groups can be difficult to assemble. It may not be easy to get a representative sample and focus groups may discourage certain people from participating, for example those who are not very articulate or confident, and those who have communication problems or special needs. The method of focus group discussion may also discourage some people from trusting others with sensitive or personal information. In such cases personal interviews or the use of workbooks alongside focus groups may be a more suitable approach.

Finally, focus groups are not fully confidential or anonymous, because the material is shared with the others in the group.

The practical organisation of focus groups

Organising focus group interviews usually requires more planning than other types of interviewing as getting people to group gatherings can be difficult and setting up appropriate venues with adequate recording facilities requires a lot of time.

The recommended number of people per group is usually six to ten, but some researchers have used up to fifteen people or as few as four. Numbers of groups vary, some studies using only one meeting with each of several focus groups, others

meeting the same group several times. Focus group sessions usually last from one to two hours. Neutral locations can be helpful for avoiding either negative or positive associations with a particular site or building. Otherwise the focus group meetings can be held in a variety of places, for example, people's homes, in rented facilities, or where the participants hold their regular meetings if they are a pre-existing group.

It is not always easy to identify the most appropriate participants for a focus group. If a group is too heterogeneous, whether in terms of gender or class, or in terms of professional and 'lay' perspectives, the differences between participants can make a considerable impact on their contributions. Alternatively, if a group is homogenous with regard to specific characteristics, diverse opinions and experiences may not be revealed. Participants need to feel comfortable with each other. Meeting with others whom they think of as possessing similar characteristics or levels of understanding about a given topic, will be more appealing than meeting with those who are perceived to be different.

Once the types of participant have been decided, locating them is the next challenge. Recruitment of participants can be time consuming, especially if the topic under consideration has no immediate benefits or attractions to participants. It is likely that people with specific interests will have to be recruited by word of mouth, through the use of key informants, by advertising or poster campaigns, or through existing social networks. Incentives, whether expenses, gift vouchers or presents, will usually need to be offered.

The Role of a Moderator

Once a meeting has been arranged, the role of moderator or group facilitator becomes critical, especially in terms of providing clear explanations of the purpose of the group, helping people feel at ease, and facilitating interaction between group members.

During the meeting moderators will need to promote debate, perhaps by asking open questions. They may also need to challenge participants, especially to draw out people's differences, and tease out a diverse range of meanings on the topic under discussion. Sometimes moderators will need to probe for details, or move things forward when the conversation is drifting or has reached a minor conclusion. Moderators also have to keep the session focused and so sometimes they may deliberately have to steer the conversation back on course. Moderators also have to ensure everyone participates and gets a chance to speak. At the same time moderators are encouraged not to show too much approval, so as to avoid favouring particular participants. They must avoid giving personal opinions so as not to influence participants towards any particular position or opinion.

The role of the moderator is a demanding and challenging one, and moderators will need to possess good interpersonal skills and personal qualities, being good listeners, non-judgmental and adaptable. These qualities will promote the participants' trust in the moderator and increase the likelihood of open, interactive dialogue.

Finally, the degree of control and direction imposed by moderators will depend upon the goals of the research as well

as on their preferred style. If two or more moderators are involved in the facilitation of a focus group, agreement needs to be reached as to how much input or direction each will give. It is recommended that one moderator facilitates and the other takes notes and checks the recording equipment during the meeting. There also needs to be consistency across focus groups, so careful preparation with regard to role and responsibilities is required.

The moderator's job is to keep the group "focused" and to generate a lively and productive discussion. Questions should be "open-ended." Those that can be answered with a "yes" or "no" should be avoided.

Conducting the Interview

There is no one best way to conduct a focus interview. Sometimes a trained psychologist experienced in group interviewing techniques is approached to act as the discussion leader or moderator. Many a time, group interviews are conducted by persons who have gained considerable experience in handling such interviews though they may not be well-versed with the literature on successful discussion techniques.

To start a group interview in a reasonably sound manner, it is desirable that the moderator first explains the subject for discussion in his own words. He should initiate the discussion and allow the group interview to proceed spontaneously, without any intervention. However, when he feels that the group discussion has digressed from its theme, he should intervene and bring it back on the track. He may introduce certain stimuli, such as products, packages, pictures or advertisements, which may stimulate members of the group of participate in the discussion more actively. As has been observed:

"The moderator is like a conductor, orchestrating an improvisation. The task calls for adeptness and awareness of what is going on, what people are doing and feeling. It means giving everyone a chance without taking dull roll calls."

The entire group discussion is recorded on a tape recorder. Several groups are formed and the same procedure is followed in each case. Comparisons of discussions of these groups may enable the interviewer to get new 'insights' into the subject discussed.

Advantages of Focus-Group Interviewing

Following are a number of advantages of focus-group interviewing.

1. Group interview studies are often fast and cheap. A study based on three or four group interviews can be conducted in a very short period. When the researcher is subjected to time and cost constraints, group interviewing is especially useful.
2. The group interview technique is appropriate for generating hypotheses more so in cases when the available information is scanty. This may be helpful to the researcher when other sources are inadequate to stimulate his thinking. Such interviews are regarded as "highly productive idea breeders".
3. This technique brings the respondent who supplies information and the client who uses it closer.
4. This technique is quite flexible, which is not the case when a structured questionnaire is used. Here, the interviewer listens, thinks, probes, explores, framing hunches and ideas

as he proceeds. He is not an automatic, mechanical, wind-up questioner as a survey interviewer is.

5. The group interviewing technique, like the individual depth interviewing, is appropriate to handle contingencies.
6. Respondents in a group interview stimulate one another. There is an interaction of ideas, attitudes, emotions and beliefs of the different members comprising the group. As a result of this interaction, the threshold for personal revelations is lowered in the focus-group interview. Also, interaction widens the base of discussion – many more ideas emerge than would be possible in the depth interview involving only two persons.
7. Finally, a group interview study often gives its findings not in the "form of mysterious symbols and dull tables" but in direct quotations in which people give their views at length. Thus, its findings emerge in a form which is fully understandable to the clients.

Disadvantages and Misuses of Focus-group Interviewing

1. Some of the advantages of the focus group technique also lead to misuses. For example, this technique may be used by a manager to support his pre-conceived notions.
2. The technique is used for too many things. It does not indicate how extensive the attitudes expressed by the participants are. The necessary follow-up quantitative research is generally not conducted.
3. The data are not at all projectable. This is because the sample is generally inadequate and drawn purely on the basis of convenience.
4. Much of the results depend on the moderator. He has his own biases and limitations and the things that impress him may or may not be typical.
5. Another difficulty in focus-group interviewing is with respect to the recruitment of participants. This problem would arise when a large number of groups are to be formed.

Projective Methods

Sometimes, to provide a stimulus to help generate a discussion in informal interviewing, certain projective methods are used. Such techniques are based on the principle of confronting an individual with a purposely ambiguous situation he must interpret. The ambiguous situation may just be a word, an incomplete sentence, or a picture. For example, when a respondent is shown a series of pictures with ambiguous situations, he is supposed to invent a story which explains the pictures. The purpose of using such a projective method is to remove the inhibitions of the respondent as he thinks and answers in terms of other people rather than himself.

Such methods were first devised by psychologists and psychiatrists concerned with the diagnosis and treatment of patients suffering from emotional disorders. They are used to find a comprehensive picture of the individual's personality structure, his emotional needs, his conflicts, etc.

Projective Techniques

Projective techniques provide either verbal or visual stimuli with the objective to encourage the respondent to reveal his hidden feelings and attitudes without his being aware of doing so. There are a number of projective techniques. Here, only a few of them are briefly discussed.

Word Association Test

This test is sometimes called free word association test. In this test, the respondent is given a single word and asked to say whatever words come to his mind without any delay. The respondent is given a series of words, one after the other, and his immediate reaction is sought. It is believed that such a test provokes the respondent to come out with a meaningful response.

Responses can be classified in more than one way: (i) on the basis of frequency with which a particular word has been given as a response; (ii) on the basis of the interval of time before response is made (hesitation); and (iii) on the basis of failure of respondents to come out with any response (blocking). Word association tests are particularly useful in selecting brand names and in advertising to ascertain its effectiveness. In the latter case, a test is given to the same panel of consumers both before and after an advertisement.

Sentence Completion Test

Sentence completion test is similar to the word association test. The respondent is subjected to some pressure to give spontaneous replies. It is believed that it would reveal attitudes which otherwise respondents may be reluctant to disclose.

Sentence completion test, as the name implies, involves the use of an incomplete sentence which the respondent is asked to complete immediately. The sentence should be short and simple so that the response may also be in a few words. While some respondents may be in a position to give considered to be quite reliable and, as such, they are frequently used in marketing research.

Thematic Apperception Test (TAT)

Thematic apperception test consists of 30 pictures plus one blank card. The maximum number of pictures used with any respondent is 20, usually administered in two sessions, ten each time.

Before using the TAT, the respondent is told that the test is of imagination and that there is no right or wrong response. The pictures are shown to the respondent one at a time and he is asked (i) to describe what is happening and the feelings of characters shown in the picture; (ii) to tell what he feels has led up the scene; and (iii) to tell what the outcome will be. The test assumes that the responses to these questions based upon ambiguous pictures reveal personal feelings and experiences of the respondent. Interpretation of TAT should be done by experienced specialists in this line.

Story Completion Test

This test is a logical development of the sentence completion test. Here, the respondent is given the opening sentence or sentences describing a certain situations. He is asked to narrate the story as he imagines. It is believed that he respondent while developing the story gives out his own psychological reactions.

Cartoons (Blank Balloons)

Another device that is used in projective techniques is the cartoon or blank balloon. It involves the use of a cartoon showing two persons talking in a particular setting. The comments of one person are shown in a speech balloon while

the other speech balloon, pertaining to the second person is kept empty. The respondent is asked to give the reply the second person would have given. Since the respondent thinks that he is a different person not involved in the cartoon, he would not feel any hesitation in giving out his reaction to that situation. He might give his own reaction without being aware that he is doing so. It may be noted that responses in such tests should be confined to a few words. These tests are used in a number of marketing problems such as packaging, quality of services, etc.

Projective techniques are now increasingly being used in marketing research. However, they have been criticised on account of their subjectivity in interpretation. With the help of various projective techniques,

... it should be possible to study people's motives, emotions, values, attitudes, and needs by somehow getting them or project these internal states on to external objects. This potent idea is behind projective devices of all kinds.

Kerlinger further goes on to say that one of the basic principles of projective techniques is that the more unstructured and ambiguous a stimulus, the more a subject is expected to project his emotions, needs, motives, attitudes and values.

No doubt, they are the most imaginative and significant tools in psychology, but on account of their lack of objectivity, people have questioned whether they should be used in scientific research. However, a detailed discussion of projective techniques is beyond the scope of this book.

Let's Recapitulate This Lecture

- An interview is a purposeful conversation between the interviewer and the respondent aimed at eliciting certain information from the latter.
- The interviewer's task has four aspects: (i) Locating sample members, (ii) Obtaining interviews, (iii) Asking questions, and (iv) Recording the answers.
- Proper care must be taken while selecting the interviewer. He should also be provided with proper training. They must also be adequately supervised.
- There are certain problems or situations when direct questioning of respondents does not help the interviewer. In such situations, it becomes imperative to use Qualitative research techniques.
- There are three major techniques – depth interviews, focus group interviews and projective techniques.
- In case of Depth interview, interview is held without the aid of a structured questionnaire, and the interviewer has freedom in conducting it in the manner he desires. These interviews are more appropriate in case of 'sensitive' issues which may require more probing.
- In the focus group interviewing method, the interviewer collects a small number of representative consumers for discussion on a particular subject.
- Projective techniques provide either verbal or visual stimuli with the objective to encourage the respondent to reveal his hidden feelings and attitudes without his being aware of doing so.

Experience Survey (Depth Interview)

- Interviews with people knowledgeable about the general subject being investigated.

Preferable to focus group in situations where:

- Individuals you want to speak to have inflexible schedules.
- There is a perception that speaking in a group will divulge information to competitors.
- The desired information is very technical.
- Information is required very quickly.
- Much information is required of each individual because the research involves getting well beyond the surface of an issue.
- The topic is sensitive and/or social pressures easily influence response

Focus Group

- Helpful at providing a cursory assessment of new product concepts
- Good at getting feedback on new product design characteristics
- Can help understand the language of the customer
- May generate insight into the customer decision process
- Insights drawn are often useful for descriptive or casual studies

Focus Group

- Consists of 8 to 12 participants led by moderator
- Goal: to learn and understand what people have to say
- The emphasis: getting people to talk in detail
- A response from one person may stimulate other responses
- Extremely popular due to the speed with which the research can be conducted and the relatively low cost

Today, more than \$378 million a year

Used for extensively by consumer goods companies

Focus Group: Drawbacks

- Too many people are willing to stop the research process once they have finished the focus group.
- The information provided by the participants is often very dramatic and memorable.
- Under-reliance of the results also occurs frequently.

Focus Group: Steps

- Prepare for the group (Facility and Respondents)
- Select a Moderator and Create a Discussion Guide
- Conduct the group
- Prepare the focus group report

Focus Group: The role of moderator

- Prepare/assist in preparation of the moderator,s agenda, outlining what needs to be covered;
- Ensure that all participants contribute equally;
- Ensure that the topic does not drift too much from the purpose of the focus group, while at the same time recognizing that some tangents will actually yield some interesting, though unexpected results.

Focus Group: Procedure

- Usually conducted with 6-12 people sitting around a table. The moderator sits at the head of the table.
- The focus group is usually videotaped or audiotaped and later transcribed.
- Participants are usually given a snack and a selection of nonalcoholic beverages
- Typically, participants are paid about \$40, in addition to any costs (e.g., parking)

Focus Group: Moderator

1. Genuine interest in people
2. Acceptance and appreciation for the differences in people
3. Good listening skills
4. Good observation skills
5. Interest in a wide range of topics
6. Good oral and written skills
7. Objectivity
8. Knowledge research and marketing
9. Flexibility
10. Attention to detail

Focus Group: Guidelines in preparing the moderator's guide

- Begin with the introduction of the moderator and a description of the purpose of the focus group
- Point out that the session is being audio/videotaped. If a one-way mirror is present, indicate that there are not people behind mirror. General protocol is that the clients do not meet with the participants.
- Note where the washrooms are and invite them to get any food or beverages that are available in the focus group room at their leisure. Make sure that cell phones are turned off.

Focus Group: Guidelines in preparing the moderator,s guide

- Build flexibility into the process. Consider what potential answers may be given to a particular question and how the discussion may be adjusted to probe a particular issue more.
- End the discussion in the session by giving each individual an opportunity to answer a question. This is usually a fairly general question.

Focus Group: Guidelines in preparing the moderator's guide

- After providing some indication of why they are there, each individual begins with an introduction and an answer to a brief question
- Questions should start broad and focus over the course of the session
- Unless very simple answers are desired, make sure questions are not easily answered with yes or no.

Exploratory Research: Projective Technique

- Techniques for penetrating a person's defense mechanisms

Types of Projective Techniques (Ch. 10)

Word Association Tests
Sentence and Story Completion
Cartoon Tests
Photo Sorts
Consumer Drawings
Story Telling
Third-Person Technique

Exploratory Research: Summary

Exploratory Studies	Literature Search	<ul style="list-style-type: none">▪Conceptual literature▪Trade literature▪Published statistics
	Experience Survey	<ul style="list-style-type: none">▪Knowledgeable people with varying points of view▪Unstructured and informal interviews▪Respondent freedom to choose factors to be discussed
	Focus Group	<ul style="list-style-type: none">▪8 to 12 people a one time▪Relatively homogeneous group▪Multiple groups to get heterogeneity in perspective▪Moderator is key▪Relies on general topical guide, but with plenty of time for interaction
	Analysis of Selected Cases	<ul style="list-style-type: none">▪Integrative powers of investigator are important▪Cases reflecting abrupt changes, extremes of behavior, and order in which events occur over time are productive

LESSON 19: SURVEY METHOD

Introduction

In this lecture, we will discuss survey method of collecting information from respondents. It is the method of gathering information from a sample of individuals.

Learning Objectives

- What is survey?
- Utility of Survey method.
- Determining the sample size.
- Conducting Survey.
- Survey Methods.

Survey

This is an “information society.” That is, our major problems and tasks no longer mainly center on the production of the goods and services necessary for survival and comfort. Our “society,” thus, requires a prompt and accurate flow of information on preferences, needs, and behavior. It is in response to this critical need for information on the part of the government, business, and social institutions that so much reliance is placed on surveys.

Then, What is a Survey?

Today the word “survey” is used most often to describe a method of gathering information from a sample of individuals. This “sample” is usually just a fraction of the population being studied.

For example

- A sample of voters is questioned in advance of an election to determine how the public perceives the candidates and the issues.
- A manufacturer does a survey of the potential market before introducing a new product ... A government entity commissions a survey to gather the factual information it needs to evaluate existing legislation or to draft proposed new legislation.

Not only do surveys have a wide variety of purposes, they also can be conducted in many ways — including over the telephone, by mail, or in person. Nonetheless, all surveys do have certain characteristics in common.

Unlike a census, where all members of the population are studied, surveys gather information from only a portion of a population of interest — the size of the sample depending on the purpose of the study.

In a bona fide survey, the sample is not selected haphazardly or only from persons who volunteer to participate. It is scientifically chosen so that each person in the population will have a measurable chance of selection. This way, the results can be reliably projected from the sample to the larger population.

Information is collected by means of standardized procedures so that every individual is asked the same questions in more or

less the same way. The survey’s intent is not to describe the particular individuals who, by chance, are part of the sample but to obtain a composite profile of the population.

The industry standard for all reputable survey organizations is that individual respondents should never be identified in reporting survey findings. All of the survey’s results should be presented in completely anonymous summaries, such as statistical tables and charts.

How Large Must the Sample Size Be?

The sample size required for a survey partly depends on the statistical quality needed for survey findings; this, in turn, relates to how the results will be used.

Even so, there is no simple rule for sample size that can be used for all surveys. Much depends on the professional and financial resources available. Analysts, though, often find that a moderate sample size is sufficient statistically and operationally. For example, the well-known national polls frequently use samples of about 1,000 persons to get reasonable information about national attitudes and opinions.

When it is realized that a properly selected sample of only 1,000 individuals can reflect various characteristics of the total population, it is easy to appreciate the value of using surveys to make informed decisions in a complex society such as ours. Surveys provide a speedy and economical means of determining facts about our economy and about people’s knowledge, attitudes, beliefs, expectations, and behaviors.

Who Conducts Surveys?

We all know about the public opinion surveys or “polls” that are reported by the press and broadcast media. They conduct surveys on national public opinion on a wide range of current issues. State polls and metropolitan area polls, often supported by a local newspaper or TV station, are reported regularly in many localities. The major broadcasting networks and national news magazines also conduct polls and report their findings.

The great majority of surveys, though, are not public opinion polls. Most are directed to a specific administrative, commercial, or scientific purpose. The wide variety of issues with which surveys deal is illustrated by the following listing of actual uses

- Major TV networks rely on surveys to tell them how many and what types of people are watching their programs
- Statistics Canada conducts continuing panel surveys of children (and their families) to study educational and other needs
- Auto manufacturers use surveys to find out how satisfied people are with their cars
- The U.S. Bureau of the Census conducts a survey each month to obtain information on employment and unemployment in the nation

- The U.S. Agency for Health Care Policy and Research sponsors a periodic survey to determine how much money people are spending for different types of medical care
- Local transportation authorities conduct surveys to acquire information on commuting and travel habits
- Magazine and trade journals use surveys to find out what their subscribers are reading
- Surveys are conducted to ascertain who uses our national parks and other recreation facilities.

Surveys provide an important source of basic scientific knowledge. Economists, psychologists, health professionals, political scientists, and sociologists conduct surveys to study such matters as income and expenditure patterns among households, the roots of ethnic or racial prejudice, the implications of health problems on people's lives, comparative voting behavior, and the effects on family life of women working outside the home.

What are Some Common Survey Methods?

Surveys can be classified in many ways.

Size and type of sample

Surveys also can be used to study either human or non-human populations (e.g., animate or inanimate objects — animals, soils, housing, etc.). While many of the principles are the same for all surveys, the focus here will be on methods for surveying individuals.

Many surveys study all persons living in a defined area, but others might focus on special population groups — children, physicians, community leaders, the unemployed, or users of a particular product or service. Surveys may also be conducted with national, state, or local samples.

Method of Data Collection

Surveys can be classified by their method of data collection. Mail, telephone interview, and in-person interview surveys are the most common. Extracting data from samples of medical and other records is also frequently done. In newer methods of data collection, information is entered directly into computers either by a trained interviewer or, increasingly, by the respondent. One well-known example is the measurement of TV audiences carried out by devices attached to a sample of TV sets that automatically record the channels being watched.

Mail surveys can be relatively low in cost. As with any other survey, problems exist in their use when insufficient attention is given to getting high levels of cooperation. Mail surveys can be most effective when directed at particular groups, such as subscribers to a specialized magazine or members of a professional association.

Telephone interviews are an efficient method of collecting some types of data and are being increasingly used. They lend themselves particularly well to situations where timeliness is a factor and the length of the survey is limited.

In-person interviews in a respondent's home or office are much more expensive than mail or telephone surveys. They may be necessary, however, especially when complex information is to be collected.

Some surveys combine various methods. For instance, a survey worker may use the telephone to "screen" or locate eligible respondents (e.g., to locate older individuals eligible for Medicare) and then make appointments for an in-person interview.

What Survey Questions Do You Ask?

You can further classify surveys by their content. Surveys are concerned with:

- Opinions and attitudes (such as a pre-election survey of voters),
- Factual characteristics or behaviors (such as people's health, housing, consumer spending, or transportation habits).

Many surveys combine questions of both types. Respondents may be asked if they have heard or read about an issue ... what they know about it ... their opinion ... how strongly they feel and why... their interest in the issue ... past experience with it ... and certain factual information that will help the survey analyst classify their responses (such as age, gender, marital status, occupation, and place of residence).

Questions may be open-ended ("Why do you feel that way?") or closed ("Do you approve or disapprove?"). Survey takers may ask respondents to rate a political candidate or a product on some type of scale, or they may ask for a ranking of various alternatives.

The manner in which a question is asked can greatly affect the results of a survey. For example, a recent NBC/Wall Street Journal poll asked two very similar questions with very different results:

1. Do you favor cutting programs such as social security, medicare, medicaid, and farm subsidies to reduce the budget deficit? The results: 23% favor; 66% oppose; 11% no opinion.
2. Do you favor cutting government entitlements to reduce the budget deficit? The results: 61% favor; 25% oppose; 14% no opinion.

The questionnaire may be very brief— a few questions, taking five minutes or less— or it can be quite long— requiring an hour or more of the respondent's time. Since it is inefficient to identify and approach a large national sample for only a few items of information, there are "unibus" surveys that combine the interests of several clients into a single interview. In these surveys, respondents will be asked a dozen questions on one subject, a half dozen more on another subject, and so on.

Because changes in attitudes or behavior cannot be reliably ascertained from a single interview, some surveys employ a "panel design," in which the same respondents are interviewed on two or more occasions. Such surveys are often used during an election campaign or to chart a family's health or purchasing pattern over a period of time.

Who Works on Surveys?

The survey worker best known to the public is *the interviewer* who calls on the telephone, appears at the door, or stops people at a shopping mall.

Traditionally, survey interviewing, although occasionally requiring long days in the field, was mainly part-time work and,

thus, well suited for individuals not wanting full-time employment or just wishing to supplement their regular income.

Changes in the labor market and in the level of survey automation have begun to alter this pattern — with more and more survey takers seeking to work full time. Experience is not usually required for an interviewing job, although basic computer skills have become increasingly important for applicants.

Most research organizations provide their own training for the interview task. The main requirements for interviewing are an ability to approach strangers (in person or on the phone), to persuade them to participate in the survey, and to collect the data needed in exact accordance with instructions.

Less visible, but equally important are the in-house research staffs, who among other things — plan the survey, choose the sample, develop the questionnaire, supervise the interviews, process the data collected, analyze the data, and report the survey's findings.

In most survey research organizations, the senior staff will have taken courses in survey methods at the graduate level and will hold advanced degrees in sociology, statistics, marketing, or psychology, or they will have the equivalent in experience.

Middle-level supervisors and research associates frequently have similar academic backgrounds to the senior staff or they have advanced out of the ranks of clerks, interviewers, or coders on the basis of their competence and experience.

What About Confidentiality and Integrity?

The confidentiality of the data supplied by respondents is of prime concern to all reputable survey organizations.

Several professional organizations dealing with survey methods have codes of ethics that prescribe rules for keeping survey responses confidential. The recommended policy for survey organizations to safeguard such confidentiality includes:

- Using only number codes to link the respondent to a questionnaire and storing the name-to-code linkage information separately from the questionnaires
- Refusing to give the names and addresses of survey respondents to anyone outside the survey organization, including clients
- Destroying questionnaires and identifying information about respondents after the responses have been entered into the computer
- Omitting the names and addresses of survey respondents from computer files used for analysis
- Presenting statistical tabulations by broad enough categories so that individual respondents cannot be singled out.

What are Other Potential Concerns?

The quality of a survey is largely determined by its purpose and the way it is conducted.

Most call-in TV inquiries (e.g., 900 “polls”) or magazine write-in “polls,” for example, are highly suspect. These and other “self-selected opinion polls (SLOPS)” may be misleading since participants have not been scientifically selected. Typically, in SLOPS, persons with strong opinions (often negative) are more likely to respond.

Surveys should be carried out solely to develop statistical information about a subject. They should not be designed to produce predetermined results or as a ruse for marketing and similar activities. Anyone asked to respond to a public opinion poll or concerned about the results should first decide whether the questions are fair.

Another important violation of integrity occurs when what appears to be a survey is actually a vehicle for stimulating donations to a cause or for creating a mailing list to do direct marketing.

Choice of Survey Method

As there are four methods by which data can be collected in a survey, it may be worthwhile to know their relative strengths and weaknesses. The methods in question are —personal survey, mail survey, telephone survey and computer survey. However, as computers in interviewing respondents are not commonly used as yet India. The comparison will be confined to the three methods.

Table below gives a comparative idea of three survey methods on selected criteria.

Table Comparison of Survey Methods

	Criteria	Personal survey	Mail survey	Telephone survey
1.	Probable response rate	Fair	Poor	Good
2.	Time required	Slow	Slow	Fast
3.	Cost	High	Low	Low
4.	Control of sample	Good	Poor	Excellent
5.	Supervision of field work	Fair	None	Excellent
6.	Quantity of information	Good	Limited	Limited
7.	Quality of information	Good	Fair	Excellent
8.	Versatility	Excellent	Fair	Good

It is evident from this table that none of these methods is perfect and free from all the limitations. A method may be good or excellent in case of a few criteria, but in respect of other criteria its rating may be low. The marketing researcher has to exercise great care in choosing the method on the basis of a couple of criteria or considerations which he thinks are important in the survey. For example, when a large quantity of information needs to be collected through a survey, both telephone and mail survey methods will be inappropriate. The choice should obviously be in favour of personal survey. In contrast, if a short survey is to be conducted in a limited time, telephone survey should have the preference. There is, of course, an inherent limitation of telephone survey in India, as telephones are not yet common in cities, not to mention of rural areas.

Let's Recapitulate the Lecture

- Survey is the method of collecting information from a sample of individuals.
- The sample size required for a survey partly depends on the statistical quality needed for survey findings

Q: Write a note on the utility of the survey method?

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LESSON 21:

SECONDARY DATA, METHODS OF COLLECTING SECONDARY DATA.

Introduction

In this lecture, We will discuss the secondary data and various methods of collecting secondary data. We will also discuss the pros and cons of different methods.

Objectives of the Lecture

- Secondary data
- Utility of Secondary data
- Methodological and ethical considerations
- Advantages and disadvantages of Secondary data.
- Evaluation of secondary data.

Secondary Data

After the research problem in marketing has been identified and selected, the next step is to gather the requisite data. At this stage, there is much temptation among the researchers to organize a field survey to collect the data. While a field survey may be necessary for data collection, it should be resorted to only when all other sources of data collection have been exhausted. As some authors have rightly said: “A good operating rule is to consider a survey akin to a surgery – to be used only after all other possibilities have been exhausted.”

Secondary Data

Any data which have been gathered earlier for some other purpose are secondary data in the hands of the marketing researcher. In contrast, those data which are collected at first hand either by the researcher or by someone else especially for the purpose of the study are known as primary data. Thus, primary data collected by one person may become the secondary data for another. For example, the demographic statistics collected every ten years are the primary data with the Registrar General of India, but the same statistics used by anyone else would be secondary data with that individual. There are certain distinct advantages, as also the limitations, of using secondary data. As a researcher, one should be fully aware of the advantages and limitations.

Why Do Secondary Analysis?

It has been contended that the approach can be used to generate new knowledge, new hypotheses, or support for existing theories; that it reduces the burden placed on respondents by negating the need to recruit further subjects; and that it allows wider use of data from rare or inaccessible respondents. In addition, it has been suggested that secondary analysis is a more convenient approach for particular researchers, notably students. It should also be noted that use of the approach does not necessarily preclude the possibility of collecting primary data. This may, for example, be required to obtain additional data or to pursue in a more controlled way the findings emerging from the initial analysis. There may also be a need to consult the primary researchers in order to investigate the circumstances of the original data generation and processing.

Despite the interest in and arguments for developing secondary analysis of qualitative data, the approach has not been widely adopted to date. This raises questions about the desirability and feasibility of particular strategies for secondary analysis of qualitative data discussed below:

Methodological and Ethical Considerations

Before highlighting some of the key practical and ethical issues, which have been discussed in the literature, there are two fundamental methodological issues to be considered.

1. Tenable

The first is whether secondary analysis of qualitative studies is tenable, given that it is often thought to involve an inter-subjective relationship between the researcher and the researched. In response, it may be argued that even where primary data is gathered via interviews or observation in qualitative studies, there may be more than one researcher involved. Hence within the research team the data still has to be contextualised and interpreted by those who were not present. A more radical response is to argue that the design, conduct and analysis of both qualitative and quantitative research are always contingent upon the contextualisation and interpretation of subjects' situation and responses. Thus, secondary analysis is no more problematic than other forms of empirical inquiry, all of which, at some stage, depend on the researcher's ability to form critical insights based on inter-subjective understanding.

2. Origin

The second issue concerns the problem of where primary analysis stops and secondary analysis starts. Qualitative research is an iterative process and grounded theory in particular requires that questions undergo a process of formulation and refinement over time. For primary researchers re-using their own data it may be difficult to determine whether the research is part of the original enquiry or sufficiently new and distinct from it to qualify as secondary analysis. For independent analysts re-using other researchers' data there are also related professional issues about the degree of overlap between their respective works. There is no easy solution to these problems except to say that greater awareness of secondary analysis might enable researchers to more appropriately recognise and define their work as such.

Compatibility of the Data With Secondary Analysis

Are the data amenable to secondary analysis?

This will depend on the 'fit' between the purpose of the analysis and the nature and quality of the original data. Scope for additional in-depth analysis will vary depending on the nature of the data; for example, while tightly structured interviews tend to limit the range of responses, designs using semi-structured schedules may produce more rich and varied

data. A check for the extent of missing data relevant to the secondary analysis but irrelevant to the original study may also be required; for example, where semi-structured interviews involved the discretionary use of probes. More generally, the quality of original data will also need to be assessed.

Position of the secondary analyst

Was the analyst part of the original research team?

This will influence the decision over whether to undertake secondary analysis and, if so, the procedures to be followed. Secondary analysts require access to the original data, including tapes and field notes, in order to re-examine the data with the new focus in mind. This is likely to be easier if they were part of the original research team. If not, then ideally they should also be able to consult with the primary researchers in order to assess the quality of the original work and to contextualise the material (rather than rely on field notes alone). Further consultation may also be helpful in terms of crosschecking the results of the secondary analysis. Finally, whether conducting secondary analysis in an independent capacity or not, some form of contractual agreement between the secondary analyst and the primary researchers, data archive managers, and colleagues involved in the primary research but not in the secondary analysis may have to be negotiated.

Reporting of Original and Secondary Data Analysis

Such is the complexity of secondary analysis, that it is particularly important that the study design, methods and issues involved are reported in full. Ideally this should include an outline of the original study and data collection procedures, together with a description of the processes involved in categorising and summarising the data for the secondary analysis, as well as an account of how methodological and ethical considerations were addressed.

Ethical Issues

How was consent obtained in the original study?

Where sensitive data is involved, informed consent cannot be presumed. Given that it is usually not feasible to seek additional consent, a professional judgment may have to be made about whether re-use of the data violates the contract made between subjects and the primary researchers. Growing interest in re-using data make it imperative that researchers in general now consider obtaining consent which covers the possibility of secondary analysis as well as the research in hand; this is consistent with professional guidelines on ethical practice.

Developing the Approach

To see if the potential of secondary analysis can be realised in practice, developmental work still needs to be undertaken:

- First, there should be a more comprehensive review of the literature on secondary analysis and studies, which have explicitly (and perhaps implicitly) used this approach. This could include examination of the methods used, as well as the quality, value and impact of this work.
- Secondly, further work on the protocols for conducting secondary analysis of qualitative data, particularly with regard to the re-use of other researchers' data should be carried out.

- Thirdly, there should be greater consideration of the issues involved in the secondary analysis of single, multiple and mixed data sets.

Finally, some more specific guidelines are needed for researchers about the ethical issues to be considered when undertaking qualitative work that may be re-used in the future

Advantages of Secondary Data

A major advantage in the use of secondary data is that it is far more economical, as the cost of collecting original data is saved. In the collection of primary data, a good deal of effort is required data collection forms are to be designed the printed, field staff is to be appointed and maintained until all the data have been collected, their traveling expenses are to be incurred, the sample design is to be selected, data are to be verified for their accuracy, and finally, all such data are to be tabulated. All these activities would need large funds, which can be utilized elsewhere if secondary data alone can serve the purpose.

Another advantage is that the use of secondary data saves much of the time of the researcher. This leads to prompt completion of the research project.

Search for secondary data is helpful, not only because secondary data may be useful but because familiarity with such data indicated the deficiencies and gaps. As a result, the researcher can make his primary data collection more specific and more relevant to his study.

As the researcher explores the availability of secondary data relevant to his project, he finds, in the process, that his understanding of the problem has improved. He may even have to change some of his earlier ideas in the light of the secondary data.

Finally, secondary data can be used as a basis for comparison with the primary data that the researcher has just collected,

Disadvantages of Secondary Data

In practice, one finds that secondary data seldom fit perfectly into the framework of marketing research. This is on account of a number of factors.

The unit in which secondary data are expressed may not be the same as is required in the research project, for example, the size of firm can be expressed as (i) number of employees, (ii) paid-up capital employed, (iii) gross sales, (iv) gross or net profit, etc. it is just possible that the unit of measurement used in secondary data is different from the one needed in the research project. In that case, secondary data cannot be used.

Even if the units are the same as those required by the research project, it may just be the case that class boundaries are different from those desired. For example, the monthly income of households may have a break up of (i) Less than Rs. 500 (ii) Rs. 501-1000, (iii) Rs. 1001-1500, (iv) Rs.1501-2000, and (v) Rs 2001+ so far as secondary data are concerned. If the researcher wants to find, for example, the number of households with a monthly income of Rs 1800 or some similar figure, he will be at a loss with such secondary data.

One does not always know how accurate the secondary data are. In case the degree of inaccuracy is high, the use of such dubious data would undermine the utility of a research study. In most cases, it is difficult to know with what care secondary

data have been collected and tabulated. All the same, in the case of well-established and reputed organization, both official and non-official, secondary data would be far more accurate and reliable and they can be used without much reservation.

A severe limitation in the use of secondary data is that they may be somewhat out of date. A good deal of time is spent in the collection, processing, tabulation and publishing of such data and by the time the data are available to the researcher, they are already two to three years old. As a result, the data are no longer up-to-date. It is a moot question as to how such data are relevant at the time of their use. Obviously, the utility of secondary data declines progressively as the time goes by, and they are finally useful only for historical purpose.

Evaluating Secondary Data

Since the use of secondary data is substantially cheaper than that of primary data, it is advisable to explore the possibility of using secondary data. In this connection, there are four requirements that must be met. There are – (i) Availability of secondary data, (ii) Relevance, (iii) Accuracy, and (iv) Sufficiency.

These requirements are Briefly Discussed Here.

The first and foremost requirement is that secondary data must be available for use. At times, one may find that secondary data are just not available on a problem at hand. In such cases there is no alternative but to take recourse to the collection of primary data.

Another pre-condition for the use of secondary data is their relevance to the marketing problem. Relevance means that the data available must fit the requirements of that problem. This would cover several aspects, First, the unit of measurement should be the same as that in the marketing problem. For example, social class, income employment should have the same definitions. Another pertinent issue is that the data should not be obsolete. Generally, any secondary data would have been collected sometime in the past, but they should not be so remote as to make them useless.

The third requirement is that the data should be accurate. In this connection, one should consult the original source. This would not only enable the researcher to get more comprehensive information but would also indicate the context in which data have been collected, the procedure followed and the extent of care exercised in their collection.

Finally, the data should be sufficient. If the data are inadequate, the compliance with the preceding requirements will be in vain.

The foregoing requirements must be met to avoid an improper use of secondary data. One may go into more specific details. It may be emphasized that the use of secondary data by the marketing researcher imposes in implicit responsibility on him that he has satisfied himself as to their accuracy and reliability. In view of this, he has to be extremely careful when deciding to use any secondary data. To help him take a decision, he has to seek answers to such questions as –What sample design was used for collecting data? What questionnaire was used? What was the quality of the field staff which collected the data? What was the extent of non –responses and how was the problem handled by the organization? These are some of the questions

which are pertinent while deciding the reliability of secondary data. As information on some of these questions is not readily available, the researcher may have to spend quite some time to get it. In the final analysis, it is the reputation of the organization collecting and publishing such data, and its regularity in their publication, that would carry more weight than anything else.

Robert W. Joselyn suggests a detailed approach for evaluating secondary data and understanding their potential limitations. The approach comprises eight steps.

The eight steps are grouped into three categories, namely (i) applicability to the project objectives. (ii) cost of acquisition, and (iii) accuracy of the data. Under each of these categories, answer to specific questions are sought. Thus, some of the basic questions are –Do the data apply to the population of interest? Do they apply to the time period of interest? Can the units and classifications presented apply? If answers to these and similar other questions are in the affirmative, one may proceed with the use of secondary data, otherwise one should drop the idea of using them. At the end, the author rightly cautions the researcher to exercise great care before using the secondary data “because of the natural tendency of many people to hide a shaky foundation beneath an elaborate superstructure. “

Sources of Secondary Data

Secondary data can be obtained internally, i.e. within the firm; or externally, i.e. from one or more outside agencies. Internal secondary data are those which are generated within the firm.

Internal Sources of Secondary Data

Internal sources can be classified under four broad categories – accounting records, accounting records, sales force reports, miscellaneous reports and internal experts.

Accounting records, generate a good deal of data. As profits are based on sales, sales invoice is a good source. Normally a sales invoice includes name of the customer, address of the customer, items ordered, quantities ordered, quantities shipped, discounts allowed, price charged, total amount of sales and the date of sales. It often contains information on sales territory, sales representative and warehouse from which the product was dispatched. Such information can be extremely useful in undertaking a detailed analysis of sales by product, customer, industry geographic area, sales territory and sales representative. Compared with corresponding data on costs, it can indicate the level of profits (or loss) for each product. This apart, data on advertising expenditure along with the time period would also be available.

Another internal source is in the form of sales force reports. This source can provide a very useful marketing information but somehow it has remained largely untapped. This is because sales persons may not be giving detailed reports. In order to ensure that this source is more useful, it is necessary to organise the system properly. It should be a simple process of reporting the information. Sales persons may be encouraged to provide accurate and comprehensive information. Some incentive may be given to those who report accurately and adequately.

Another source of internal data is in the form of miscellaneous report. Any studies done earlier on marketing problems of the

company, special audit, etc. come in this category. Such reports on varying subjects should be properly maintained and easily accessible when required.

Finally, experts working in the company can also be a good source of internal data. Executive working as product managers, marketing research manager, public relations personal and advertising personnel have specialized knowledge relevant to marketing problems. However, this source is least tapped. A limitation of this source is that information is in the expert's mind and not on paper. The experts can provide useful information or ideas on a given marketing problem whenever a serious discussion is held in a meeting.

External Sources of Secondary Data

The external secondary data do not originate in the firm and are obtained from outside sources.

It may be noted that secondary data can be collected from the originating source or from secondary sources. For example, the office of the Economic Adviser, Government of India, is the originating source for the data on wholesale prices. In contrast, a publication such as the Reserve Bank of India Bulletin containing some parts of the series of wholesale prices, is a secondary source.

Generally, the originating source of external secondary data should be preferred on account of several reasons.² First, the originating source is more likely to explain the object and procedure of data collection. Second, the originating source is more likely to present all the data. Whereas a secondary source may present a part of such data, depending on its requirement or convenience. Finally, the originating source of secondary data presents another possible source of error.

Despite these advantages of using the originating source data, many a time secondary sources of secondary data are used. There may be good reasons⁴ for this. First, the secondary source may be readily available to the researcher and, as such, it is convenient to use it if the data are sufficiently reliable. At likely improvement in the quality of secondary data may not be commensurate with the time and effort required for using the originating source. Second, sometimes secondary sources provide secondary data on punched cards or magnetic tape for computer input. As a result of this facility, the researcher may prefer the secondary source.

Government Publications

A large bulk of secondary data useful to a marketing researcher is found in various government publications. To give an idea of the nature of data contained, periodicity and concepts used in respect of each of the government publication would be overstressing the scope of this textbook. Moreover, it is not necessary to be exhaustive as this work does not solely concern Indian statistics. As such, the following discussion provides only some general idea of the nature of data provided by the major government agencies.

To begin with, the Registrar General of India conducts a population census throughout the country every ten years and brings out demographic data in voluminous reports. These publications provide perhaps the most basic source of information useful to the marketing researcher. The data relate to

various characteristics such as the break-up population by sex, rural urban residence, age, education and occupation. While it is true that these statistics are available only decennially, they are the most authentic and are often used as the basis for projection for future years.

The Central Statistical Organization (CSO) brings out statistics of national income. Its major publication, 'National Accounts Statistics', is brought out once a year and contains estimates of national income for several years. The figures are given separately for major economic activities such as agriculture, industry, trade, transport, etc. Besides this, the estimates of saving, capital formation and consumption expenditure, together with national and public sector accounts are given.

The CSO also brings out the Statistical Abstract, India, which is an annual publication. It contains all India statistics for various sectors of the economy for a number of years, usually five.

As regards industrial statistics, the CSO publishes detailed data on the performance of the industrial sector in its annual publication 'annual Survey of Industry, workers and non-workers employed, productive capital employed and its break-up by major categories, number of man-hours worked, total production and its break-up by important product-types, both in physical units and values, expenditure incurred on materials, electricity consumed, and finally, the value-added by manufacture, shown separately as that part which is paid to workers as wages and that which returns to the industry.

The CSO also brings out the Monthly Production of Selected Industries of India. These statistics are on output, and index number.

The Director General of Commercial Intelligence, Government of India, brings out from Calcutta, monthly statistics of the foreign trade of India. The statistics are contained in two separate volumes one for the export trade and the other for the import trade. These statistics are compiled on a very comprehensive basis, covering a very large number of products and are extremely useful in undertaking regionwise, countrywise or productwise studies on the prospects of foreign trade. They also provide historical data over a long period, thus enabling the researchers to study the changing composition of India's foreign trade over a chosen period.

As regards price statistics, there are some index numbers compiled and published by different government agencies. Thus, the Office of the Economics Adviser, Ministry of Commerce and Industry, Government of India constructs the Wholesale Price Index numbers. This is a weekly series and it is revised from time to time so as to make it representative of all the products. The present series uses 1981-82 as the base year⁵. The products covered are food articles, food grains, non-food grains, minerals, fuel, power, light and lubricants, various manufactured products such as textiles, chemicals, metal, machinery and transport equipment. Apart from the wholesale price index, the Government of India published the All-India Consumer Price Index numbers for (a) industrial workers, (n) urban non-manual employees, and (c) agricultural labourers. Some other official publications include the (i) Basic Statistics Relating to the Indian Economy, which is an annual publication of the Planning Commission. It contains data on various

aspects of the economy for several years. (ii) Reserve Bank of India Bulletin, which is a monthly journal dealing with all aspects of the economy in general, and currency and finance in particular. Although the main focus is on currency and finance, it contains statistics on almost all major aspects of the economy, (iv) The Economic Survey, which is an annual publication of the Department of Economic Affairs, Ministry of Finance, Government of India. It is published on the eve of the presentation of the national budget and contains a detailed review of the different sectors of the economy. Detailed statistics are also given in the publication. (v) Agricultural Situation in India, which is monthly journal of the Directorate of Economics and Statistics of the Ministry of Agriculture, Government of India. It contains current statistics and articles on the assessment of the agricultural situation in the country and the states. (vi) The Indian Labour journal, which is a monthly journal of the Labour Bureau, published statistics on price indices, employment, wages and earnings, absenteeism, etc. (vii) The Indian Labour Year Book, which is an annual publication, contains detail statistics on wages and earnings, cost of living, industrial relations, labour welfare and industrial housing. (viii) State Statistical Abstracts and District Statistical Handbooks, which are published by various State Statistical Handbooks, which are published by various State Statistical Bureaux, publish statistical abstracts for their states on the lines of the Statistical Abstract of India, though the scope of the data covered varies from state to state.

Another important source is the National Sample Survey (NSS), which was set up by the Government of India in the Ministry of Planning in 1950. the objective of setting up this organization was to obtain social, economic, demographic, industrial and agricultural statistics on a comprehensive and continuing basis. The NSS has been conducting multi-purpose socio-economic surveys in the form of rounds. Numbers of rounds have been completed by the NSS. The programme for each round is decided by the NSS in collaboration with the concerned ministries and state government. A complete list of the nature of information collected in various rounds along with the code numbers is given at the end of each report to facilitate the reader in referring to a particular report in which he is interested. Apart from the regular rounds, the NSS has conducted ad hoc surveys in collaboration with the concerned central ministries.

Non – Government Publications

Besides the official agencies, there are a number of private organizations, which bring out statistics in one form or another on a periodical basis. Of these, various industry and trade associations are important, for example, the Indian Cotton Mills Federation brings out statistics on the cotton textile industry. Likewise, the annual report of the Bombay Mill Owners' Association contains the latest statistics on the working of the member units. One major advantage of trade and industry publication is that they give an account of the main problems faced by these industries.

Another sources of detailed information on the corporate sector exchange directories. The Bombay Stock Exchange Directory contains information on financial account, key profitability and other ratios of the listed joint stock companies.

The Directory has been designed in such a manner that the latest possible writes –up on the listed company can be inserted and the earlier one taken out. This ensures efficient updating of the various financial statistics of the companies.

A few more examples of non-governmental agencies bringing out periodical data may be given here. The Market Research and Statistical Bureau of the Coffee Board, Bangalore, published coffee statistics annually. The coir Board, Cochin, brings out annually its publication titled 'India's production Exports and Internal Consumption of Coir and Coir goods'. The Rubber Board, Kottayam (kerala), publishes the Indian Sugar Year Book, Indian Rubber Statistics annually. The Indian Sugar Mills Association, Delhi, annually issues the containing detailed statistics. The Steel Authority of India Ltd (SAIL) publishes statistics for the iron and steel industry in Indian on a quarterly basis. The Indian Woolen Mills Federation, Bombay brings out a quarterly publication 'Wool and Woolens of India'.

Besides the industry associations listed earlier, there are several chambers of commerce. Most of the states have them and there are also some at the national level such as the Federation of Indian Chambers of Commerce and Industry (FICCI), Associated Chamber of Commerce and Industry and its problems. Such publications often contain useful statistics though such statistics may be 'biased'. Care must be exercised to see how far these statistics are appropriate and representative. In any case, the chambers of commerce (including their federations) are an additional source of secondary data, which must be tapped.

There are a number of export promotion councils operating in India. Some of these bring out statistics at regular intervals. The publications of these councils, both statistical and otherwise, are quite authentic and, as such, useful for any studies pertaining to foreign trade. The marketing researcher who is concerned with any aspect of foreign trade would do well to look up relevant statistics in his chosen field with the concerned export promotion council.

Finally, a number of organizations (other than stock exchanges) have come up in India in recent years, which provide periodical data on a particular subject to the subscribing companies. These organizations have answered the need for such a paid service, and most of them collect data from secondary sources, arrange them in their own specified manner and present them to their clients. Of course, a few of them gather data themselves for the client companies.

Syndicated Services

Syndicated services⁶ are provided by certain organizations, which collect and tabulate marketing information on a continuing basis. Reports, based on the marketing information collected by such organizations are sent periodically (weekly, monthly, or quarterly) to clients who are subscribers. Syndicated services are normally designed to suit the requirements of many individuals or firms. Such services are particularly useful in the spheres of TV viewing, magazine readership, and the movement of consumer goods through retail outlets. Organizations providing syndicated services may also engage themselves in other types of research work for their clients. However, such organizations usually confine themselves to this activity alone.

Syndicated services may be regarded as in 'intermediate' source falling between the primary and secondary sources. This is because the characteristics of both types of sources. As such services are based on data collected specifically by the organization from original sources and since they are current in nature, the data may be called primary. On the other hand syndicated data may be regarded as secondary data as they are collected by an independent organization for purposes of sale to a large number of firms. The data are not meant for use by a particular firm or in a specific research organization. It should be obvious that as syndicated information is supplied to a large number of individuals or firms, its unit cost to the client is much less. If the client has to collect and tabulate individuals or firms, its unit cost to the client has to collect and tabulate individuals or firms, its unit cost to the client is much less. If the client has to collect and tabulate the same information on his own, he will have to incur a considerably greater expenditure. Thus, though costwise it is a distinct advantage to the client, he does not enjoy any exclusive advantage, as the same information is available to several clients into.

When syndicated information is collected from the same sample group of individuals, households to their clients. Unlike syndicated services, in customized services, the research agency undertakes ad hoc studies on behalf of its clients. An illustrative list of the customer research services offered by a leading research agency in India is as follows:-

Consumer Research Services

Consumer research

Usage and attitude studies

Brand image and positioning research

New product development research

Advertising research

Brand tracking studies

Product testing

Simulated test marketing

Market estimation and forecasting

Market modeling

Customized panel research

Qualitative research

Motivation research

Life style research

Concept evaluation

Corporate image research

Strategic research

This list is impressive as it shows a wide variety of research activities. Besides these two areas consumer research and qualitative research agency handles ad hoc research projects in other areas such as financial research, travel and tourism research, medical marketing research and social research. In a typical year it handles more than 400 widely diversified projects.

Another leading marketing research agency offers to undertake client-specific services in the following areas:

Behavioral and attitude research

Product and packaging studies

The marketing studies

Corporate image studies

Campaign evaluation

Media studies

Opinion surveys

Industrial market research

It goes to the credit of these agencies that some of the studies conducted by them were of pioneering nature, involving the development of appropriate concepts as well as sampling the measurement techniques. They have a large field set-up supported by full-time investigators in different parts of the country having several years of professional experience. A brief account of two research organizations is given in the appendices to this chapter.

Publications of International Organizations

So far the discussion was confined to national organization. There are several international organizations that publish statistics in their respective areas. Some of these organizations publish data on India along with that of other countries. The main advantage to such data is that international comparisons can be drawn. As Appendix I to the chapter on Export Marketing Research provides a list of major international sources of secondary data, they are not given here.

Article

How to Read, Comprehend and Analyze a Secondary Source

The goal of this exercise is to acquire the ability to read a secondary source with understanding and to express succinctly (in one-two pages) what the author has said. It involves identifying the following:

- What are the main questions/issues in which the author is interested?
- What are the data that are available to the author for his/her analysis?
- What is the method (or methods) by which the data are analyzed in order to explore the questions/issues?
- What are the main conclusions of the analysis?

A secondary source is a modern author who is commenting upon and, usually, interpreting primary data. Primary data are the material left behind by ancient societies. In the case of Greek myth, the primary data are very often literary sources, but they can also be visual imagery, archaeological material, etc.

As you read an article, the first skill that you need to develop is the ability to sort the primary data from the secondary analysis. Do not confuse the one (primary data) for the other (secondary interpretation). A secondary interpretation needs to deal with the primary data, but it does not mean that that secondary source is "saying" what the primary source "says." It only means that the secondary interpreter wants to bring a specific primary reference(s) to your awareness for the sake of interpretation.

As a reader your next strategy is to generate a list of questions, or issues, in which the secondary source is interested. Generally,

The questions/issues and the methodology may be considered as the interpretive agenda of the secondary source. Clues to the interpretive agenda of a secondary source can often be found:

- In a good secondary analysis, the questions/issues raised at the beginning of the analysis will be addressed again at the end of it. At the end of an analysis the author will generally state the conclusions that have been reached by looking at-examining-reading the primary data through a particular methodology [methodologies]).

You will probably need access to a good English dictionary. The library is an excellent place to do reading assignments, since it has a wealth of such aids for you. The articles that you are asked to read in this class often are sophisticated and employ powerful rhetorical and philosophical terms. It is very difficult to read for comprehension when you are struggling with (or ignoring) the meanings of words.

- What are the main questions/issues in which the author is interested?
- What are the data that are available to the author for his/her analysis?
- What is the method (or methods) by which the data are analyzed in order to explore the questions/issues?
- What are the main conclusions of the analysis?

Let's Recapitulate the Chapter

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- This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Q: Evaluate the utility of Secondary data.

[illegible]

LESSON 23: BASIC TERMS, SAMPLING PROCESS, ESTIMATION AND TESTING OF HYPOTHESES, ADVANTAGES OF SAMPLING, LIMITATION OF SAMPLING, TYPE OF SAMPLE DESIGN

Introduction

In this lecture, We will study about basic terms related to sampling process. We will also discuss the sampling design, estimation and testing of hypotheses.

Learning Objectives

- Basic Terms related to sampling
- Sampling process
- Estimation and testing of hypotheses
- Advantages and limitations of sampling
- Type of sample design

Sampling Designs

Once the researcher has formulated the problem and developed a research design including the questionnaire, he has to decide whether the information is to be collected from all the people comprising the population. In case the data are collected from each member of the population of interest, it is known as the census survey. If, on the other hand, data are to be collected only from some members of the population, it is known as the sample survey. Thus, the researcher has to decide whether he will conduct a census or a sample survey to collect the data needed for his study.

Let us discuss some basic aspects of sampling. As we are concerned with the practical aspects of sampling rather than the theoretical considerations, it would be interesting to know why we should use sampling vis-à-vis complete coverage of population, What are the different types of sample designs available from which one may be selected? What procedure is involved in drawing a sample out of a given population? This chapter attempts to provide answers to these questions.

Some Basic Terms

Population

In statistical usage the term population is applied to any finite or infinite collection of individuals. It has displaced the older term *universe*, which is derived from the *universe of discourse* of logic. It is practically synonymous with *aggregate* and does not necessarily refer to a collection of living organisms.

Census

The complete enumeration of a population or groups at a point in time with respect to well-defined characteristics such as population, production, traffic on particular roads. In some connection the term is associated with data collected rather than the extent of the collection so that the term Sample Census has a distinct meaning.

The partial enumeration resulting from failure to cover the whole population, as distinct from a designed sample enquiry, may be referred to as an 'incomplete census'.

Sample

A part of a population, or a subset from a set of units, which is provided by some process or other, usually by deliberate selection with the object of investigating the properties of the parent population or set.

Sample Survey

A survey which is carried out using a sampling method, i.e. in which a portion only, and not the whole population, is surveyed.

Sampling Unit

One of the units into which an aggregate is divided or regarded as divided for the purposes of sampling, each unit being regarded as individual and indivisible when the selection is made. The definition of unit may be made on some natural basis, for example, households, persons, units of product, tickets, etc. or on some arbitrary basis, e.g. areas defined by grid coordinates on a map. In the case of *multi-stage sampling* the units are different at different stages of sampling, being 'large' at the first stage and growing progressively smaller with each stage in the process of selection. The term *sample unit* is sometimes used in a synonymous sense.

Frame

A list, map or other specification of the units which constitute the available information relating to the population designated for a particular sampling scheme. There is a frame corresponding to each state of sampling in a multi-stage sampling scheme. The frame may or may not contain information about the *size* or other supplementary information of the units, but it should have enough details so that a unit, if included in the sample, may be located and taken up for inquiry. The nature of the frame exerts a considerable influence over the structure of a sample survey. It is rarely perfect, and may be inaccurate, incomplete, inadequately described, out of date or subject to some degree of duplication. Reasonable reliability in the frame is a desirable condition for the reliability of a sample survey based on it.

In multi-stage sampling it is sometimes possible to construct the frame at higher stage during the progress of the sample survey itself. *For example*, certain first stage units may be selected in the first instance; and then more detailed lists or maps be constructed by compilation of available information or by direct observation only of the first-stage units actually selected.

Sampling Error

The part of the difference between a population value and an estimate thereof, derived from a random sample, which is due to the fact that only a sample of values is observed; as distinct from errors due to imperfect selection, bias in response or estimation, errors of observation and recording, etc. The totality of sampling errors in all possible samples of the same

size generates the sampling distribution of the statistic which is being used to estimate the parent value.

Bias

Generally, an effect which deprives a statistical result of representativeness by systematically distorting it, as distinct from a random error which may distort on any one occasion but balances out on the average.

Biased Sample

A sample obtained by a biased sampling process, that is to say, a process which incorporates a systematic component of error, as distinct from random error which balances out on the average. Non-random sampling is often, though not inevitably, subject to bias, particularly when entrusted to subjective judgment on the part of human beings.

Estimation And Testing of Hypothesis

At this stage, it is worthwhile to distinguish two objectives of sample surveys – (i) to estimate certain population parameters, and (ii) to test a hypothesis.

Estimation of a parameter refers to a situation in which the presence of a certain characteristic in a given population is to be estimated. *For example*, we may be interested in ascertaining the average annual expenditure incurred on smoking or the proportion of employees working overtime in an industrial unit, and so on. In the first example, parameter refers to the average annual expenditure on smoking and in the second example, the proportion of employees working overtime. In order to estimate a parameter, first a sample is chosen, the elements in the sample are contacted and the necessary information is collected from them. From the information thus gathered, the relevant statistic (average or proportion) is calculated. This statistic is used as an estimate of the population parameter.

The second objective of sample surveys may be to test a hypothesis involving a comparison of two or more numerical values. *For example*, we may like to test the hypothesis that at least 60 per cent of households have telephones in a town. A sample survey is undertaken and the relevant survey data reveal that this percentage is 55. The question now is whether these two percentages are significantly different.

Advantages of Sampling

The following are several advantages of sampling:

1. Sampling is cheaper than a census survey. It is obviously more economical, for instance, to cover a sample of households than all the households in a territory although the cost per unit of study may be higher in a sample survey than in a census survey.
2. Since magnitude of operations involved in a sample survey is small, both execution of the fieldwork and the analysis of the results can be carried out speedily.
3. Sampling results in greater economy of effort, as a relatively small staff is required to carry out the survey and to tabulate and process the survey data.
4. A sample survey enables the researcher to collect more detailed information than would otherwise be possible in a

census survey. Also, information of a more specialised type can be collected, which would not be possible in a census survey on account of the availability of a smaller number of specialists.

5. Since the scale of operations involved in a sample survey is small, the quality of the interviewing, supervision and other related activities can be better than the quality in a census survey.

Limitations of Sampling

1. When the information is needed on every unit in the population such as individuals, dwelling units or business establishments, a sample survey cannot be of much help for it fails to provide information on individual count.
2. Sampling gives rise to certain errors. If these errors are too large, the results of the sample cannot be of much help for it fails to provide information on individual count.
3. While in a census survey it may be easy to check the omissions of certain units in view of complete coverage, this is not so in the case of a sample survey.

The Sampling Process

Having looked into the major advantages and limitations of sampling, we now turn to the sampling process. It is the procedure required right from defining a population to the actual selection of sample elements. There are seven steps involved in this process.

Step 1 Define the population. It is the aggregate of all the elements defined prior to selection of the sample. It is necessary to define population in terms of (i) elements, (ii) sampling units, (iii) extent, and (iv) time. A few examples are given here.

If we were to conduct a survey on the consumption of tea in Gujarat, then these specifications might be as follows:

1. Element: Housewives
2. Sampling units: Households, then housewives
3. Extent: Gujarat State
4. Time: January 1-10, 1999

If we were to monitor the sales of a product recently introduced by us, the population might be

1. Element: Our product
2. Sampling units: Retail outlets, super markets, then our product
3. Extent: Delhi and New Delhi
4. Time: January 7-14, 1999

It may be emphasized that all these four specifications must be contained in the designated population. Omission of any of them would render the definition of population incomplete.

Step 2 Identify the sampling frame, which could be a telephone directory, a list of blocks and localities of a city, a map or any other list consisting of all the sampling units. It may be pointed out that if the frame is incomplete or otherwise defective, sampling will not be able to overcome these shortcomings.

The question is – How to ensure that the frame is perfect and free from any defect? Leslie Kish has observed that a perfect frame is one where “every element appears on the list separately,

once, only once, and nothing else appears on the list". This type of perfect frame would indicate one-to-one correspondence between frame units and sampling units. But such perfect frames are rather rare. Accordingly, one has to use frames with one deficiency or another, but one should ensure that the frame is not too deficient so as to be given up altogether.

This raises a pertinent question: What are the criteria for a suitable frame? In order to examine the suitability or otherwise of a sampling frame, a number of questions need be asked. These are:

1. Does it adequately cover the population to be surveyed?
2. How complete is the frame? Is every unit that should be included represented?
3. Is it accurate? Is the information about each individual unit correct? Does the frame as a whole contain units which no longer exist?
4. Is there any duplication? If so, then the probability of selection is disturbed as a unit can enter the sample more than once.
5. Is the frame up-to-date? It could have met all the criteria when compiled but would well be deficient when it came to be used. This could well be true of all frames involving the human population as change is taking place continuously.
6. How convenient is it to use? Is it readily accessible? Is it arranged in a way suitable for sampling? Can it easily be rearranged so as to enable us to introduce stratification and to undertake multi-stage sampling?

These are demanding criteria and it is most unlikely that any frame would meet them all. Nevertheless, they are the factors to be borne in mind whenever we undertake random sampling.

In marketing research most of the frames are from census reports, electoral registers, lists of member units of trade and industry associations, lists of members of professional bodies, lists of dwelling units maintained by local bodies, returns from an earlier survey and large scale maps.

Step 3 Specify the sampling unit. The sampling unit is the basic unit containing the elements of the target population. The sampling unit may be different from the element. For example, if one wanted a sample of housewives, it might be possible to have access to such a sample directly. However, it might be easier to select households as the sampling unit and then interview housewives in each of the selected households.

As mentioned in the preceding step, the sampling frame should be complete and accurate otherwise the selection of the sampling unit might be defective. It is necessary to get a further specification of the sampling unit both in personal interviews and in telephone interviews. Thus, in personal interviews, a pertinent question is – of the several persons in a household, who should be interviewed? If interviews are held during office timing when the heads of families and other employed persons are away, interviewing would under-represent employed persons and over-represent elderly persons, housewives and the unemployed. In view of these considerations, it is necessary to have a random process of selection of the adult residents of each household. One method that could be used

for this purpose is to list all the eligible persons living at a particular address and then select one of them.

Step 4 Specify the sampling method. It indicates how the sample units are selected. One of the most important decisions in this regard is to determine which of the two – probability and non-probability sample – is to be chosen. Probability samples are also known as random samples and non-probability samples as non-random samples.

In case of a probability sample, the probability or chance of every unit in the population being included in the sample is known. Further, the selection of specific units in the sample depends entirely on chance. No substitution of one unit for another is permissible. This means that no human judgement is involved in the selection of a sample. In contrast, in a non-probability sample, the probability of inclusion of any unit in the population in the sample is not known. In addition, the selection of units within a sample involves human judgement rather than pure chance.

In case of a probability sample, it is possible to measure the sampling error and thereby determine the degree of precision in the estimates with the help of the theory of probability. This theory also enables us to consider, from amongst the various possible sample designs, the one that will give the maximum information per rupee. This is not possible when a non-probability sample is used.

Probability sampling enables us to choose representative sample designs. It also enables us to estimate the extent to which the results based on such a sample are likely to be different from what we would have obtained had we covered the population in our study. Conversely, the use of probability sampling enables us to determine the sample size for a given degree of precision, indicating that our sample results do not differ by more than a specified amount from those yielded by a study covering the entire population.

Although non-probability sampling does not yield these benefits, on account of its convenience and economy, it is often preferred to probability sampling. If the researcher is convinced that the risks involved in the use of a non-probability sample are more than offset by its being relatively cheap and convenient, his choice should be in favour of non-probability sampling.

There are various types of sample designs which can be covered under the two broad groups – random or probability samples and non-random or non-probability samples. The main types of sample designs in each of these two categories are discussed a little later.

Step 5 Determine the sample size. In other words, one has to decide how many elements of the target population are to be chosen. The problem of sample size is discussed in the next chapter.

Step 6 Specify the sampling plan. This means that one should indicate how decisions made so far are to be implemented. For example, if a survey of households is to be conducted, a sampling plan should define a household, contain instructions to the interviewer as to how he should take a systematic sample of households, advise him on what he should do when no one is available on his visit to the house-

hold, and so on. These are some pertinent issues in a sampling survey to which a sampling plan should provide answers.

Step 7 Select the sample. This is the final step in the sampling process. A good deal of office and fieldwork is involved in the actual selection of the sampling elements. Most of the problems in this stage are faced by the interviewer while contacting the sample-respondents. Some of these problems will be discussed in Chapter 11.

Principles of Sample Survey

The theory of sampling is based on the following important principles:

1. Principle of statistical regularity
2. Principle of validity
3. Principle of optimization
1. **Principle of statistical regularity** stresses the desirability and importance of selecting a sample at random so that each and every unit in the population has an equal chance of being selected in the sample.

We get an immediate derivation from this principle is the principle of Inertia of large numbers which states that

“Other things being equal as the sample size increases, the results tend to be more reliable and accurate.”

For example, in a coin tossing experiment, the results will be approximately 50% heads and 50% tails provided we perform the experiment a fairly large number of times.

2. **Principle of validity** means the sample design should enable us to obtain valid tests and estimates about the parameters of the population. The samples obtained by the technique of probability sampling satisfy this principle.
3. **Principle of optimization** impresses upon obtaining optimum results in terms of efficiency and cost of the design with the resources at disposal. The reciprocal of the sampling variance of an estimate provides a measure of its efficiency while a measure of cost of the design is provided by the total expenses incurred in terms of money and man hour.

The principle of optimization consists in

- a. Achieving a given level of efficiency at minimum cost
- b. Obtaining maximum possible efficiency with given level of cost.

Lets Recapitulate The Chapter

There are two basic objectives of sample surveys –

1. To estimate certain population parameters, and
2. To test a hypothesis.

Following are the various steps involved in the Sampling Process:

- Step 1 Define the population.
- Step 2 Identify the sampling frame.
- Step 3 Specify the sampling unit.
- Step 4 Specify the sampling method.
- Step 5 Determine the sample size.
- Step 6 Specify the sampling plan.
- Step 7 Select the sample.

The theory of sampling is based on the following important principles:

4. Principle of statistical regularity
5. Principle of validity
6. Principle of optimization

LESSON 24:

BASIC TERMS, SAMPLING PROCESS, ESTIMATION AND TESTING OF HYPOTHESES, ADVANTAGES OF SAMPLING, LIMITATION OF SAMPLING, TYPE OF SAMPLE DESIGN

Introduction

We have already discussed the basic terms related to sampling. We also discussed sampling process, estimating and testing of hypotheses. In this lecture, We will move on to discuss the various types of sample design.

Learning Objectives

- Basic Terms related to sampling
- Sampling process
- Estimation and testing of hypotheses
- Advantages and limitations of sampling
- Type of sample design.

Types of Sample Designs

After having described the sampling process, let us discuss the types of sample designs. Of the designs covered here, quota sampling, judgement sampling and convenience sampling are the non-probability sample designs; the remaining ones are probability sample designs.

Random Sampling

A random sample gives every unit of the population a known and non-zero probability of being selected. Since random sampling implies equal probability to every unit in the population, it is necessary that the selection of the sample must be free from human judgement.

There is some confusion between the two terms 'random sampling' and 'unrestricted random sampling'. In the latter case, each unit in the population has an equal chance of being selected in the sample. Such a sample is drawn 'with replacement', which means that the unit selected at each draw is replaced into the population before another draw is made from it. As such, a unit can be included more than once in the sample. Most statistical theory relates to 'unrestricted random sampling'. In order to distinguish between these two samples, i.e. sample, without replacement and sample with replacement, the terms 'simple random sample' and 'unrestricted random sample' are used. If the latter is devised in such a manner that no unit can be included more than once, it will then be known as the simple random sampling.

It may be noted that while both simple random sampling and unrestricted random sampling give an equal probability to each unit of the population for being included in the sample, there are other sample designs too which provide equal probability to the units. The process of randomness is the very core of simple and unrestricted random sampling. The selection of a sample must be free from bias which can be ensured only when the process of selection is free from human judgment.

As Moser and Kalton have observed, *"the definition of randomness relates to the mode of selection, not to the resultant sample"*. The significance of this statement must be clearly understood.

Despite the method of random selection used for drawing a sample, the outcome may not be a representative sample. Since the means of sample distribution constitute a normal distribution, a sample selected may be "close to one of the tails of the sampling distribution". Though the probability of such a situation would be rather remote, it does exist. One cannot doubt the process of randomness on the basis of the unrepresentative nature of a single sample. Once in a while, an unrepresentative sample may be obtained through the random process. In such a case, another sample could be drawn so that it is really representative. However, if on repeated draws one finds that the samples are not representative, then one can question the validity of random selection itself.

The process of randomness does not mean that it is 'haphazard', as a layman may be inclined to think. What it means is that the process of selecting a single is independent of human judgement. To ensure this, there are two methods that are followed when drawing a random sample. These are:

- (i) the lottery method and (ii) the use of random numbers.

In the lottery method, each unit of the population is numbered and shown on a chit of paper or disc. The chits are folded and put in a box from which a sample of the requisite size is to be drawn. In case discs are used, there are well mixed up before a draw is made so that no particular unit can be identified before it gets selected. In the second method, the tables of random numbers are used. The members of the population are numbered from 1 to N from which n members are selected. This process is explained below with the help of an illustration.

Suppose a sample of size 50 is to be selected from a population of 500. First, number the 500 units from 1 to 500, the order being quite immaterial. While numbering the units, ensure that each unit in the population has uniform digits, in this case, three. Thus, 1st unit would have a three digit number 001, 2nd unit 002, 10th unit 010, 11th unit 011, and so on. After the units have been given three-digit numbers, the table of random numbers is to be used. One may start from the left-hand top corner of the table of random numbers and proceed systematically down sets of three-digit columns, rejecting numbers over 500 and those which have occurred earlier.

Using the first thousand numbers from the table of random numbers (an excerpt from the table is given as Appendix A), a sample of 50 out of 500 will thus be chosen.

Sample of 50

231	092	434	318	032
055	259	325	263	194
148	113	211	239	144
389	455	207	108	337
117	126	398	379	224
433	426	225	420	006
495	062	485	122	068
367	401	035	441	043
070	100	171	493	500
313	488	047	310	222

Systematic Sampling

In practice, the method followed in systematic sampling is simpler than that explained earlier. First, a sampling fraction is calculated. For instance, in the foregoing example, a sample of 50 out of 500 units was chosen. The sampling fraction k is N/n where N is the total number of units in the population and n is the size of the sample. In the above example, k is $500/50 = 10$. Second, a number between 1 and 10 is chosen at random. Suppose the number thus selected happens to be 9. Then, the sample will comprise numbers 9, 19, 29, 39, 49,, 489 and 499.

It will be seen that it is extremely convenient to select a sample in this way. The main point to note is that once the first unit in the sample is selected, the selection of subsequent units in the sample becomes obvious. In view of this, it has been questioned whether the process of selection for subsequent units is random. Here, the selection of a unit is dependent on the selection of a preceding unit in contrast to simple random sampling where the selection of units is independent of each other. Systematic random sampling is sometimes called quasi-random sampling.

Stratified Random Sampling

A stratified random sample is one where the population is divided into mutually exclusive and mutually exhaustive strata or sub-groups and then a simple random sample is selected within each of the strata or sub-groups. Thus, human population may be divided into different strata on the basis of sex, age groups, occupation, education or regions. It may be noted that stratification does not mean absence of randomness. All that it means is that the population is first divided into certain strata and then a simple random sample is chosen within each stratum of the population.

The following example will make this clear:

Strata income per month (Rs)	Population Number of Households	Sample (Proportionate)	Sample (Dis-proportionate)
(1)	(2)	(3)	(4)
0-500	5,000	50	75
501-1000	4,000	40	20
1001-2000	3,000	30	20
2001-3000	2,000	20	25
3001 +	1,000	10	10
	_____	_____	_____
	15,000	150	150

In the above example, the population consists of 15,000 households, divided into five strata on the basis of monthly income. Column (3) of the table shows the sample, i.e., number of households selected from each stratum. The sample constitutes one per cent of the population. A sample of this type, where each stratum has a uniform sampling fraction, is called a proportionate stratified sample. If, on the contrary, the strata have variable sampling fractions, the sample is called a disproportionate stratified sample. The figures given in column (4) of the above table show a disproportionate stratified sample. It will be seen that the sampling fraction varies from the stratum to another. Thus, for example, it is 0.015 for the monthly income Rs.0-500 and 0.01 for the stratum, Rs.3001 +.

It may be noted that a stratified random sample with a uniform sample fraction results in greater precision than a simple random sample. But, this is possible only when the selection within strata is made on a random basis. Further, a stratified proportionate sample is generally convenient on account of practical considerations.

There are some other considerations in favour of the stratified random sample. The researcher may be interested in the results for separate strata rather than for the entire population. A simple random sample will not show results by strata as it presents only an aggregative picture. Another consideration is that it may be administratively expedient to split the population into strata. Thus, the population of a country may be divided into regions, states or districts, so that each of these strata may be put under the charge of a separate supervisor. Yet another consideration could be that one can use different procedures for selecting samples from various strata. Thus, the procedure to select sample households in rural areas may be altogether different from that followed in urban areas. If the data are more variable in strata, a larger sampling fraction in those strata should be taken. This would result in greater overall precision.

Estimation of the Universe Mean, With A Stratified Random Sample

In the preceding pages, we have seen that a stratified random sample comprises a group of simple random samples drawn

from strata into which the population has been classified. The simple mean of each stratum is unbiased. To obtain an unbiased estimate of the population mean, the means of the individual strata should be combined. This is possible by taking a weighted mean of the individual strata means. A numerical example will make this point clear.

Suppose there are three strata in a population. A stratified random sample covering 10 observations, in all, was selected, with the following particulars:

Stratum Number	Number of Observations	Value of each observation	Total value of all observations
1	3	5, 10, 15	30
2	5	20, 25, 15, 30, 10	100
3	2	35, 25	60

In order to calculate the sample mean for each stratum, the total value of all observations is to be divided by the number of observations. Thus, the sample means are 10, 20 and 30 for stratum 1, 2 and 3 respectively. These means are to be combined into an overall mean. For this purpose, weights are to be assigned to each stratum on the basis of the proportion of the number of observations in the stratum to the total number of observations in the population. Thus, a weight of 3, 5 and 2 should be assigned to the three strata, in that order. Now, the overall mean of the sample mean in the three strata can be calculated as follows:

$$\frac{(10 \times 3) + (20 \times 5) + (30 \times 2)}{10} = 19$$

Let us take another example. Suppose we have the following data on consumption of sample households:

Inco me Stratum	Sam ple mean purchase per household	Number of households In stratum
Rich	3,000	10,000
Middle class	1,200	30,000
Poor	500	60,000

Then the estimated population mean monthly expenditure per household would be:

$$\begin{aligned} X_{SY} &= W_1 X_1 + W_2 X_2 + W_3 X_3 \\ &= (0.1) (3000) + (0.3) (1200) + (0.6) (500) \\ &= 300 + 360 + 300 \\ &= \text{Rs.}960 \end{aligned}$$

Now, we may generate this, symbolically, as follows:

Stratum	Sample mean in stratum	Weight of Stratum
1	X_1	W_1
2	X_2	W_2
.	.	.
.	.	.
.	.	.
h	X_h	W_h

$$\text{Overall mean } X = \frac{W_1 X_1 + W_2 X_2 + \dots + W_h X_h}{\Sigma W}$$

Estimation of confidence interval with stratified random sample

Having calculated the population mean from the sample means for different strata, it is now necessary to estimate its confidence interval. First, an estimate of standard error is to be obtained on the same lines as in the simple random sampling. Second, the estimated standard error is to be multiplied by an appropriate figure (say, by two for 95 per cent confidence and by three for almost 100 per cent confidence), depending upon the degree of confidence desired. Finally, the figure obtained in the preceding step is added to an subtracted from the estimated population mean. This will result in two numbers which are the confidence limits.

In order to estimate the standard error of the mean, it is necessary to have data on sample variance, sample size, and weight for each stratum. Symbolically, the data requirement can be shown as follows:

Stratum	Sample variance in stratum	Sample size in stratum	Weight of Stratum
1	S_1^2	n_1	W_1
2	S_2^2	N_2	W_2
.	.		.
.	.		.
.	.		.
h	S_h^2	n_h	W_h

where S_1^2 is the variance of the sample in stratum 1, n_1 is the number of observations or items in stratum 1, and W_1 is the weight of stratum 1, indicating its relative importance. In the same manner, for stratum 2, the sample variance is S_2^2 , the sample size is n_2 and the weight W_2 . The subscripts 1, 2h indicate the number of strata.

For estimating the standard error, the following formula may be used:

$$S_{xSY}^2 = \frac{W_1^2 S_1^2}{n_1} + \frac{W_2^2 S_2^2}{n_2} + \dots + \frac{W_h^2 S_h^2}{n_h}$$

This gives the value of S_{xSY}^2 the square root of which is the standard error.

As in illustration, suppose we have the following data pertaining to consumption of sample households in three strata – rich, middle-class and poor.

Income Stratum	Sample variance in stratum (S^2)	Sample size in stratum (n)	Weight of Stratum (W)
Rich	6,000	60	0.1
Middle class	4,000	100	0.3
Poor	1,200	240	0.6

The required calculations will be as follows:

$$\begin{aligned} S_{xSY}^2 &= (0.1)^2 \left(\frac{6000}{60} \right) + (0.3)^2 \left(\frac{4000}{100} \right) + (0.6)^2 \left(\frac{1200}{240} \right) \\ &= (0.01 \times 100) + (0.09 \times 40) + (0.36 \times 5) \\ &= 1 + 3.60 + 1.80 \\ &= 6.4 \end{aligned}$$

The standard error of the mean is

$$S_{xSY} = \sqrt{S_{xSY}^2} = \sqrt{6.4} = 2.53 \text{ units approx.}$$

As 95 per cent confidence interval is between ± 2 standard error, it is necessary to multiply the standard error by 2. This gives a figure of 5.06. This should be added to and subtracted from the sample mean of Rs.960 (previous example). This gives a 95 per cent confidence interval of Rs.954.94 to 965.06. If we take ± 3 as the standard error, then we can get an interval which is almost certain to cover the population mean

$$\begin{aligned} &\text{Rs.960} \pm 3 (5.06) \\ \text{or} &\text{Rs.960} - 15.18 \text{ and} \\ &\text{Rs.960} + 15.18 \\ \text{or} &\text{Rs.944.82 to Rs.975.18} \end{aligned}$$

It may be noted that in the above calculations, differences among strata means did not enter into the standard error, unlike the simple random sample. The calculations were based on the estimated within-stratum variances. It is because of this reason that a stratified random sampling gives a more precise estimate of the population mean than a simple random sampling for a given sample size.

There are three major issues in stratified sampling:

1. Bases of stratification
2. Number of strata
3. Sample sizes within strata

Bases of stratification

The bases of stratification depend on the variable being studied. Since the survey may be interested in many variables, and one, it may be necessary to have stratification on the basis of more than one variable. In view of this, strata should be formed on the basis of major variables. In marketing research, stratification is usually resorted to on the basis of demographic characteristics such as age, sex or income, and geographical distribution of the population such as rural-urban break-up by region, state or city.

Number of Strata

Although theoretically, several strata could be used, on account of practical difficulties, it is desirable to limit the number of strata. Since stratification would enhance the cost of the survey, one has to carefully weigh the benefit resulting from it against the cost involved in its introduction. It is only when the benefits are in excess of the cost that stratification should be introduced. As a rule of thumb, not more than six strata may be used when a single overall estimate is to be made. However, if estimates for certain sub-groups of the population are also required to be made, additional strata may be used.

Sample Sizes Within Strata

The third major issue concerning stratification is: How much should the size of each stratum be? Since the question of sample size is discussed in far greater detail in the subsequent chapter, it is not taken up here.

While summing up stratified random sampling, it may be pointed out that it will almost always lead to more reliable estimates than simple random sampling. However, the additional precision achieved would be moderate, while the cost of stratified sampling is generally higher per sampling unit on account of more geographic dispersion of the sample within strata.

Disproportionate Stratified Sampling

The preceding section described stratified sampling which involved the use of the uniform sampling fraction over different strata of the population. At times, it may be preferable to use variable sampling fractions, resulting in disproportionate stratified sampling. When the population in some strata is more heterogeneous than in others, it may be advisable to use variable sampling fractions. The reason is that the use of a uniform sampling fraction may not lead to 'representative' samples in such strata. As such, larger sampling fractions may be used in strata with greater variability. Another reason for using disproportionate stratified sampling may be the higher cost per sampling unit in some strata compared to the others. In such a situation, precision can be increased by taking a smaller fraction in the costlier strata and a higher fraction in the cheaper strata. Optimum precision can be obtained for a given cost if the sampling fractions in the different strata happen to be proportional to their standard deviations and inversely proportional to the square root of the costs per unit in the strata. However, in practice, neither the relative variability nor the relative cost of the strata is known. One may find previous surveys dealing with the same or a similar population to be of some guidance in such a situation. Alternatively, one may conduct a pilot survey from which estimates of standard deviations and costs can be obtained. If

this too is not possible, one may exercise judgement or use some other measurement in this regard.

A point worth noting is that sampling fractions chosen may be appropriate for one variable or attribute to be studied and may be inappropriate for another. In a survey where one variable or attribute is of considerable importance, it may be advisable to use sampling fractions that are best for it. In all other cases where no priority exists, allocation of sampling fractions to the different strata poses a serious problem. In this context, a major difference between the proportionate and disproportionate stratified samples should be noted. While the former ensures that precision is not reduced as compared to simple random sampling, it is not so in case of the latter. For, an optimum allocation for one variable may result in lower precision than in simple random sampling with respect to another variable. But, gain in precision may not be the only reason for using variable sampling fractions.

Cluster Sampling

Cluster sampling implies that instead of selecting individual units from the population, entire groups or clusters are selected at random. An example will make the concept clear. Suppose we have a population of 25 elements comprising 5 groups, as follows:

Groups	Elements_____				
1	X ₁	X ₂	X ₃	X ₄	X ₅
2.	X ₆	X ₇	X ₈	X ₉	X ₁₀
3.	X ₁₁	X ₁₂	X ₁₃	X ₁₄	X ₁₅
4.	X ₁₆	X ₁₇	X ₁₈	X ₁₉	X ₂₀
5.	X ₂₁	X ₂₂	X ₂₃	X ₂₄	X ₂₅

We are required to choose a probability sample of 10 elements.

One way is to select a simple random sample of 10 elements out of the 25. Another way is to select two clusters at random. This may be far more convenient than to use a simple random sample.

For example, if a survey is to be undertaken in a city to collect data from individual households, then, selection of households from all over the city would involve a considerable amount of field work and consequently, would cost more. Instead, a few localities are first chosen. Then, all the households in these localities are covered in the sample. Apart from reduction in cost, such a cluster sample would be desirable in the absence of a suitable sampling frame for the whole population. If, on the other hand, a sample of individual households from the entire city is to be chosen, it will be necessary to first undertake the listing of all households in view of the non-availability of a satisfactory sampling frame. In the case of cluster sampling, such a listing could be confined to only a few localities which are to be entirely covered in the sample.

A few points regarding cluster sampling may be noted here. First, "whether or not a particular aggregate of units should be called a cluster" will depend on the circumstances of each case. In the foregoing example, localities were taken as clusters and households as individual units. In another case, the households may be taken as a cluster and the members of the households as individual units. Second, it is not necessary that cluster should always be natural aggregates such as localities, polling

constituencies, schools or classes. Artificial clusters may be formed, as is generally done in area sampling where grids may be determined on the maps. Third, several levels of clusters may be used in any one sample design. Thus, in a city survey, localities or wards, streets and households may be selected in which case localities or wards are the clusters at the first level and streets at the second level.

In our earlier example of 25 elements in 5 clusters, suppose the numerical values are as follows:

1	10	10	10	10	10
2	20	20	20	20	20
3	30	30	30	30	30
4	40	40	40	40	40
5	50	50	50	50	50

The population mean in this case is

$$\mu = \frac{(10 \times 5) + (20 \times 5) + (30 \times 5) + (40 \times 5) + (50 \times 5)}{25} = \frac{750}{25} = 30$$

Suppose a sample of two clusters- 1st and 2nd- is chosen. The average will then be

$$\frac{(10 \times 5) + (20 \times 5)}{10} = \frac{50 + 100}{10} = \frac{150}{10} = 15$$

This shows that the mean value from the sample turns out to be only half of the universe mean. This is the minimum sample mean that we can have. In contrast, the maximum sample mean can be obtained if clusters 4 and 5 are chosen. In that case, the sample mean will be

$$\frac{(40 \times 5) + (50 \times 5)}{10} = \frac{200 + 250}{10} = \frac{450}{10} = 45$$

In either case, the sample mean is not realistic. This has happened as the clusters are homogeneous. Suppose the clusters are heterogeneous as follows:

1	10	20	30	40	50
2	10	20	30	40	50
3	10	20	30	40	50
4	10	20	30	40	50
5	10	20	30	40	50

As earlier, a sample of two clusters is selected. Suppose we select the first two clusters, then the sample average will be

$$\frac{(10 \times 2) + (20 \times 2) + (30 \times 2) + (40 \times 2) + (50 \times 2)}{10} = \frac{20 + 40 + 60 + 80 + 100}{10} = \frac{300}{10} = 30$$

This coincides with the universe mean. It should be obvious, in this case, that whichever two clusters are chosen, the sample average will be 30 because the values of elements in one cluster are the same as in others.

From the foregoing example, we find that a major limitation of cluster sampling is the high degree of intra-cluster homogeneity.

On account of the similarity of one unit in the cluster with its other units, selection of a few clusters may not give a really representative sample. As against this, when clusters have a high degree of intra-cluster heterogeneity, cluster sampling may be more representative.

Multi-Stage Sampling

Multi-stage sampling, as the name implies, involves the selection of units in more than one stage. In such a sampling, the population consists of a number of first stage units, called primary sampling units (PSUs). Each of these PSUs consists of a number of second-stage units. First, a sample is taken of the PSUs, then a sample is taken of the second-stage units. This process continues until the selection of the final sampling units. It may be noted that at each stage of sampling, a sample can be selected with or without stratification.

An illustration would make the concept of multi-stage sampling clear. Suppose a sample of 5000 urban households from all over the country is to be selected. In such a case, the first stage sample may involve the selection of districts. Suppose 25 districts out of say 500 districts are selected. The second stage may involve the selection of cities, say four from each district. Finally, 50 households from each selected city may be chosen. Thus, one would have a sample of 5000 urban households, arrived at in three stages. It is obvious that the final sampling unit is the household.

In the absence of multi-stage sampling of this type, the process of the selection of 5000 urban households from all over the country would be extremely difficult. Besides, such a sample would be very thinly spread over the entire country and if personal interviews are to be conducted for collecting information, it would be an extremely costly affair. In view of these considerations a sampling from a widely spread population is generally based on multi-stage.

The number of stages in multi-stage sampling varies depending on convenience and the availability of suitable sampling frames at different stages. Often, one or more stages can be further included in order to reduce cost. Thus, in our earlier example, the final stage of sampling comprised 50 households from each of the four selected cities. Since this would involve the selection of households all over the city, it would turn out to be quite expensive and time consuming if personal interviews are to be conducted. In such a case, it may be advisable to select two wards or localities in each of the four selected cities and then to select 25 households from each of the 2 selected wards or localities. Thus, the cost of interviewing as also the time in carrying out the survey could be reduced considerably. It will be seen that an additional stage comprising wards or localities has been introduced here. Thus, this sample has become a four-stage sample-

- 1st stage – districts
- 2nd stage – cities
- 3rd stage – wards or localities
- 4th and final stage – households

From the preceding discussion, it should be clear that a multi-stage sample results in the concentration of field work. This is true, leads to saving of time, labour and money. There is

another advantage in its use. Where a suitable sampling frame covering the entire population is not available, a multi-stage sample can be used.

Area Sampling

Area sampling is a form of multi-stage sampling in which maps, rather than lists or registers, are used as the sampling frame. This method is more frequently used in those countries which do not have a satisfactory sampling frame such as population lists.

In area sampling, the overall area to be covered in a survey is divided into several smaller areas within which a random sample is selected. Thus, for example, a city map can be used for area sampling. Various blocks can be identified on the map and this can provide a suitable frame. The entire city area can be divided into these blocks which are then numbered and from which a random sample is finally drawn.

In sampling the blocks, stratification and sampling with probability proportional to a measure of size are commonly employed. However, stratification in area sampling is based on geographical considerations. Thus, when blocks are identified and numbered on the map, they can be grouped into some meaningful strata representing the different neighbourhoods of the town. The point to emphasise is that these blocks must be identifiable without any difficulty.

On the basis of the blocks thus identified, numbered and assigned to strata, a stratified sample of dwellings can be selected. This can be done in either of two ways. First, a sample of dwellings may be drawn from all the dwellings included in a selected block. Second, blocks may be divided into segments of a more or less equal size, and a sample of these segments can be chosen and finally all the dwellings from the selected segments may be taken in the sample. It will thus be seen that the second method introduces another stage of sampling, namely, segments.

Although the above discussion relates to area sampling with respect to a city or town, the same approach is applicable to a large area, say, a state or a country, the only difference being that one or more additional stages of sampling may have to be introduced.

Finally, it may be pointed out that area sampling is perhaps the only possibility if a suitable sampling frame is not available.

Multi-Phase Sampling

A multi-phase sample should not be confused with a multi-stage sample. The former involves a design where some information is collected from the entire sample and additional information is collected from only a part of the original sample. Suppose a survey is undertaken to determine the nature and extent of health facilities available in a city and the general opinion of the people. In the first phase, a general questionnaire can be sent out to ascertain who amongst the respondents had at one time or other used the hospital services. Then, in the second stage, a comprehensive questionnaire may be sent to only these respondents to ascertain what they feel about the medical facilities in the hospitals. This is a two-phase or double sampling.

The main point of distinction between a multi-stage and a multi-phase sampling is that in the former each successive

stage has a different unit of sample whereas in the latter the unit of sample remains unchanged though additional information is obtained from a sub-sample.

The main advantage of a multi-phase sampling is that it effects economy in time, money and effort. In our earlier example, if a detailed questionnaire is sent out to a large sample comprising individuals, they would not be able to provide the necessary information. Second, more time will be required. Finally, it will be far more expensive to carry out the survey, especially when personal interviews are involved.

Replicated Sampling

Replicated sampling implies a sample design in which “two or more sub-samples are drawn and processed completely independent of each other”. It was first introduced by Mahalanobis in 1936, who used the term inter-penetrating sub-samples.

In replicated sampling, several random sub-samples are selected from the population instead of one full sample. All the sub-samples have the same design and each one of them is a self-contained sample of the population. For example, take the case of a random sample of 100 households. This sample may be divided into, say, 10 equal sub-samples to be assigned to 10 interviewers. Thus, each interviewer may be required to collect information from 10 households.

A replicated sample is particularly chosen on account of the convenience it affords in the calculation of standard error. In many complex sample designs, the calculation of standard error becomes too laborious. This difficulty can be considerably reduced by selecting a replicated sample design. However, in modern times when computers are being increasingly used, the case in calculating standard error has made it somewhat less important. Apart from this advantage, there are certain other advantages of replicated sampling. First, if the size of a sample is too large, it may be advisable to split it up into two or more sub-samples. On sub-sample may be used to get the advanced results of the survey. Second, replicated sampling can indicate the non-sampling errors.

In case where bias may arise from a controllable procedure (question sequence, interviewer bias, editor bias) each sub-sample can be wholly handled in one way—assigned to one interviewer or editor, or using one questionnaire sequence. A fairly simple variance analysis, comparing variance within and among sub-samples, can detect the presence of bias and its importance, again provided that the sub-samples were randomly selected from the total sample.

However, replicated sampling would not be helpful in undertaking a detailed investigation of bias as the numbers in the separate sub-samples tend to be small. Further, such samples do not reveal any systematic errors that may be more or less common to all interviewers and the compensating errors which cancel each other out over an interviewer's assignment.

Apart from the above limitations, replicated samples have other disadvantages. If personal interviews are to be conducted, replicated samples turn out to be costlier. Likewise, tabulation costs would be higher than in the case of a single large sample. Finally, replicated samples are more complex to administer.

Sequential Sampling

In sequential sampling, a number of samples $n_1, n_2, n_3, \dots, n_4$ are randomly drawn from the population. It is not at all necessary that each sample should be of the same size. Generally, the first sample is the largest, the second is smaller than the first, the third is smaller than the second, and so on.

A sequential sampling is resorted mainly to bring down the cost and hence the smallest possible sample is used. The desired statistics from first sample, n_1 , are computed and evaluated. If these statistics do not satisfy the criteria laid down, a second sample is drawn. The results of the first and second samples are added and the statistics are recomputed. This process is continued until the specified criteria are satisfied. The criteria are usually a minimum significance level, a minimum cluster size, or a minimum confidence interval.

The main advantage of sequential sampling is that it obviates the need for determining a fixed sample size before the commencement of the survey.

Suppose a firm is to decide whether a new product is to be introduced in the market or not. It feels that if it is able to acquire 15 per cent market share in a the country, say, within a period of six months. Now, when the firm has undertaken test marketing, it actually achieved far more than 10 per cent, say, 20 per cent, of the market share and that too within three months of test marketing. The firm may be sure to achieve the 15 per cent national market share within one year even though it may not be possible for it to accurately forecast the test market share at the end of four months.

Quota Sampling

Quota sampling is quite frequently used in marketing research. It involves the fixation of certain quotas, which are to be fulfilled by the interviewers.

Suppose in a certain territory we want to conduct a survey of households. Their total number is 2,00,000. It is required that a sample of 1 per cent, i.e. 2000 households are to be covered. We may fix certain controls which can be either independent or inter-related. These controls are shown in the following tables.

A sample of 2000 households has been chosen, subject to the condition that 1200 of these should be from rural areas and 800 from the urban areas of the territory. Likewise, of the 2000 households, the rich households should number 150, the middle class ones 650 and the remaining 1200 should be

Independent Controls			
Rural	1200	Rich	150
Urban	800	Middle dass	650
		Poor	1200
Total	2000	Total	2000

Inter-related Controls			
	Rura	Urban	Total
Rich	1200	50	150
Middle class	400	250	650
Poor	700	500	1200
Total	1200	800	2000

from the poor class. These are independent quota controls. The second table shows the inter-related quota controls. As can be seen, inter-related quota controls allow less freedom of selection of the units than that available in the case of independent controls.

There are certain advantages in both the schemes. Independent controls are much simpler, especially from the viewpoint of interviewers. They are also likely to be cheaper as interviewers may cover their quotas within a small geographical area. In view of this, independent controls may affect the representativeness of the quota sampling. Inter-related quota controls are more representative though such controls may involve more time and effort on the part of interviewers. Also, they may be costlier than independent quota controls.

In view of the non-random element of quota sampling, it has been severely criticised especially by statisticians, who consider it theoretically weak and unsound.

There are points both in favour of and against quota sampling. These are given below.

Advantages of Quota Sampling

1. It is economical as travelling costs can be reduced. An interviewer need not travel all over a town to track down pre-selected respondents. However, if numerous controls are employed in a quota sample, it will become more expensive though it will have less selection bias.
2. It is administratively convenient. The labour of selecting a random sample can be avoided by using quota sampling. Also, the problem of non-contacts and call-backs can be dispensed with altogether.
3. When the field work is to be done quickly, perhaps in order to minimise memory errors, quota sampling is most appropriate and feasible.
4. It is independent of the existence of sampling frames. Wherever a suitable sampling frame is not available, quota sampling is perhaps the only choice available.

Limitations of Quota Sampling

1. Since quota sampling is not based on random selection, it is not possible to calculate estimates of standard errors for the sample results.
2. It may not be possible to get a 'representative' sample within the quota as the selection depends entirely on the mood and convenience of the interviewers.
3. Since too much latitude is given to the interviewers, the quality of work suffers if they are not competent.

4. It may be extremely difficult to supervise the control and field investigation under quota sampling.

Judgement Sampling

The main characteristic of judgement sampling is that units or elements in the population are purposively selected. It is because of this that judgement samples are also called purposive samples. Since the process of selection is not based on the random method, a judgement sample is considered to be non-probability sampling.

Occasionally it may be desirable to use judgement sampling. Thus, an expert may be asked to select a sample of 'representative' business firms. The reliability of such a sample would depend upon the judgement of the expert. The quota sample, discussed earlier, is in a way a judgement sample where the actual selection of units within the earlier fixed quota depends on the interviewer.

It may be noted that when a small sample of a few units is to be selected, a judgement sample may be more, suitable as the errors of judgement are likely to be less than the random errors of a probability sample. However, when a large sample is to be selected, the element of bias in the selection could be quite large in the case of a judgement sample. Further, it may be considered than the random sampling.

Master Samples

A master sample is one from which repeated sub-samples can be taken as and when required from the same area or population. This was first used in the United States when the US Master sample of agriculture was taken. In this samples, the rural area of over 3000 US counties was divided into segments of about four farms each. "After selecting a systematic sample of 1/8 of the segments, the materials were duplicated and made available, with instruction, at low cost."

The crucial point to note in respect of master samples is that "the actual sample for each new survey is not selected directly from the entire population, but from a frame of segments and dwellings that was selected earlier from the entire population."

The utility of master samples is limited to a relatively short period for there may be changes in the population, which would distort the representative character of the master samples. In view of this, master samples should be relatively permanent, say, dwellings rather than individuals or households which frequently undergo changes on account of births, deaths and migration. The main advantage of master samples is that they can be expeditiously selected on account of their simplicity. Another advantage is that they are economical, because the same master frame is used for drawing samples for several surveys, as a result of which the cost incurred on the preparation of the master frame is spread over these surveys. Further, on account of this economy in each survey, one can initially spend more to create a good master frame. Thus, economy may lead to improved quality in the listing.

Panel Samples

Panel samples are frequently used in marketing research. In panel samples, the same units or elements are measured on subsequent occasions. To give an example: Suppose that one is interested in knowing the change in the consumption pattern

of households. A sample of households is drawn. These households are contacted to gather information on the pattern of consumption, subsequently, say after a period of six months, the same households are approached once again and the necessary information on their consumption is obtained. A comparison of the results of the two sets of data would indicate whether there has been any change, and, if so, to what extent. In fact, the information is collected on a more or less continuous basis with the help of panel samples.

Panel samples are extremely convenient and economical and the cost of drawing a second sample is not incurred. But the main limitation of such samples is that it may be difficult to sustain the interest of individuals included in the panel for a long period. Many respondents on the panel may refuse to be interviewed twice or may give poor answers. In either case the quality of the survey will suffer. Another limiting factor in panel samples is that there may be bias on account of the continued participation in the panel. It is felt that the individual is conditioned to some extent by the fact that data on purchases are reported. In such a case the purchase behaviour of panel members may become different from others not covered by the panel. Furthermore, panel samples may turn out to be more expensive while locating the same sample of respondents after a lapse of, say, a year, when some of them might have migrated to other areas. This would involve travel costs in addition to being difficult.

Convenience Sampling

Convenience sampling, as the name implies, is based on the convenience of the researcher who is to select a sample. This type of sampling is also called accidental sampling as the respondents in the sample are included in it merely on account of their being available on the spot where the survey is in progress. Thus, a researcher may stand at a certain prominent point and interview all those or selected people who pass through that place. A survey based on such a sample of respondents may not be useful if the respondents are not representative of the population. It is not possible in convenience sampling to know the “representativeness” of the selected sample. As such, it introduces an unknown degree of bias in the estimate. In view of this major limitation, convenience sampling should be avoided as far as possible. It may however be more suitable in exploratory research, where the focus is on getting new ideas and insights into a given problem.

Lets Recapitulate the Chapter

- A random sample gives every unit of the population a known and non-zero probability of being selected.
- A stratified random sample is one where the population is divided into mutually exclusive and mutually exhaustive strata or sub-groups and then a simple random sample is selected within each of the strata or sub-groups.
- Cluster sampling implies that instead of selecting individual units from the population, entire groups or clusters are selected at random.
- Multi-stage sampling, as the name implies, involves the selection of units in more than one stage.

LESSON 25: SAMPLE DESIGN, TYPES OF SAMPLE DESIGN.

Introduction

In this lecture, We will discuss sample design and various types of sample designs.

Learning Objectives

- Characteristics of good sample design.
- Determination of sample size.
- Cost as a factor for determining sample size.
- Determining the size of Non-Probability samples.

Characteristics of a Good Sample Design

Kish mentions that a good sample design requires the judicious balancing of four broad criteria-goal orientation, measurability, practicality and economy.

Goal Orientation

This suggests that a sample design “should be oriented to the research objectives, tailored to the survey design, and fitted to the survey conditions”. If this is done, it should influence the choice of the population, the measurement as also the procedure of choosing a sample.

Measurability

A sample design should enable the computation of valid estimates of its sampling variability. Normally, this variability is expressed in the form of standard errors in surveys. However, this is possible only in the case of probability sampling. In non-probability samples, such as a quota sample, it is not possible to know the degree of precision of the survey results.

Practicality

This implies that the sample design can be followed properly in the survey, as envisaged earlier. It is necessary that complete, correct, practical and clear instructions should be given to the interviewer so that no mistakes are made in the selection of sampling units and the final selection in the field is not different from the original sample design. Practicality also refers to simplicity of the design, i.e. it should be capable of being understood and followed in actual operation of the field work.

Economy

Finally, economy implies that the objectives of the survey should be achieved with minimum cost and effort. Survey objectives are generally spelt out in terms of precision, i.e. the inverse of the variance of survey estimates. For a given degree of precision, the sample design should give the minimum cost. Alternatively, for a given per unit cost, the sample design should achieve maximum precision (minimum variance).

It may be pointed out that these four criteria come into conflict with each other in most of the cases, and the researcher should carefully balance the conflicting criteria so that he is able to select a really good sample design. As there is no unique method or procedure by which one can select a good sample, one has to compare several sample designs that can be used in a survey.

This means that one has to weigh the pros and cons, the strong and weak points of various sample designs in respect of these four criteria, before selecting the best possible one.

Sample Size Decisions

After having looked into major sample designs in the preceding chapter, we now turn to another important aspect of sampling, namely, the sample size. When a survey is undertaken and when it is not possible to cover the entire population, the marketing researcher has to answer a basic question – How large should the sample be? We will focus our attention on this basic problem and discuss how decisions on sample size are taken.

Determining the Sample Size

There are two basic approaches to the problem of sample size – the ad hoc or practical approach and the statistical approach. The former is widely used in marketing research.

Practical Method

According to this approach, a sample size of less than a few hundred units is not chosen. This is because when a field survey is undertaken, interviewers are appointed, trained and asked to conduct field investigations. Since all this would cost substantially, it would not be worth it for the marketing researcher if only a small sample is chosen. A survey confined to a relatively small number of units would mean a relatively high cost per interview. Another consideration in favour of selecting a reasonable size of sample is that it enables the researcher to test several hypotheses. This is especially true for samples in the sub-groups. Such hypotheses can be tested with a high degree of statistical significance when the sample size is reasonably large. Another practical consideration in case of a stratified sample is that the overall sample size is so fixed that the sample size within each stratum is not less than 30. A common practice in this regard is to determine the sample size of each stratum first and then add up the samples of all the strata to obtain the overall sample size.

Statistical Principles

The second approach based on statistical principles is obviously scientific. A good researcher is expected to follow it rather than the rule-of-thumb approach. According to the statistical approach, the problem of sample size involves several aspects such as the type of sample design, the homogeneity in the population from which a sample is to be chosen and the availability of finance, personnel and time for the conduct of the field survey. In view of all these considerations, the question of sample size becomes difficult. Since a comprehensive discussion of all these aspects would need a good deal of space, only some basic principles for determining sample size are discussed.

However, before this is done, it is necessary to have some idea of sampling distribution, which forms the basis for any problem on sample size.

Sampling Distribution of the Mean

According to the central limit theorem, the various arithmetic means of a large number of random samples of the same size will form a normal distribution. If an arithmetic mean of all possible sample means is calculated, it will coincide with the population mean. To illustrate this point, let us take a sample example:

Suppose there are six persons A, B, C, D, E and F constituting the population. Each one of them has some money. Assume that A has rupee one, B rupees two, and so on. Then, the population mean and standard deviation will be as follows:

Identity of persons	Amount (X)	X ²
A	1	1
B	2	4
C	3	9
D	4	16
E	5	25
F	6	36
	21	91

$$\begin{aligned}\mu &= \frac{\text{Rs } 21}{6} = \text{Rs } 3.5 \\ s &= \sqrt{\frac{1s(X-\mu)^2}{N}} = \sqrt{\frac{sx^2}{N} - \frac{sx^2}{N}} \\ &= \sqrt{\frac{91}{6} - \frac{21^2}{6}} = \sqrt{15.1667 - 12.2500} \\ &= \text{Rs } 1.71 \text{ approx}\end{aligned}$$

Suppose two persons are selected as a sample. The number of possible sample size 2 that can be selected is:

$$\binom{N}{n} = \binom{6}{2} = \frac{6!}{2!4!}$$

$$= \frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1 \times 4 \times 3 \times 2 \times 1} = 15 \quad (\text{Total number of samples without replacement})$$

Table below gives all the 15 samples along with their respective means.

S.No.	Sample	Sample Mean
1	A, B	1.5
2	A, C	2.0
3	A, D	2.5
4	A, E	3.0
5	A, F	3.5
6	B, C	2.5

6	B, C	2.5
7	B, D	3.0
8	B, E	3.5
9	B, F	4.0
10	C, D	3.5
11	C, E	4.0
12	C, F	4.5
13	D, E	4.5
14	D, F	5.0
15	E, F	5.5

Tables below shows the distribution of sample means, as also some other calculations.

Sample Mean	Frequency	Deviation from assumed mean = 4	d÷0.5	Fd	D ²	Fd ²
1.5	1	-2.5	-5	-5	25	25
2.0	1	-2.0	-4	-4	16	16
2.5	2	-1.5	-3	-6	9	18
3.0	2	-1.0	-2	-4	4	8
3.5	3	-0.5	-1	-3	1	3
4.0	2	0	0	0	0	0
4.5	2	0.5	1	2	1	2
5.0	1	1.0	2	2	4	4
5.5	1	1.5	3	3	9	9
	15			-22 +7 -15	69	85

$$\bar{X} = A + \frac{\sum fd}{n} \times$$

$$= 4.0 + \left(\frac{-15 \times 0.5}{15} \right) = \text{Rs } 3.5$$

$$\begin{aligned}\sigma_x &= \sqrt{\frac{\sum fd^2}{n} - \left(\frac{\sum fd}{n} \right)^2} \times C \\ &= \sqrt{\frac{85}{15} - \left(\frac{-15}{15} \right)^2} \times 0.5 \\ &= 5.6667 - 1 \times 0.5 \\ &= 2.16 \times 0.5 \\ &= \text{Rs } 1.08\end{aligned}$$

There is a certain relationship between the two. This is best explained by the following formula:

Where σ_x = standard error of the sample distribution
 σ = Standard deviation of the population
 n = sample size
 N = Number of units in the population

Applying the different values in the above formula.

$$\begin{aligned} s_x &= \frac{1.71}{\sqrt{2}} \cdot \sqrt{\frac{6-2}{6-1}} \\ &= \frac{1.71}{1.41} \cdot \sqrt{0.8} \\ &= \frac{1.71 \times 0.89}{1.41} \\ &= 1.08 \text{ (same as obtained earlier)} \end{aligned}$$

The term $\sqrt{\frac{N-n}{N-1}}$ is called the finite population correction (fpc). It may be noted that in case of an infinite population, the term $\frac{N-n}{N-1}$ approaches 1.00 and hence the finite population correction also approaches 1.00. In such a case, the formula becomes $s_x = \frac{s}{\sqrt{n}}$. In the case of sampling with replacement, there is an infinite population and as such, the reduced version of the formula may be used. In other cases too, if the sample is relatively too small vis-à-vis the population, fpc need not be used as it will approach 1.00. In other words, when N is large relative to n , formula $s_x = \frac{s}{\sqrt{n}}$

may be used. The question is: how to decide that N is relatively larger than n ? Different people may take different values but the general practice is to use this formula (which excludes the correction factor) when n is less than 5 per cent of N .

Characteristics of the Distribution of Sample Means

1. Although the population shows a rectangular distribution, the distribution of sample means shows a symmetrical distribution and has only one mode, i.e. it is unimodal.
2. The mean of the sample distribution coincides with the mean of the population. In the example given above, the population mean is Rs.3.5 (Table 10.1) and the mean of the distribution of the sample means too happens to be Rs.3.5 (Table 10.3).
3. The standard deviation of the population, and the standard deviation of the sample means, s_x , are related, as is indicated by the formula given earlier. If the finite population correction is to be ignored, then the standard deviation of the distribution of sample means $s_x = \frac{s}{\sqrt{n}}$

It may be noted that s_x (Table 10.3) was 1.08 whereas s (Table 10.1) was 1.71). In other words, the standard deviation of the sample means turns out to be smaller than that of the population. Further, it may be noted that the former tends to be smaller as the sample size, n , increases. This is because of the fact that as the sample size increase, the mean of the sample distribution tends to be closer to the population mean which, in turn, makes the scatter of the sample means narrower.

Since the formula for the relationship between the standard deviation of the population and the standard error of the

sample is $s_x = \frac{s}{\sqrt{n}}$ we find that $n = \frac{s^2}{s_x^2}$ ignoring the finite population correction.

Thus, to determine n , the size of the sample, both the numerator and the denominator should be known to us.

Main Consideration for Sample Size Decisions

There are three consideration required to be checked when determining the sample size necessary to estimate the population mean. These are:

1. The extent of error or imprecision allowed.
2. The degree of confidence desired in the estimate.
3. Estimate of the standard deviation of the population.

The first two considerations involve the judgment of the researcher. The third consideration is the responsibility of the researcher. Sometimes estimates of standard deviation are available, from earlier studies. Even when standard deviation is not available, it can be calculated from the summary tables containing the data. However, if this too is not possible, the researcher may choose a small sample from which the standard deviation is calculated. He then uses the sample standard deviation as an estimate of the population standard deviation and then determines and final sample size. The initial sample need not be discarded afterwards and can be used as a part of the final sample. However, some additional time is needed to carry out this exercise.

We may consider the problem of determining sample size in two different situations, namely when the standard deviation of the population is known and when it is unknown.

Determination of sample size when standard deviation is known

Extent of Error

The first consideration relates to the extent of error allowed. This is indicated by the standard error (i.e. the standard deviation of the sample means). The researcher himself has to decide the magnitude of the standard error that he can tolerate. Although this is a difficult question, it is necessary to fix the limit of the standard error beyond which it should not exceed. The fixation of standard error should not be confined to overall results but should also be applied to various sub-groups. One way is to first determine the size of each sub-group on the basis of a given degree of precision. The total of the size of each sub-group could then be taken as the overall size of the sample, though it may turn out to be too large and on considerations of time and money, it may not be acceptable to the researcher.

The Degree of Confidence

A second consideration is the degree of confidence that the researcher wants to have in the results of the study. In case he wants to be 100 per cent confident of the results, he is left with no option but the to cover the entire population. However, as this is often not possible on account of cost, time and other constraints, the researcher should be satisfied

with less than 100 per cent confidence. Normally, three confidence levels, namely, 99 per cent, 95 per cent and 90 per cent are used. When a 99 per cent confidence level is used, it implies that there is a risk of only 1 per cent of the true population statistic falling outside the range indicated by the confidence interval. In the case of a 95 per cent confidence level, such a risk is of 5 per cent and in the case of 90 per cent confidence level, it is of 10 per cent. In marketing research studies, the most frequently used norm is the 5 per cent confidence level.

It should be noted that there is a trade off between the degree of precision and the degree of confidence. For a given size of a sample, one can specify one of these two but not both of them at the same time. To illustrate this point, let us assume that in a survey of households in a certain territory, the average income per household has turned out to be Rs.1000 per month. As this is a point estimate, it is not associated with any bounds of error and, therefore, it is regarded as a precise estimate. At the same time, such an estimate is likely to be wrong, i.e. one can associate a very low level of confidence with it. In contract, if we say that the average monthly income per household varies from Rs.500 to Rs.2500, we are associating a very high degree of confidence in this estimate, although it tends to be far less precise than the earlier one. An estimate of this type, having a very wide range, will not be of much help to the researcher.

The foregoing basic considerations involved in determining the sample size can be better understood with the help of some examples. We have earlier seen the sampling distribution of sample means. According to the Central Limit Theorem, the distribution of sample means will be normal regardless of the distribution of population.

Let us first take the case where the population variance is known. Suppose in our previous example of average monthly income per household, we find that the standard deviation is Rs.100. Further, we suppose that the estimate is within \pm Rs.40 of the true population mean. This means that the total precision is 80 and half precision is 40. We shall use the latter value, as we shall work out the calculations on the basis of one-half of the curve. In this way, certain calculations can be simplified as we know that the population mean m divides the normal curve into two equal halves.

Another point that needs to be decided relates to the degree of confidence in the result that one would like to have. Suppose that this degree of confidence is 95 per cent which would imply that Z is approximately 2. Strictly speaking, the 95 per cent confidence interval gives $Z = 1.96$ which can be taken as 2 so as to simplify the calculations.

The formula is determine the size of n is:

$$H = Z\sigma_x$$

$$= Z \frac{\sigma}{\sqrt{n}} \left(\sigma_x = \frac{\sigma}{\sqrt{n}} \right)$$

where H is half precision which is 40 in the above example; $Z = 2$ approximately and s is 100.

Hence

$$H = 2 \cdot \frac{100}{\sqrt{n}}$$

$$\text{or } 40 = \frac{200}{\sqrt{n}} \text{ or } 1 = \frac{200 \times 1}{\sqrt{n}} \text{ or } \frac{n}{40} = 5$$

$$\therefore n = 25$$

This calculation given the sample size as 25. This indicates that when the standard deviation of population is Rs.100 and the extent of precision in Rs.40, a sample of 25 households needs to be chosen.

Let us take a few more examples, making certain variations in the original values. Suppose that we are interested in making out estimate twice as precise as the earlier one, then H becomes 20 instead of 40. taking $Z = 2$ and standard deviation as 100, as

in the earlier case, and applying the formula $H = \frac{Z \sigma}{n}$ we get

$$20 = 2 \cdot \frac{100}{\sqrt{n}}$$

$$\text{or } 20 = \frac{200}{\sqrt{n}}$$

$$\text{or } 20 = \sqrt{n} = 200$$

$$\text{or } \sqrt{n} = 10$$

$$\therefore n = 100$$

We find that the value of n now arrived at is 100, i.e., four times of the original value. In other words, when precision is doubled, the value of n increases four times. This results can be generalised as follows: When the precision is increased by a factor x , sample size increases by a factor x^2 .

Let us now see what happens to the sample size n if the degree of confidence undergoes a change. Suppose that the degree of confidence is 99 per cent instead of 95 per cent, then Z is equal to 3. Thus

$$H = Z \frac{\sigma}{\sqrt{n}}$$

$$40 = 3 \cdot \frac{100}{\sqrt{n}}$$

$$\text{or } 40 = \frac{300}{\sqrt{n}} \text{ or } 40 n = \sqrt{30}$$

$$\text{or } n = \left[\frac{300^2}{40} \right] = 56.25$$

if z is reduced to 1 then $H = Z \frac{\sigma}{\sqrt{n}}$

$$\text{or } 40 = 1 \cdot \frac{100}{\sqrt{n}}$$

$$\text{or } 40\sqrt{n} = 100$$

$$\text{or } \sqrt{n} = \frac{100}{40} = 2.5$$

$$\therefore n = (2.5)^2 = 6.25$$

Notice the changes in the value of n .

In the first case, when Z is increased from 2 to 3, there is an increase of $3/2$ times in its value. When Z is increased $3/2$ time,

the value of n increases $\frac{3}{2} \times \frac{3}{2} = \frac{9}{4}$ times as $25 \times \frac{9}{4} = \frac{225}{4} =$

56.25.

Likewise, when the value of Z is reduced from 2 to 1, there is a fall in its value by 1/2. When Z is reduced by 1/2, the value of n reduces to $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{4}$ th of its original value $n = 25 \times \frac{1}{4} =$

6.25. To generalise the above results, when Z is increased by a certain factor y, sample size increases by a factor y^2 .

When Standard Deviation of Population is Unknown

So far the discussion was confined to such cases where standard deviation of the population was known. May a time, the standard deviation is not known. In such cases too, the method followed is the same except that an estimate of the population standard deviation in place of its previously known value is taken. Sometimes, the researcher may undertake a pilot survey to ascertain the standard deviation. If this is not possible, the researcher may have to use some alternative approach. As we know, the entire area under the normal curve falls within $\mu \pm 3\sigma$. This means that we should have some idea of the range of variation, i.e. the difference between the highest item and the lowest item.

Suppose in our previous example, the minimum monthly income amongst households is Rs.500 and the maximum is Rs.2000. This gives a range of Rs.1500 which divided by 6 yields a figure of 250. This is the estimated value of σ . Taking other values as earlier, the sample size can be determined as shown below.

$$\begin{aligned} H &= 2 \cdot \frac{250}{\sqrt{n}} \\ \text{or } 40 &= \frac{500}{\sqrt{n}} \\ \text{or } \sqrt{n} &= \frac{500}{40} = \frac{25}{2} \\ \therefore \sqrt{n} &= \frac{25}{2} \times \frac{25}{2} = \frac{625}{2} = 156.25 \end{aligned}$$

This shows that a sample of 156 households should be taken.

Suppose a sample of 156 households gives a sample mean $\bar{X} = 1000$, and a sample standard deviation $\hat{S} = 200$, then the confidence interval would be $\bar{X} \pm ZS_x$

$$\begin{aligned} \text{or } 1000 &\pm 2 \cdot \frac{\hat{S}}{\sqrt{n}} \\ \text{or } 1000 &\pm 2 \cdot \frac{200}{\sqrt{156}} \\ \text{or } 1000 &\pm 400 \\ \text{or } 1000 &\pm 32 \\ \text{or } 968 &\leq \mu \leq 1032 \end{aligned}$$

This shows the precision as ± 32 as against ± 40 in the earlier example. Thus the interval has become narrower than earlier

envisaged. This is because the sample standard deviation (200) is less than the estimated population standard deviation (250) in the earlier example. In other words, as the population standard deviation was over-estimated as judged by the sample standard deviation, the confidence interval became narrower. Conversely, if the population standard deviation turns out to be under-estimated vis-à-vis sample standard deviation, the confidence interval will become wider.

Relative Precision

So far the discussion was concerned with the basis of absolute precision measured in terms of specific units. We now introduce another dimension, namely, the relative precision. It can be defined as the extent of precision relative to level. Suppose the mean is 200 and a relative precision of 10 per cent is aimed at. This would mean a confidence interval from 180 to 220. In case the mean is 100, the confidence interval will be from 90 to 110.

When applying relative precision instead of absolute precision, the usual formula $H = Z \frac{\sigma}{\sqrt{n}}$ is transformed to $r\mu = Z \frac{\sigma}{\sqrt{n}}$, where $r =$ the relative precision and μ is the mean of the population. This, too, can be changed as shown below

$$\begin{aligned} r\mu &= \frac{Z\sigma}{\sqrt{n}} \\ \text{or } \frac{r\mu}{r\mu} &= \frac{Z\sigma}{\sqrt{n}} \times \frac{1}{\mu} \\ \text{or } 1 &= \frac{Z\sigma}{\sqrt{n} \cdot r\mu} \text{ or } 1 = \frac{1}{\sqrt{n}} \cdot \frac{Z}{r} \cdot \frac{\sigma}{\mu} \end{aligned}$$

Multiplying both sides by \sqrt{n} ,

$$\begin{aligned} \sqrt{n} &= \frac{Z}{r} \cdot \frac{\sigma}{\mu} \\ \text{or } n &= \frac{Z^2}{r^2} = \left[\frac{\sigma}{\mu} \right]^2 = \frac{Z^2}{r^2} C^2 \quad (\text{Since } \frac{\sigma}{\mu} \text{ is the coefficient of variation } C) \end{aligned}$$

In the above form of the formula, it is necessary to have values of three variable namely, Z , r and C . Since Z relates to the desired level of significance, it will be known. So also r will be known as it indicates the level of precision which has to be decided in advance. It is only C that is not known and which needs to be estimated. The researcher has to very carefully use his judgement regarding the magnitudes of the population mean and the population standard deviation. If there are some earlier studies available for his guidance, he should draw upon them in order to make his judgement as realistic as possible. It may be noted that if the coefficient of variation C turns out to be higher than that actually given by the ratio of the sample standard deviation to the sample mean, then this would show that the sample size should have been larger and vice versa.

Cost as a Factor in Determining Sample Size

So far we have not considered cost, an important factor in determining sample size. However, cost is an important factor

that influences sample size. Suppose a firm has earmarked a sum of Rs.50,000 for a research study involving field survey. It has also decided to choose a sample of 1200 respondents for a specified level of precision and 95 per cent confidence of the results. The study would involve several aspects such as training of interviewers, designing of questionnaires, supervision of field work, coding, editing and tabulation of collected data, analysis of data and report writing. Suppose further that the fixed costs are likely to be Rs.30,000 and the field survey would cost Rs.20 per interview. In such a case, a sum of Rs.20,000 (Rs.50,000 – Rs.30,000) is available for the field survey. Since one interview cost Rs.20, the field survey can cover Rs.20,000 / Rs.20 i.e., 1000 respondents only. Thus the firm finds that the sample size of 1200 would not be possible. Now, the sample size of 1000 respondents would yield a lower degree of confidence, say, 90 per cent instead of 95 per cent as originally envisaged. The firm should, therefore, decide whether it would really serve its purpose.

Another alternative before the firm is to increase the size of the allowance error. A lower degree of precision would need a lower sample size than the 1200 determined earlier. Thus, one would notice that there could be several combinations of the extent of confidence and precision which can be thought of by the firm. It has to choose one of these feasible combinations, within the financial resources available. It may as well find that lowering of the degree of confidence or precision or both may considerably reduce the utility of the study. In such a case it may even go to other extreme and drop the idea of undertaking it.

Several Objectives

It should be noted that a marketing research study is seldom conducted to estimate a single parameter. Generally several objectives are involved in a single study. Now, a sample size may vary from one objective to another on account of the expected variance. It is not necessary to go through the process of determining sample size for all objectives. The general approach is to choose a few crucial questions on the basis of which the sample size is determined. The researcher should especially include objectives that are likely to have greater variability as their inclusion will be more crucial for sample size.

Suppose that in a study three parameters are to be estimated each with a 95 per cent confidence and within desired precision. The sample size required has been determined as 40 units, 80 units and 25 units, respectively. The most conservative approach in such a case would be to select a sample of 80 units, which is the largest. However, if the second parameter where sample size required is 80 is not crucial, it is advisable not to choose a sample of 80 units. Taking a sample of this size would involve additional expenditure which could be saved. In such a case a sample size of 40 would be most appropriate. Thus, the marketing researcher should be guided by the relative importance of the parameter and the one which is most crucial should be taken into consideration. The sample size should then be determined for the desired precision and confidence with respect to that parameter. The sample size thus determined should be applicable to the entire study, covering all the parameters.

In our preceding example, if a sample of 80 is chosen, then the degree of confidence as also precision will be higher than the desired degrees, as envisaged earlier. Conversely, if a lower sample size say, 25 units is chosen, then in case of the other two parameters, the degrees of confidence and precision would be lower than the corresponding values envisaged earlier. The researcher has to exercise his judgement very carefully in such cases.

Sample Size Decisions When Estimating Proportions

The foregoing discussion was carried out in relation to sample size for estimating mean values. At times, it is the proportion of population with a particular attribute that becomes more relevant to the marketing researcher than the mean value. For example, one may be more interested in knowing the proportion of households having a monthly income of, say, Rs.1000 and less or of Rs.2500 and above rather than in knowing the average income of the households.

The formula for the standard error of a proportion p based on a simple random sample of size n is

$$S.E. (p) = \frac{\pi (1 - \pi)}{\sqrt{n}}$$

where p is the proportion of units with a particular attribute

The above formula can be transformed as follows:

$$S.E. (p) \sqrt{n} = \sqrt{\pi (1 - \pi)}$$

$$\text{or } 1 = \frac{[S.E. (p)]^2}{p (1 - p)}$$

By inverting the above, we get

$$n = \frac{\pi (1 - \pi)}{[S.E. (p)]^2}$$

From the above formula, it is clear that the values of p and the standard error of a proportion should be known in order to determine the sample size, n . However, one finds that p is generally not known, which necessitates its estimation. Suppose the value of p is estimated so also the extent of the standard error is chosen, then one can arrive at the sample size. Further suppose that the sample size thus determined turns out to be a sizeable proportion of the population. In that case, it is necessary to use the finite population correction (fpc). This can be done with the help of the following formula:

$$n' = \frac{n}{1 + \frac{n}{N}}$$

Where n' is the revised size of the sample, n is the earlier size of the sample and N is the population size. Let us illustrate this.

Suppose we are interested in estimating the proportion of households having a television set. We believe that this figure is about 20 per cent. Further, we decide that a standard error should not be more than 2 per cent. We now apply the earlier formula, namely,

$$\begin{aligned}
n &= \frac{\pi(1-\pi)}{[S.E. [p]]^2} \\
&= \frac{20(100-20)}{(2)^2} \\
&= 400
\end{aligned}$$

This gives the sample size of 400 households. This could be regarded as the desirable sample provided that the population is relatively large. It, however, population is only 1600 households, then the revised sample size can be worked out as follows:

$$\begin{aligned}
n &= \frac{n}{1 + \frac{n}{N}} \\
&= \frac{400}{1 + \frac{400}{1600}} \\
&= \frac{400}{\frac{5}{4}} \\
&= \frac{400 \times 4}{5} \\
&= 320
\end{aligned}$$

This shows that a sample size of 320 households should be taken instead of 400 households.

From the formula

$$n = \frac{\pi(1-\pi)}{[S.E. [p]]^2}$$

it should be clear that the value of $\pi(1-\pi)$ would influence the size of n . The smaller this value, the smaller will be the sample size required for a given standard error. It may also be noted that n will be at a maximum when $p(1-\pi)$ is at a maximum. When $\pi = 1/2$, $\pi(1-\pi)$ is at a maximum. This also shows that if a small standard error is to be preferred, then a relatively large sample size is required.

Another point that needs to be emphasised is that in the initial stage when an estimate of p is made, it may not be right. Let us take an example. Suppose the proportion of households earning Rs.1000 or less per month has been estimated as 0.40.

$$\begin{aligned}
\text{This means that } n &= \frac{\pi(1-\pi)}{[S.E. [p]]^2} \\
&= \frac{40 \times 60}{4} \quad (\text{on the assumption that the S.E. is not more than 2}) \\
&= \frac{2400}{4} \\
&= 600
\end{aligned}$$

Suppose that when the survey is undertaken and the 600 sampled households are contacted, the sample proportion p

turn out to be 0.30. With this revised proportion, the standard error is determined

$$\begin{aligned}
S.E.(p) &= \frac{p(1-p)}{n} \\
&= \frac{0.30 \times 0.70}{600} \\
&= 0.0187
\end{aligned}$$

and the confidence interval will then be

$$\begin{aligned}
p \pm Z Sp &= 0.30 \pm 2(0.0187) \\
0.263 &\leq \pi \leq 0.337
\end{aligned}$$

The interval is narrower than desired as the sample proportion (0.30) turned out to be less than the population (0.40).

Relative Precision

As was discussed earlier, while determining sample size when estimating means, here to the same approach is applicable in respect of relative precision. The term 'relative precision' signifies that the size of the interval will be within a certain percent of the value, regardless of its level. For example, if the sample proportion is 0.40 and if the relative precision is to be within ± 10 per cent, then the interval would be 0.36 to 0.44.

Statistical Efficiency

The term 'efficiency' or statistical efficiency' is frequently used in discussions of sampling. A sample design is considered statistically more efficient than another if its standard error of the mean is smaller, given the same sample size. Conversely, a more efficient sample design will yield as precise a result as an alternative sample design but with a smaller sample. Thus, efficiency implies a comparison of two or more sample designs. Symbiotically,

$$E_A = \frac{s_\mu}{s_a} \cdot 100$$

where E_A = the statistical efficiency of sampling design A, expressed as a percentage

s_μ = the standard error of the appropriate statistic, e.g.,

mean, produced by an unrestricted single-stage sample of size n

σ_A = the standard error of the appropriate statistic, produced by sampling design A of size n .

If the degree of precision required is specified in advance, regardless of the sample design, then the relative size of the sample required would indicate efficiency. Symbolically,

$$E_A = \frac{s_\mu}{s_a} \cdot 100$$

where E_A = the efficiency of sampling design A, based on relative sample size and express as a percentage.

s_μ = the size of the sample, using sampling design A

n_A = the size of the sample, using the unrestricted single-stage sampling design.

It may be noted that when a comparison is made of standard errors of the mean of different sample designs requiring the same rupee expenditure, it will indicate relative economic efficiency. In other words, economic efficiency is measured in terms of the precision of results per rupees of cost. Marketing researchers are generally concerned with economic efficiency of sample designs and aim at obtaining maximum efficiency of this type.

Determining the Size of Non-probability Samples

The preceding discussion was in respect of probability samples. However, non-probability samples are used, perhaps more frequently, in marketing research than probability samples. The question is – How should the size of a non-probability sample be determined? In this case, there is no theoretical basis for estimating sampling error. We have seen how important the concept of sampling error is in determining size when the sample is based on probability.

Generally, two approaches are followed in respect of non-probability samples. One approach is to determine the size as if it were a probability sample. Another approach is to take as large a sample as possible within the constraints of time and money. For example, if a sum of Rs.50,000 has been earmarked for a research project, the estimated fixed costs of sampling and the non-sampling costs are Rs.30,000, and sampling costs are Rs.25 per element, the sample size (n) should be $\text{Rs.}50,000 - \text{Rs.}30,000 / \text{Rs.}25 = 800$. There are two limitations of this approach. It fails to take into consideration the different in value of information of the sample of 800 as compared to that of other sample sizes. Second, unlike the probability sample, it usually fails to consider trade-offs between sampling and non-sampling errors.

Conclusion

This chapter has focused on sample size. Factors that are relevant in determining sample size on the basis of the traditional approach have been briefly discussed. Quite distinct from the traditional approach is the Bayesian approach which is sometimes used by researchers. It introduces the conditional costs of wrong decisions into the model and determines the optimal sample size. Although its main strength is that it incorporates the cost of sampling which the traditional approach fails to do, it is not widely used. The main reason for its infrequent use appears to be its being relatively complicated. A discussion of it is beyond the scope of this book.

Lets Recapitulate The Chapter

The Importance of Sample Size

- Too small sample size leads to undesirably large sampling error.
- Too large sample size wastes time and money.

4

Methods of Determining Sample Size

- Ad Hoc Methods
 - Based on budget constraint
 - Use of expert guidance
 - Use rules of thumb
 - Use previous sample sizes
- Statistical Method

5

Sample Size Determination: The Intuition

- More accurate information required => larger sample size needed
- More diversified population => larger sample size needed
- The marginal gain in information accuracy is diminishing with the increase of sample size

6

Sample Size Determination: Measures of Interest in Most Surveys

- Sample Mean, Examples include:
 - Mean rating on an attitudes measurement scale
 - Mean income, age
 - Mean number of purchases, monthly expenditure
- Sample Proportion, Examples include:
 - Proportion of households owning ≥ 2 cars
 - Proportion of households spending more than 400/month on food
 - Probability of purchase

10

Sampling Error and Confidence Interval

- Marketing researchers usually use confidence interval to describe sampling error.
- Meaning of confidence interval
 - If the estimate of a variable is 1000 and it has a 95% confidence interval of ± 100 , then with 95% probability the true value of that variable is between 900 and 1100.
- If a variable has a 95% confidence interval of $\pm I_{95\%}$, sampling error $S_{\bar{x}} = I_{95\%}/1.96$.

9

The Confidence Interval Approach to Sample Size: Estimates of Means

- If a 95% confidence interval of $\pm I_{95\%}$ is desired,

$$n = \frac{(1.96s)^2}{(I_{95\%})^2}$$

11

Example

A marketing manager of a frozen foods firm wants to estimate the average dollars that families in a certain city spend on frozen foods per year.

He wants the estimate to have a 95% confidence interval of $\pm \$10$.

He estimates that the standard deviation of annual family expenditures is about \$100.

What is the desired sample size for this study?

12

More Examples

- PETsMART wants to determine the proportion of U.S. households who have dogs. It wants its estimate to have a 95% confidence interval of $\pm 4\%$. What is the desired sample size for this study?

20

In this problem, $I_{95\%}=10$, $s=100$. Applying

$$n = \frac{(1.96s)^2}{(I_{95\%})^2},$$

we obtain that $n=(1.96*100)^2/10^2=385$.

Thus, 385 families must be chosen for this study.

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LESSON 26: TUTORIAL

Q: Define the following terms:

1. Census
2. Sample Survey
3. Frame
4. Sampling Error

Q: How will you determine the size of Non-Probability sample?

[illegible]

LESSON 27:

DATA PREPARATION AND PROCESSING, VALIDATION, EDITING, CODING, TABULATION, DATA PROCESSING METHODS, COMPUTER PROCESSING, DATA ANALYSIS AND INTERPRETATION

Introduction

In this lecture, We will move on to the topic of Data Preparation and processing. Apart from it, We will learn the validation and editing process. And finally, the presentation of the processed data by way of tabulation will be taught.

Objectives of the Lecture

- Data Preparation and Processing
- Validation
- Editing, Coding, Tabulation
- Data Processing Methods & Computer Processing
- Data analysis and Interpretation

Once the data have been collected, the researcher has to process, analyze and interpret the same. In earlier lectures, it was emphasized that the researcher should exercise good care to ensure that reliable data are collected. All this effort, however, will be in vain if the collected data are not properly processed and analysed. Sufficient attention is often not given to these aspects, with the result that the quality of the report suffers. It is desirable to have a well thought out framework for the processing and analysis of data prior to their collection. Dummy tables should be prepared in order to illustrate the nature and extent of tabulation as also the comparisons of data that will be undertaken. At the same time, it may be noted that certain changes in such a framework may become necessary at a later stage. The researcher should not hesitate to introduce such changes as may be necessary improve the quality of tabulation and analysis of data.

Data Preparation and Processing

Raw data, as they are received from the field in primary data collection, are in no condition for interpretation. Such data constitute bits of information recorded on many individual forms, and substantial work must be done on them. Therefore, the bits of raw data must be transformed into information that will answer the researcher's study objectives. The decisions made about these preparatory steps are based on the assumptions involving general logic about the interpretative process and about the supposed nature of the data relative to the appropriate analysis.

The transformation of raw data into useful information requires that the data be validated, edited, coded, and key-punched so that it may be transferred to a computer or any other data storage device. If the amount of data gathered is large, then, there are many advantages in utilizing a computer for data processing.

Marketing researchers need to know about computer systems to communicate with computer technicians so that the data requirements can be filled correctly and efficiently. Everyone in administrative positions, in any type of Organization, and

everyone doing any sort of research should have this knowledge, since computers have become a universal tool of management.

Validation

Validity of the data, as discussed in earlier lectures, is one of the objectives of measurement. It is not only important regarding survey instruments, but it is even more vital that the results obtained with the instruments be valid. Validity exists when the data actually measure what they are supposed to measure. If they fail to, they are misleading and should not be accepted. Determination of whether data are valid is a fundamentally important step. Once they are put into process and emerge as numbers, it is too late to question whether they are really accurate because statistics have a preciseness that connotes accuracy to their readers.

It is far too easy to credit data with accuracy rather than making a sufficient scrutiny of it and of the methods by which it was acquired. The reality of many lazy and hurried data-gathering projects should put every researcher on guard. Marketing researchers have, at times, confirmed that one of their most serious concerns is the errors in survey data submitted to them by the research agencies they employ. The alarming quotation may be substantially justified and makes validation a very important step.

The first of two stages is a thorough review of the methods and quality controls utilized in gathering data. When secondary data are involved, they may be too ancient or unimportant. When contrary conditions pertain, a user of those data may properly request the organization that published them to furnish information on the collection instruments and methods. With primary data this review is important even when the researcher's own staff gathered the data. When outside agencies are engaged in gathering data, then such investigation becomes mandatory. Many of the best agencies, however, voluntarily furnish validating evidence along with the data.

The problems could turn up in any of the research stages in the gathering of primary data. One is sampling, as samples obtained often vary materially from the sampling plan. Indeed, when research agencies use the term 'validation' they tend to refer to checking whether an accurate sample was obtained, for which they routinely check some proportion of interviews. Second, in the conduct of interviews (or an questionnaire mailed in) many errors may have arisen. Researchers should study carefully the questionnaires and the interviewing instructions and procedures to detect causes of errors. A list will aid the people editing the returned forms to be alert for such errors.

Editing

The first task in data processing is the editing. It is the process by which data are prepared for subsequent coding. As it is a very subjective process, it is necessary that persons who are well

qualified and trained in the job of editing, should alone be entrusted with this responsibility.

Editing is the process of examining errors and omissions in the collected data and making necessary corrections in the same. This is desirable when there is some inconsistency in the response or responses as entered in the questionnaire or when it contains only a partial or a vague answer. A few examples will indicate how editing can be helpful.

The respondent has given answers which are inconsistent with each other. In such a case, the editor has to change one of the answers so as to make it consistent with the others. He has to use his judgment to decide which answer is correct so that the other one can be suitably changed.

If the respondent has marked two answers instead of one for a particular question. In such a case, the editor has to carefully examine which of the two answers would be more accurate. Sometimes, when a decision cannot be made categorically, he may prefer to code 'no information' for that question.

The respondent has answered a question by checking one of the many possible categories contained in the questionnaire. In addition, the respondent has written some remarks in the margin. These remarks do not go well with the particular category marked by the respondent. The editor has to look into this and may have to change the category to better represent the remarks made by the respondent.

Sometimes the questionnaires contain imaginary and fictitious data. This may be due to cheating by the interviewers who may fill in the entries in the questionnaire without actually interviewing the respondent. This may also happen in case of a mail questionnaire, where the respondent has given an arbitrary answer without exercising any care. If the responses indicate obvious inaccuracy, they may be either dropped or suitably modified if they are to be retained. The editor has to exercise his judgment in this regard.

In all cases where editorial corrections are to be made, it is necessary that these should be kept distinct from the changes made either by the respondent or by the interviewer. This can be ensured by the editor by using a different colored pencil for editing the raw data.

Editing can be undertaken both at the time when the field survey is in progress and when it has been completed. In the former case, it is known as field editing. When the interviewer fills in the information at the time of the interview, he often uses several abbreviations due to the paucity of time. These need to be spelt out fully later. It is advisable for the interviewer to carefully look into the questionnaire at the earliest possible opportunity after the interview so that he can enter the proper responses or complete the partial answers.

Another type of editing is central editing, which is undertaken after the questionnaires have been received at the headquarters. As far as possible, a single editor should carry out this task so that consistency in editing can be ensured. However, in the case of large studies, this may not be physically possible. When two or more editors are entrusted with the task of editing, it is necessary that they be given uniform guidelines so that maximum possible consistency in their approaches can be attained.

An alternative way would be to split the entire task into two or more parts so that each part of the work can be looked after by one single editor. In such a case, chances of inconsistencies pertaining to the responses of a particular part can be almost fully avoided.

An editor should be well versed with the editing of questionnaires. It may be emphasized that editing a manuscript is different from the editing of a questionnaire or numeric data. People who are good at editing descriptive material may not be able to edit numeric data satisfactorily. Persons who are quite efficient in detecting flaws or errors in the data in just one glance should be entrusted with this job. Enumerators with long experience and having a special aptitude for editing of data should be given preference over others.

When the services of more than one editor are required, it is advisable to give each one explicit editing instruction in order to ensure consistency in the editing of data.

Before undertaking the coding, tabulating and analysis of responses contained in questionnaires, they should be checked for completeness, accuracy and uniformity.

The first point to check is that questionnaires are complete and do not have any omissions or partial responses. Sometimes, the interviewer might have forgotten to record the answer. In such cases, it may be difficult to fill in the gap as the interviewer may be unable to recollect the answer given by the respondent. When several questions remain unanswered in a questionnaire, the whole questionnaire may have to be excluded. However, before doing so, all other alternatives should be exhausted and the questionnaire should be disposed of only if unavoidable.

The second point to check is that questionnaires contain accurate answers. The editor should look for inconsistent answers, which are sometimes so obvious that a little careful perusal may detect them. Such inconsistencies should be removed. Sometimes inaccuracies may be a result of the carelessness of the interviewer who may mark a wrong code or put the mark in such a way that it is not clear which of the two codes is intended. At times the respondent may give wrong or misleading answers deliberately. In all such cases the editor has to go over the answers carefully and try to remove the inconsistency in the best possible manner.

Finally, one should check whether the interviewers have interpreted questions and instructions uniformly. While going through the questionnaires filled in by different interviewers (or respondents in case of a mail questionnaire), the editor would be able to make out such inconsistencies.

In dealing with these three points – completeness, accuracy and uniformity, the editor should see that far too much time is not spent on trivial or relatively minor errors.

Coding

Coding is the procedure of classifying the answers to a question into meaningful categories. The symbols used to indicate these categories are called codes. Coding is necessary to carry out the subsequent operations of tabulating and analyzing data. If coding is not done, it will not be possible to reduce a large number of heterogeneous responses into meaningful categories

with the result that the analysis of data would be weak and ineffective, and without proper focus.

Coding involves two steps. The first step is to specify the different categories or classes into which the responses are to be classified. The second step is to allocate individual answers to different categories.

Code construction, as pointed out by Sidel, is something of an art and the final categories reflect the tastes and interests of the individual researcher. All the same, it is desirable to follow some guidelines to ensure the utility and rationality of the code. One of the most important points in this respect is that the categories must be all inclusive and mutually exclusive. The 'all-inclusive' aspect can be taken care of by adding one or more such categories as 'other', 'no information' and 'none'. The other aspect is that categories must be 'mutually exclusive', i.e., they must not be overlapping and ambiguous. It should be possible to classify each response in one and only one category. However this requirement is often violated when more than one dimension is embodied in a single case. To give an example, a person may, by occupation, be an industrial worker as well as unemployed. Here, two concepts or dimensions have been used. The first is the occupational category and the second is the current employment status. In such a case, there is apprehension that different categories or classes will not be mutually exclusive. It would, therefore, be advisable to use two category-sets, one for the occupations and the other for the current employment status.

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In large surveys, where mostly structured questionnaires are used, the response categories are pre-determined and are contained in the questionnaires themselves. The categories are in the form of multiple-choice answers to the question. For example, the respondent may be asked: To which age group do you belong? 15-30 years, 30-45 years, 45-60 +years. Here, four distinct categories are indicated and the respondent is supposed to indicate by checking the category in which his age falls. It is obvious that in such a case the respondent himself chooses the category which is applicable to him.

The problem of coding is not so simple, especially in respect of an open ended question. The response to such a question is in a descriptive form, in the words of the respondent himself. For example, the respondent may be asked- What is your opinion regarding the prohibition policy of the government? The respondent may give a lengthy answer indicating what he feels about this policy. In case of such responses, coding needs extra care in framing the possible categories in which various responses can be classified. Sometimes the interviewer himself decides the category in which a particular response to an open-ended question is to be included. He may first take down the entire response and then decide the category in which it should be included.

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Questions	Answers	Codes
How often these days do you go to Cinema?	More than once a week	1
	Once a week	2
	Once a fortnight	3
	Once a month	4
	Three or four times a year	5
Less often		6
	Never	7
Which type of wrist watch do you own?	Hand wound	1
	Automatic	2
	Electronic	3
Which of the following Battery operated equipment do you have in your family?	Torch	1
	Transistor	2
	Others (specify)	3

decides the category in which a particular response to an open-ended question is to be included. He may first take down the entire response and then decide the category in which it should be included.

At times the questionnaires are wholly or partially pre-coded. These questionnaires contain a numeric code for each of the response categories.

Sometimes data are transferred from the questionnaire to a coding sheet and then punched into cards.

A practice which is frequently followed is to edit and code the data simultaneously. These two operations are regarded as one operation which is looked after by one person. As has been rightly pointed out, although this may perhaps be the quickest and most efficient method, it may lead to the neglect of editing as the editor who is expected to code becomes just a coder. In view of this, it may be advisable to get these jobs done by two persons. However, in such a case, coding by itself tends to be monotonous and bring but this perhaps cannot be helped.

Tabulation

Tabulation comprises sorting of the data into different categories and counting the number of cases that belong to each category. The simplest way to tabulate is to count the number of responses to one question. This is also called univariate tabulation. The analysis based on just one variable is obviously meager. Where two or more variables involved in tabulation, it is called bivariate or multivariate tabulation. In marketing research projects, generally both types of tabulation are used.

The tabulation may be done by hand or by machine or some part by hand and the other by machine. The number of tabulations will depend on the number of variables, while the number of responses to a question will depend on the sample size. If the number of variables in a survey is not large and the sample size is small, then tabulation by hand is preferable. On the other hand, when the number of variables involved is large as a result of which there may be several relationships and the sample size is large, it will be more appropriate to opt for machine tabulation.

Hand Tabulation

Normally, hand tabulation is carried out with the help of a tally sheet. Consider, for example, the following question: How many movies did you see last week? For a sample of say, 60 respondents, the tabulation may be as shown in Fig.12.1

No. of Movies seen	Frequency
9	
15	
13	
10	
8	
5 or more	5
	<u>60</u>

Fig.12.1 Form of Hand Tabulation, with Tallies

The hand tally can also be used for preparing cross-classification tables. Consider, for example, the relationship between the economic status and the number of movies seen.

It may be noted that the total column at the extreme right in Fig.12.2 contains the same figures as shown earlier in the case of straight tabulation (Fig.12.1).

No. of movies Seen	Rich	Middle	Poor	Total
9				
15				
13				
10				
8				
5 or more				5
	<u>10</u>	<u>20</u>	<u>30</u>	<u>60</u>

Fig. 12.2 Form of Hand Tabulation, with Tallies.

Machine Tabulation

In the case of large scale surveys, where a good deal of data from a large number of respondents has been collected, hand tabulation will be bothersome and take much longer to complete. In such a case, the method of machine tabulation is used. For this purpose, mechanical sorting and tabulating equipments available with such concerns as the Hindustan Computers Ltd and Remington Rand are used. These equipments include key punches, sorting machines and tabulating machines.

The main advantages of mechanical tabulation are:

1. Extensive and large-scale survey can be handled conveniently.
2. It takes much less time than hand tabulation.
3. Greater accuracy in the sorting and counting is achieved with the help of machine tabulation.
4. Monotony and drudgery of tabulation can be avoided by passing on this work to the machines.
5. In the case of large-scale tabulation, mechanical tabulation eventually turns out to be cheaper than hand tabulation.
6. Cross-tabulation, depicting the inter-relationship between two or more variables can be undertaken easily.

One-way Tabulation

A one-way table, from the first hand tally given earlier, is given as Table 12.1

Table 12.1 shows both the absolute frequencies and the percentage of respondents. Although it may not be necessary to give percentages, it is a good practice to include them, as they facilitate comparisons. The researcher should ensure that percentage figures add up to 100. He has also to decide up to what decimal place percentages should be given. Generally, figures may be given to one decimal place. Rarely, if ever, do they need to be given to two decimal places. While such figures would be more accurate, they would also be more confusing to the reader. The guiding principle in reporting percentages is that unless decimals serve a useful purpose, they should be avoided.

Sometimes only percentages are shown in the table and corresponding frequencies are omitted. In such cases, it is

necessary to indicate the total number of cases on which the percentages are based.

Table 12.1 Movies seen by Sample Respondents.

No.of movies seen per week	Number of respondents	Percentage of respondents
0	9	15
1	15	25
2	13	22
3	10	17
4	8	13
5	<u>5</u>	<u>8</u>
100		

Cross Tabulation

It may often be necessary to tabulate responses to two or more questions simultaneously. Such tabulations are known as bivariate or multivariate tabulations, depending on whether two or more than two variables are involved.

In constructing cross classification tables, one has to first determine which data should be given primary emphasis and which should be given secondary emphasis. Data with primary emphasis are normally given in columns while those with secondary emphasis are shown in rows. This order is repeated for higher order tables, i.e. those having three or more dimensions. This convention is almost invariably followed because it is easier to see data when figures follow one another in a column rather than in a row.

Table 12.2 is an example of cross-classification.

Table 12.2 Preference for Shopping Centre by Income Level of Households

Income Level	Shopping centre		Total no. of households
	A	B	
Up to Rs.1000	100	200	300
Rs.1000+	<u>120</u>	<u>80</u>	<u>200</u>
Total	220	280	500

Table 12.2 gives the break-up of respondent households, both by income level and by their preference for shopping centers. A table of this type is also known as contingency table. This is the simplest contingency table with two rows and two columns. The data contained in Table 12.2 pose an important question- Does the preference for shopping centers depend on the income level of households? To answer this question, it is necessary to analyse the two variables simultaneously. Bivariate analysis is discussed in Chapter 15.

Data shown in Table 12.2 can be transformed into percentages and then these percentages alone can be shown or they can be shown side by side with the original data. The question in a two-way tabulation is which base should be used for 100 per

cent, as the data may be percentaged in either dimension.

Percentages should be based on totals of rows or columns, whichever is relatively more important. One simple rule in this regard is the cause and effect rule. This rule states that the percentages should be computed in the direction of the causal factor. Table 12.3 and 12.4 give these data.

Table 12.3 Preference for Shopping Centres by Income Levels of Households

Income Level	(Percentages)		Total
	Shopping Centres A	B	
Up to Rs.1000	33	67	100
Rs.1000+	60	40	100

Table 12.4 Income Levels and Preference for Shopping Centres

Income Level	(Percentages)	
	Shopping Centres A	B
Up to Rs.1000	45	71
Rs.1000+	<u>55</u>	<u>29</u>
Total	100	100

In our example, income level appears to be the causative factor, which should influence the preference for shopping centers and not the other way round. Thus, the percentages should be computed in the direction of income level or across shopping centers. Table 12.3 presents these percentages and suggests that the choice of shopping centers is affected by the income level of households. This table indicates that 67 per cent of households in the lower income level prefer shopping centre B as against only 40 per cent of households in the higher income level. Further, 33 per cent of households in the lower income level prefer shopping centre A as compared to 60 per cent of households in the higher income level. It is apparent from Table 12.3 that there are marked differences in the choice of shopping centers on account of differences in household incomes.

Sometimes, the cause and effect rule leads to the conclusion that percentages might be computed in either direction. In such cases, the researcher has to use his direction. It may also be noted that the cause and effect rule is not always applicable. It may be advisable in a particular problem to compute percentages in a certain direction, but the data might not permit the researcher to do this.

Data-processing Methods

Data processing's total task in carrying out the analytical program is this: to convert crude fragments of observations and responses that we just coded into orderly statistics that are

ready of interpretation. Methods of processing data can be placed into two types: manual and computer. Electronic methods other than computers do exist but no longer have sufficient usage to be mentioned. The methods possess unique advantages and disadvantages, and a brief discussion of each will enable you to grasp the implications of using a particular method.

Manual methods can be divided into two types. One of these, tallying, is completely by hand, entering the responses in appropriate categories on worksheets. In this simple method, the 'sorting' is done individually for each observation by selecting the line on which to tally it. Tallying tends to be done more accurately by having two persons work on it, one calling off the responses while the other tallies.

The sort-and-count method is exactly that: first, sort all questionnaires or data forms into piles, one for each answer category; then, count each pile. This avoids the tallying danger of making entries on the wrong line and can be speedier, provided that it is easy to read and sort the entries for all questions and categories. A variant of sort-and-count is keysort, a copyrighted name of Litton Industries, that uses a standard card that can be sorted and counted manually with simple equipment. Along the edges of this card are rows of holes that may be designated as fields and given code numbers. Then, at appropriate places for the observed data, the margin is punched to make a notch. When all the cards are notched and assembled so that the holes are in line, a rod is inserted through the hole representing the data category being counted. When raised with this needle, the cards punched at the hole will fall; then they are counted. Keysort is a quicker and more accurate method.

Computer Processing

The use of computers in data processing has increased at a fantastic rate during the past decade. On account of the rapid use of computers in varied spheres it is said that human civilization has entered the second industrial revolution. "The first industrial revolution freed man's muscles; the second is freeing his mind for more challenging pursuits." However, processing of data by computers may not always be economically beneficial. It is, therefore, necessary to know when computers should be used.

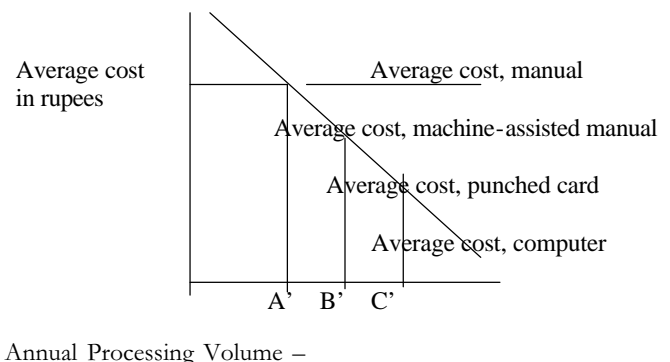
In the processing of data, computers may be used most efficiently if the processing operations have one or more of the following characteristics.

1. **Large Volume of Input:** When a large amount of data needs to be processed, computer processing may turn out to be more economical as compared to other methods of data processing.
2. **Repetition of Projects:** When repetitive projects are undertaken by an organization, the use of the computer for processing data is advisable. In such cases too, computer processing will generally be cheaper than its use in individual projects.
3. **Desired and Necessary Greater Speed in Processing :** When information is needed in a limited time, manual processing

of data should be given up in favor of computer processing because of its unbeatable speed.

4. **Desired and Necessary Greater Accuracy:** There are likely to be mistakes in data processing by manual methods. Computer processing will be more accurate provided sufficient care has been exercised in planning the task.
5. **Processing Complexities that require Electronic Help:** When a number of interacting variables are involved in the data, computer will be most appropriate. Certain analytical tools such as linear programming, business simulation, factor analysis and discriminant analysis generally require the use of a computer.

Figure 12.3 shows the average cost relationships of the different methods of data processing.



Annual Processing Volume –

Fig. 12.3 Average Cost Relationship of Different methods of Data Processing.

(Source : Sanders, Donald H., *Computers in Business: An Introduction*, Tokyo, McGraw-Hill Kogakusha Ltd., 1975. Reprinted with the kind permission of McGraw-Hill Book Company, New York.)

The diagram shows that at point A there is a break-even cost position between manual and computer processing of A' volume of data. Beyond this volume, if data are to be processed, the use of the computer will be more economical. Likewise, points B and C are other break even points. Point B shows the break-even cost position between machine assisted manual processing and computer processing. Thus, it may be more economical to use the machine-assisted manual method of data processing when the volume of data to be processed is up to B'. the use of computers for data upto B' volume will be costlier. Beyond this point, the computer is more economical. However, when the volume of data is beyond B' but up to C', we find that another method of data processing, namely, that of punched cards turns out to be more economical than computer processing. In other words, the computer should be used when the volume of data to be processed is quite large, in this case beyond C'.

It may be noted that these average cost curves are not stable and they frequently change on account of changes in clerical labour rates and the cost of clerical office supplies. Over the years, there have been innovations in computer hardware. Such innovations have shifted the computer cost curve downward. These shifts in the cost curves have, on the whole, made computer processing more attractive for ware volumes of data processing. In general,

Steps of Data Preparation

- Coding
- Editing, Validating and Cleaning
- Entering
- Transforming

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Editing, Validating and Cleaning Data

- Identify omissions, ambiguities, and errors in responses
- Conducted in the field by interviewers and field supervisors and by the analysts prior to data analysis
- If possible, use software to machine clean the data

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Data Coding

- Have an identification code for each record
- Closed-ended questions
 - For each question, assign different codes to different answers, including missing answers
 - Across questions, assign the same code to the similar answers
- Open-ended questions
 - generate a lengthy list of possible responses before coding

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Handling Flawed Records and Missing Data

- Discard the flawed records or the records with missing answers
- Treat the flawed records as missing data and then treat missing data as a separated category
- Obtain additional information

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Transforming the Data

- Recoding a variable
- Rescaling a variable
- Combining variables
- Matching and merging different data sets

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Let's Recapitulate The Lecture:

- Data in its raw form cannot be used for analysis purpose and therefore it need to be processed. The transformation of raw data into useful information requires that the data be validated, edited, coded, and keypunched. Thus these form the basic steps of Data processing procedure.
- Validation of data denotes determining the validity of the data for the given purpose. This is done by thoroughly reviewing the methods and quality controls utilized in gathering data.
- Editing is the process of examining errors and omissions in the collected data and making necessary corrections in the same.
- Coding is the procedure of classifying the answers to a question into meaningful categories. The symbols used to indicate these categories are called codes.
- Coding involves two steps. The first step is to specify the different categories or classes into which the responses are to be classified. The second step is to allocate individual answers to different categories.
- Tabulation comprises sorting of the data into different categories and counting the number of cases that belong to each category. The tabulation may be done by hand or by machine or some part by hand and the other by machine.
- Data processing's total task in carrying out the analytical program is this: to convert crude fragments of observations and responses that we just coded into orderly statistics that are ready of interpretation. Methods of processing data can be placed into two types: manual and computer.
- Analysis of data is the process by which data is converted into useful information.

Punch-lines

- Often times, data preparation is the most time consuming marketing research task
- Data preparation is of both technical and managerial importance
- Data coding reflects managers mindset of marketing, i.e. the way of looking and thinking of marketing problems

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Q: What are the various data processing methods?

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LESSON 29:

PRESENTATION AND REPORT WRITING:- REPORT WRITING, ROLE OF REPORT, TYPE OF REPORTS, PRINCIPLES OF REPORT WRITING

Introduction

In this lecture, We will discuss the various principles with regard to report writing and role of report. We will also study various types of reports.

Objectives of the Lecture

- Report Writing.
- Role of Report
- Types of Report
- Principles of Report writing

The technical research work has ended with the interpretation of the data into findings relevant to the problem. The researcher's task, though, has not ended, for several steps remain that would be important to the usage of the findings and to the future of the researcher and his or her organization.

Role of The Report

Consider that the goal of a marketing study, in the commercial world, is the guidance of those with a marketing problem to solve the researcher's clients, if one operates as an independent professional, or the marketing executives of the concern that employs him or her. Only if the reports give the client an understanding of the data and conclusions, establishes conviction that its conclusions are correct, and obtains appropriate action are the effort and outlay for the research justified. The successful report breathes life into the statistical and logical findings and wins the acceptance of those who will translate the findings into action.

The report serves three main functions. First, it is the means whereby the data, analyses, and findings are placed in an organized and permanent form. It serves as an essential reference for future research along related lines.

Second, the quality of the research work is likely to be judged mainly by the report. The key decision-making persons whom the research serves seldom have much personal contact with a researcher within their firm and still less with an outside research agency. Since the report is their index of the researcher's skill and performance, the time, thought, and effort spent on it are vital to his or her future.

Third, and most important, the effectiveness of the report may determine the action taken. Properly organized and lucid reports lead to appropriate action or policies—the goal of all commercial or administrative research. In urgent situations, the convincing reports may inspire decisionmakers to promptness.

As findings may be presented orally or in writing, the term “report” refers to either form of presentation. It is preferable to have the opportunity of presenting findings personally to permit oral discussion and questions to be raised for clarification, in addition to the more essential written report.

Types of Reports

To write an effective report, it is essential to plan its contents well. Each report is a tailor-made job that is adapted to the character of the problem, the information contained therein, and to the thought modes and preferences of those who will be utilizing the report.

Progress Reports, are submitted when administrators want intermediate statements on progress of a project under way, but these are mere memoranda. The findings may be reported in any or all of these forms:

1. **Basic report** This is the first report prepared on the project's findings, written by the researcher for his or her own use, composed of working papers and preliminary drafts. It provides the basis for the final report and then becomes a record for the files.
2. **Reports for publication** Often such reports are prepared from research findings for articles in trade and professional journals, popular magazines, bulletins, or monographs. Publications and their audiences vary, so no single description can cover this category of report. Normally, these are relatively condensed reports and only in very technical periodicals or special monographs would much detail on procedures be included.
3. **Technical reports** These reports are usually intended for scientific or technically trained persons. They would be interested typically in specific descriptions of the entire procedures employed, which usually would follow the introduction of the problem and hypothesis researched. These reports may have complicated technical appendices.
4. **Reports for executives** These are reports intended for decision makers. These are the busy people who want primarily the ‘meat’ of a research project, its major conclusions and recommendations.

Contents of The Report For Executives

The character of an executive report must be determined from the characteristics called for by the persons concerned; Although the brevity and ease of reading are main considerations but the statements made should be complete, explicit, and supported with data and/or reasoning.

A generally useful outline of the report for executives runs as follows:

Letter of transmittal accompanying the report

1. Title Page
2. Table of contents
3. Executive synopsis
4. Introduction
5. Methodology
6. Findings

7. Limitations
8. Conclusions and recommendations
9. Appendix
10. Bibliography

Following information should be incorporated in these sections:

Letter of transmittal The letter of transmittal indicated to whom the report is directed, the reasons for doing the work, and the official authorization for the research.

Title page The title page should be simple. It should show the subject of the report, for whom it was prepared, and the dates of completion and submittal. Ordinarily, the title page appears first, but some report writers prefer to put the letter of transmittal first to show that they are submitting the report to the person named in the letter.

Table of Contents If the report is lengthy, inclusion of a guide to its contents would be desirable. The table of contents is an outline of the order of appearance of the numerous divisions of the report, with page numbers. Also, if the report includes a number of tables, charts, figures etc., a separate table for each category would immediately follow the table of contents.

Executive Synopsis To many executives, the synopsis is the heart of the report and cannot be underestimated. It enables an executive to grasp quickly the import of the research. The synopsis precedes detailed reasoning or evidence. It summarizes concisely all the essential parts of the report, which include all the major facts as well as major findings and conclusions.

Introduction The introduction serves to orient the reader to the detailed discussion of the problem at hand. Usually included in this section are the reasons for doing the work, the scope of the work, the formulation of the problem(s) to be studied, the objectives to be achieved, and the hypothesis upon which the research is based. Historical background may be included in this section if it is relevant to an understanding of the problem. In most instances material from the research proposal may be utilized in the introductory section.

Methodology A description of the procedures employed to achieve the objectives follows the introductory section. Here writer needs to convey to the executives are not deeply interested in research methodology, thus enabling the reader to understand “why” a particular method was employed rather than another. The description should include a discussion of whether the design was exploratory, descriptive, conclusive, or experimental; the various sources of data canvassed and utilized; the sampling setup; the type of questionnaire used and the reason for its form; and the number and types of research workers used, such as interviewers, supervisors, and staff.

Findings If the problem is to be solved, the data gathered must be examined as they relate to the objective of the study. Usually, such data are voluminous in their raw form. If they are to be interpreted, they must first be organized such that their meaning can be conveyed to the reader. This task is achieved through the use of the various analytical and statistical techniques. The presentation of the findings is accompanied by a number of devices. Tables, charts, and graphs are frequently

used to explain with sufficient clarity to aid the reader to understand their meaning.

Limitations Problems may arise during the research that are of sufficient importance to warrant discussion in a separate section of the report. The researcher should state such limitations to provide the reader with insight into special condition pertaining to the work. An illustrative list of limitations might include a time constraint for completing the work, the degree the results can be generalized to a larger population, the potential effects of nonresponse error, or the potential effect of substituting a sampling unit in the field because of not-at-home elements.

Conclusions and Recommendations The conclusions are drawn by inference, either inductive or deductive, from the findings. The conclusion verify or deny the premises or hypotheses upon which the investigation has been conducted. Conclusions should follow logically from the findings.

The recommendations concerning the action to be taken follow the conclusions. Where recommendations involve policy decisions, some researchers leave recommendations to those at the policymaking level of management. Making recommendations depends not only on the nature of the decision to be made, but also on the researcher’s knowledge of the total situation of the problem.

Appendix The appendix provides materials supplementary to those given in the body of the report. Generally, the appendix material contains detailed and/or expanded information, such as detailed computations from which the tables in the reports are generated, a copy of the questionnaire used in gathering the data, interviewer instructions, detailed tables etc.

Bibliography If pertinent, the bibliography is usually the final section of the report presentation. It contains detailed information on references or sources materials found in various forms of communications, such as proceedings of conferences, books, pamphlets, and periodicals.

Principles of Report Writing

The fundamental medium of communicating research findings is words. Regardless of what statistics and graphs the report may show, there should be verbal statement of every finding, a words are the only precise and universal communication mode. The report writer must have a completed grasp of the investigation and then be able to use various means of communication. Following are the main points to be kept in mind while preparing a report:

Make it easy to follow The logical structure of the material, especially in the body of the report, should be self-evident and the topics easy to find. Have explicit headlines, subheadings for subtopics.

Make it Clear Clarity in writing is a quality of communication that good writers develop only after considerable experience. Any vagueness that their critical reading reveals ought to be corrected, because vagueness can produce wrong decisions and substantial losses.

Use Good Sentence Structure Well-constructed sentences are a mark of skill in writing. Sentences should be short. Long sentences are difficult to read. Poorly constructed sentences lead

Q: What are the various types of reports?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

LESSON 31: ETHICAL ISSUES IN MARKETING RESEARCH.

Introduction

Till now we have discussed the various aspect of the marketing research, now in this chapter we will discuss the most crucial aspect of marketing research i.e. ethical issue in marketing research.

Lecture Objective

- To understand ethical issues in marketing research.
- Code of ethics.
- Ethical issues involving the treatment of respondents.
- Ethical issues in the treatment of clients.
- Ethical issues relating to the ethical treatment of researchers.

Ethical Issues in Marketing Research

Now, that we have acquainted ourselves with the scope and utility of Marketing Research. The field of Marketing Research has expanded manifold during the recent times, so has the impact of the results of Marketing Research. We all know that the results of Marketing Research affects the decision making by the consumers and producers. As a consumer, you can use the Marketing Research data for making wise decision so that you buy the product which satisfy your needs at the lowest possible prices. In the very same way, if you are a producer, Marketing Research may help you in deciphering the consumers' requirements and modify your products accordingly. Thus Marketing Research allows consumers to express their needs and interests, which are then converted into marketing action.

However, Such phenomenal surge in the importance of Marketing research has forced the researchers to examine and scrutinize the ethical aspects of their activities. Word 'Ethics' denotes **Morality** and it concerns matters of right and wrong. When we speak of ethics in context of Marketing research activities, we are dealing with the judgment that certain types of research activities are inappropriate. Such questionable activities of individuals for testing a new product, attempting to secure information from individuals who are unwilling to respond, and delving into the privacy of an individuals who are unwilling to respond, or delving into the privacy of an individual. So, Now you can understand the importance of ethics in the marketing research activities.

But, unfortunately we do not have any list of ethical and unethical research practices that would cover all the situations that one would encounter when conducting marketing research. Several issues are controversial even within the profession, largely because opinions associated with certain practices are heavily interwoven with fundamental values and beliefs about how a society does and should operate.

Now, we can conclude that the first and most basic is the responsibility the researcher has to respondents or subjects. The

second basic concern is the researchers' treatment of buyers or clients and the third involves the clients' treatment of researchers. Thus you are required to be sensitive about the ethical component in research process.

Code of Ethics

The American Marketing Association (AMA) adopted a Marketing research Code of Ethics in 1962. These codes were later revised. The code addresses the user-doer and the doer-provider relationships. This code is an excellent starting point, for it represents minimum standards. However, some crucial issues have not been addressed. This is partly due to the reason that many research experts cannot agree on what is 'proper' or 'right'.

Nature and Content of Ethical Issues

Ethical guidelines may be divided into three separate categories. We will pursue these categories one by one.

Ethical Issues Involving the Treatment of Respondents

The AMA code addresses two areas involving participants:

1. The activity must be research and not have as its real purpose the sale of merchandise to the respondent.
2. If it has been agreed to or promised, the participants' anonymity must be protected.

Also if revealing their survey responses would injure the participants any way, adherence to this norm becomes even more important. A respondent may be considered anonymous when the researcher cannot identify a given response with a given respondent. However these two issues just scratch the surface of ethical issues pertaining to participants.

In a recent article, Tybout and Zaltman argued that participants in marketing research studies have not been subject to high enough ethical standards by researchers. Using codes of ethics from the sociological and psychological professional associations. They have suggested that participants should have the following rights:

Right to Choose Respondents should have the freedom to choose whether or not to participate in a study. The researchers should make the subject aware of this right. In the same vein, the subject should be given enough information so that he or she can make the proper choice.

Right to Safety Respondent's anonymity must be maintained. He or she should also be protected from psychological and physical harm. Though marketing research activities causing physical harm are rare, they may induce psychological stress and anxiety. The researchers should protect subjects from psychological stress by pretesting the level of stress encountered. Researchers can also relieve the stress that does occur by conducting debriefing sessions to reassure the respondents and allay their fears.

Right To Be Informed The respondents must be informed of all aspects of the research. However, there are instances where complete knowledge is likely to bias data. Therefore, information may be withheld until the data are collected. After that a debriefing should follow to provide subjects with information about the study.

Right of Privacy Of all the ethical issues related to marketing research activities, the right to privacy seems to be one of the most critical. Basically, we are talking about intrusion on an individual's solitude, or his seclusion. Marketing research often represents an intrusion into the lives of people. Participation in marketing research process requires a significant amount of respondent's time and effort. Moreover, Marketing Research often requires that an individual decide for himself whether he wants to share his feelings, opinions and facts about himself.

A realistic position that researchers can take, considering the public's increasing concern for its privacy, is to convince consumers that the research activities will ultimately benefit them with products and services more attuned to their needs.

By now you must have realized that just about any research you might conduct runs the risk of injuring other people in some way. Now, it does not imply putting an end to Marketing Research activities, but to make you aware of the various problems and the ways to lessen their impact.

Ethical Issues in the Treatment of Clients

As per AMA Code of Ethics, Researchers have obligations to their clients in the following three areas:

- The methods used and the results obtained must be accurately represented.
- The identity of the survey sponsor and the ultimate client for whom the survey is being done as well as the information obtained will be held in confidence.
- Research should not be undertaken for competitive clients when such studies would jeopardize the confidential nature of client/researcher relationship.

However, following issues are also required to be taken in consideration:

Confidentiality Generally researchers have intimate knowledge of client's concern and the operations, however client has the right to expect from researcher that he or she will keep such confidential information to his knowledge only.

Unqualified Researcher If a client requests research which is beyond the area of expertise of the researcher, in such case researcher is obliged to reveal his such shortcoming.

Proprietary Information The client has the right to expect that the data collected during the research project and the results derived would be the exclusive property of the client. The researcher can reuse such data only with the permission of the original client and in no case he can charge such data at the original cost.

Unnecessary Research The research industry does not have any code on this issue. However, researcher is professionally obligated to indicate to the potential client that an expenditure for a project may not be warranted.

Presentation of Data Reports can be presented in such a way as to give an impression of greater accuracy than the data warrant. Such techniques includes the use of technical jargons, unnecessary use of complex analytic procedures, failure to round numbers properly and incomplete reporting.

Ethical Issues Relating to the Ethical Treatment of Researchers

Our discussion on the topic of research ethics have so far concentrated on the duties and obligations of the researcher. However, in many circumstances even researchers have been the victims of questionable practices by clients. Therefore, it is vital to discuss the ethical issues related to the treatment of researchers.

Thus, AMA has addressed following two points relating to user's obligations:

1. The first of these obligations is that the user shall not knowingly disseminate conclusions that are inconsistent with or not warranted by the data. The distortion of results not only misleads the audience, but is potentially damaging to the researcher and the firm as well.
2. It is unethical for users to solicit unique designs or concepts not commonly available and then to deliver it to another researcher for execution. Researchers rightly regard these techniques as being proprietary. Another possibility is that the client will utilize the information obtained from proposals and incorporate the researcher's ideas into a project that will be carried out by his or her own staff.

Excessive Requests The contract signed by both parties usually enumerates the obligations of the researcher to the client. However, the client often makes unreasonable demands on the researcher. Often clients making such excessive demands do not understand their implication.

Reneging on Promises Another problem that may arise that the client may have promised the researcher access to certain data such as sales, cost data etc. however, later the client may retract from supplying such data. This aspect makes it difficult for the researcher to complete the project as promised in the original agreement.

Availability of Funds There is an obligation to give bids for particular projects some idea of any budget constraints. Without such an idea as to the availability of the funds, the researcher may develop the proposal that may be out of the budget limits. Therefore the client must give researcher an idea of the amount of available funds so that the researcher may design the proposal accordingly.

Conclusion

Marketing research surveys are becoming more and more common nowadays. However in the race of gathering more and more information, unethical practices are being used increasingly. In this chapter, We have discussed various ethical issues that need to be taken care of. This is very important for averting negative consequences. Accompanying the growing concern with research practices in the consumer segment, there are some research activities that go beyond the ethical limits. As it is apparent from our discussion that there are some unethical researchers who indulge in number of questionable activities while collecting data, it is equally obvious that research industry

must shoulder its responsibility to do away with such unethical practices.

The research agencies must police itself and curb the various forms of ethical abuses; otherwise, its responsibility in this matter will be turned over to an outside force. Thus it would be preferable to set high standards of conduct voluntarily through the various codes of ethics to be followed by their members. However, in the end, it is the marketing researcher’s professional integrity that operates to inhibit any questionable practice.

Case Study
Unethical Situations?

You are presented with the following series of research situations. For each situation,how would you react to the activity in the situation? Discuss the ethical implications of each situation.

1. In the trial run of a major presentation to the board of directors,the marketing vice-president deliberately distorted some recent research findings. After some thought, the M.R. director decided to ignore the matter,since the marketing head obviously knew what he was doing.
2. the president of an interviewing firm that had been doing most of the field work for Company X wrote to say that a new account executive had been assigned to X. The new man was capable,personable,and black. The M.R. director wrote back to say that there were no blacks in the department at the moment and that he felt it would be better all around if a different account man were assigned to Company X.
3. Company X belongs to a trade association that includes an active marketing research subgroup. At the meetings of this subgroup,the M.R. director regularly exchanges confidential price information. In turn,he gives the competitive information to the Company X sales department, but is careful not to let the marketing vice-president know about it. Profits are substantially enhanced,and top management is protected from charges of collusion.
4. The marketing research department of Company X frequently makes extensive studies of their retail customers. A federally supported black group, working to get a shopping center in their ghetto area, wanted to know if they could have access to this trade information. Since the M.R. director had always refused to share this information with trade organizations,he declined the request.
5. Some recent research showed that many customers of Company X are misusing product B. There is no danger;they are simply wasting their money by using too much of it at a time. But yesterday, the M.R. director saw final comps on Product B’s new ad campaign, and the ads not only ignore the problem of misuse,but actually seem to encourage it. He quickly teferred the advertising manger to the research results,well known to all people in B’s advertising and let it go at that.

Let’s recapitulate the chapter:

Ethical Issues Involving the Treatment of Respondents

The AMA code addresses two areas involving participants:

3. The activity must be research and not have as its real purpose the sale of merchandise to the respondent.
4. If it has been agreed to or promised, the participants’ anonymity must be protected.

Participants have the following rights:

- ☐ Right to choose.
- ☐ Right to safety.
- ☐ Right to be informed.
- ☐ Right of privacy.

Ethical Issues In The Treatment of Clients

As per AMA Code of Ethics, Reseachers have obligations to their clients in the following three areas:

- ☐ The methods used and the results obtained must be accurately represented.
- ☐ The identity of the survey sponsor and the ultimate client for whom the survey is being done as well as the information obtained will be held in confidence.
- ☐ Research should not be undertaken for competitive clients when such studies would jeopardize the confidential nature of client/researcher relationship.

However, following issues are also required to be taken in consideration:

- ☐ Confidentiality.
- ☐ Unqualified researcher.
- ☐ Proprietary information.
- ☐ Unnecessary research.
- ☐ Presentation of data.

Ethical Issues Relating To The Ethical Treatment Of Researchers

- ☐ Excessive requests.
- ☐ Reneging on promises.
- ☐ Availability of funds.

Q: Does the American Marketing Association's Research Code of Ethics provide effective guidance to researchers?

<p>the marketing research industry? If so, how and why?</p>	
<p>Q: Does the American Marketing Association's Research Code of Ethics provide effective guidance to researchers?</p>	

LESSON 33:

SALES ANALYSIS AND FORECASTING

Introduction

Today we will learn about sales analysis and forecasting. Both terms are different from each other as sales analysis refer to the analysis of actual sales results while sales forecasting concerned with the actual performance of sales and not with what they are likely to be at a future date. Here in this chapter we will learn about sales analysis, method of estimating current demand and forecasting process and method of forecasting.

Learning Objective of the Lecture

- Sales analysis.
- The concept of market potential.
- Methods of estimating current demand.
- Forecasting process.
- Method of forecasting.
- Manager's guide to forecasting.

Sales Analysis And Forecasting

Sales Analysis

The terms 'sales analysis' refers to the analysis of actual sales results. This is different from 'sales forecasting' as it is concerned with the actual performance of sales not with what they are likely to be at a future date.

Since sales analysis a company to identify the areas where its sales performance has been good or mediocre. Customers who have brought in bulk, products with high and low sales volume, etc., it is in the company to analyse its sales periodically. A systematic, comprehensive and periodical sales analysis will be helpful to a company to reinforce. Its sales effort where it is most needed. In this way, it can achieve the best possible results.

Our discussion of sales analysis is on the basis of four major types, viz. by territory, by product, by customer, and by size of order.

Sales Analysis by Territory

In order to undertake sales by territory one must decide on

1. The territorial unit to be taken for such an analysis, and
2. What specific information should be collected for this purpose. As regards the territory, the district level is the appropriate choice. Later on, by pooling district data, one may undertake a state or region –wise analysis, depending on one's need. As regards the data, information on the product sold, such as quantity, price per unit, and total value should be available. This information along with the name and address of the customer is available in the invoice. Thus it provides the essential data on sales and it is not necessary to collect any data separately. However, if additional information is needed, it can be collected through the invoice by incorporating additional items in it.

Once the territory wise sales data are available, it is possible to compare these with the previously set sales target. By such a

comparison, territories where actual sales have fallen below the sales target, can be identified. One may probe further into the possible reasons for this poor performance. Is it because these territories face severe competition? Or because sufficient sales effort has not been made in these territories? Answers to these questions will enable the company to boost its sales in weak territories.

Sales Analysis by Product

Sales analysis by product will enable a company to identify its strong or weak products. It is advisable to undertake an analysis on the basis of a detailed break-up of products such as product variation by size, colour, etc. This is because if an analysis is based on a broad break-up, it may not reveal important variations.

When a company finds that a particular product is doing poorly, two options are open to it. One is, it may concentrate on that product to ensure improve sales. Or alternatively, it may gradually withdraw the product and eventually drop it altogether. However, it is advisable to decide on the latter course on the basis of additional information such as trends in the market share, contribution margin, effect of sales volume on product profitability. Etc. in case the product in question has complementarily with other items sold by the company, the decision to abandon the product in question has complementarily with other items sold by the company, the decision to abandon the product must be made with care and caution.

Combining sales analysis by product with that by territory will further help in providing information on which products are doing better in which areas.

Sales Analysis by Customers

Another way to analyse sales data is by customers. Such an analysis would normally indicate that a relatively small number of customers accounts for a large proportion of sales. To put it differently : a large percentage of customers accounts for a relatively small parentage of aggregate sales class. An analysis of this type will enable the company to devote relatively more time to those customers who collectively account for proportionately larger sales.

Sales analysis by customer can also be combined with analysis both by area and product. Such an analysis will prove to be more revealing. For example, it may indicate that in some areas sales are not increasing with a particular type of customer though they have grown fast in other areas. Information of this type will be extremely useful to the company as it identifies the weak spots where greater effort is called for.

Sales Analysis by Size of Order

Sales analysis by size of order may show that a large volume of sales is accompanied by low profit and vice versa. In case cost accounting data are available by size of order, this would help in identifying sales where the costs are relatively high and the company is incurring a loss. Sales analysis by size of order can

also be combined with that by products, areas and types of customers. Such a perceptive analysis would reveal useful information to the company and enable it to make a more rational and effective and effective efforts in maximizing its return from sales.

The Concept of Market Potential

Market potential has been defined as “the maximum demand response possible for a given group of customers within a well –defined geographic area for a given product or service over a specified period of time under well –defined competitive and environmental conditions. “

Another condition on which the concept of market potential depends is a set of relevant consumers of the product or service. It is not merely the present consumer who is to be included but also the potential consumer as maximum possible demand is to be achieved. Market potential will vary depending on which particular group of consumers is of interest.

Further, the geographic area which market potential is to be determined should be well defined. It should be divided into mutually exclusive subsets of consumers so that the management can assign a sales force and supervise and control the activities in different territories without much difficulty.

Another relevant aspect in understanding the concept of market potential is to clearly know the product or service for which market potential is to be estimated. Especially in those cases where the product in question can be substituted by other. It is desirable to have market potential for the product class rather than that particular product. For example, tea is subjected to a high degree of cross elasticity of demand with coffee.

It is necessary to specify the time period for which market potential is to be estimated. The time period should be so chosen that it coincides with planning periods in a firm. Both short and long –time periods can be used depending on the requirements of the firm.

Finally, a clear understanding of environmental and competitive conditions relevant in case of a particular product or service is necessary if market potential is to be useful. What is likely to be the external environment? What is likely to be the nature and extent of competition? These are relevant questions in the context of any estimate of market potential since these are the factors over which the firm has no control.

It may be emphasized that market potential is not the same thing as sales potential and sales forecast. It is only when a market is saturated can the industry sales forecast be considered equivalent to market potential,” Such a condition is possible in case of well established and mature products. Generally, the industry sales forecast will be less than the market potential. Likewise, a company’s sales forecast will be less than its sales potential. The former is a point estimate of the future sales. While the latter represents a boundary condition which the sales might reach in an ideal situation. “In the latter sense, sales potential is to a firm what market potential is to product class both represent maximum demand response and are boundary conditions. “

Methods of Estimating Demand

There are two types of estimates of current demand which may be helpful to a company. These are total market potential and territory potential. Total market potential is the maximum amount of sales that might be available to all the firms in an industry during a given period under a given level of industry marketing effort and given environmental conditions.

Where Q = total market potential

N = number of buyers in the specific product/ market under the given assumption.

Q = quantity purchased by an average buyer

P = price of an average unit

Of the components n , q and p in the above formula, the most difficult component to estimate is q . One can start with a broad concept of q , gradually reducing it. For example, if we are thinking of readymade shirts for him consumption, we may first take the total male population eliminating that in rural areas. From the total male urban population, we may eliminate the age groups which are not likely to buy readymade shirts. Thus, the number of boys below 20 may be eliminated. Further eliminations on account of low income may be made. In this way we can arrive at the prospect pool of those who are likely to buy shirts.

The concept of market potential is helpful to the firm as it provides a benchmark against which actual performance can be measured. In addition, it can be used as a basis for allocation decisions regarding marketing effort.

The estimate of total market potential is helpful to the company when it is in a dilemma whether to introduce a new product or drop an existing one. Such an estimate will indicate whether the prospective market is large enough to justify the company entering it .

Since it is impossible for a company to have the global market exclusively to itself, it has to select those territories where it can sell its products well. This means that companies should know the territorial potentials so that they can select markets most suited to them, channelise their marketing effort optimally among these markets and also evaluate their sales performance in such markets.

There are two methods for estimating territorial potential:

1. market buildup method and
2. index –of –buying – power method. In the first method, several steps are involved. First, identify all the potential buyers for the product in each market. Second estimate potential purchases by each potential buyer.
3. Third, sum up the individual figures in step (ii) above. However, in reality the estimation is not that simple as it is difficult to identify all potential buyers. When the product in question is an industrial product, directories of manufacturers of a particular product or group of products or group alternatively, the standard industrial classification of manufacturers of a particular product or group of products is used.

The second method involves the use of a straight forward index. Suppose a textile manufacturing company is interested in knowing the territorial potential for its cloth in a certain territory. Symbolically,

$$B_i = 0.5 Y_i + 0.2 r_i + 0.3 p_i$$

B_i = percentage of total national buying power in territory i .

Y_i = percentage of national disposable personal originating in territory i . r_i = percentage of national retail sales in territory i .

It may be noted that such estimates indicate potential for the industry as a whole rather than for to individual company. In order to arrive at a company potential, the concerned company has to make certain adjustments in the above estimate on the basis of one or more other factors that have not been covered in the estimation of territorial potential. These factors could be the company's brand share, number of salespersons, number and type of competitions, etc.

Forecasting Process

After having described the methods of estimating the current demand, we now turn to forecasting.

There are five steps involved in the forecasting process. These are mentioned below:

First, one has to decide the objective of the forecast. The marketing researcher should know as to what will be the use of the forecast he is going to make.

Second, the time period for which the forecast is to be made should be selected. Is there forecast short-term, medium-term or long-term? Why should a particular period of forecast be selected?

Third, the method or technique of forecasting should be selected. One should be clear as to why a particular technique from amongst several techniques should be used.

Fourth, the necessary data should be collected. The need in specific data will depend on the forecasting technique to be used.

Finally: the forecast is to be made. This will involve the use of computational procedures.

In order to ensure that the forecast is really useful to the company, there should be good understanding between management and research. The management should clearly spell out the purpose of the forecast and how it is going to help the company. It should also ensure that the researcher has a proper understanding of the operations of the company. Its environment, past performance in terms of key indicators and their relevance to the future trend. If the researcher is well-informed with respect to these aspects, then he is likely to make a more realistic and more useful forecast for the management.

Methods of Forecasting

The methods of forecasting can be divided into two broad categories, viz. subjective or qualitative methods and objective or quantitative methods. These can be further divided into several methods. Each of these methods is discussed below.

Subjective Methods

There are four subjective methods—field sales force, jury of executives, users' expectation and Delphi. These are discussed here briefly.

Field Sales Force

Some companies ask their salesmen to indicate the most likely sales for a specified period in the future. Usually the salesman is asked to indicate anticipated sales for each account in his territory. These forecasts are checked by district managers who forward them to the company's head office. Different territory forecasts are then combined into a composite forecast at the head office. This method is more suitable when a short-term forecast is to be made as there would be no major changes in this short period affecting the forecast. Another advantage of this method is that it involves the entire sales force which realizes its responsibility to achieve the target it has set for itself. A major limitation of this method is that sales force would not take an overall or broad perspective and hence may overlook some vital factors influencing the sales. Another limitation is that salesmen may give somewhat low figures in their forecasts thinking in that it may be easier for them to achieve those targets. However, this can be offset to a certain extent by district managers who are supposed to check the forecasts.

Jury of Executives

Some companies prefer to assign the task of sales forecasting to executives instead of a sales force. Given this task each executive makes his forecast for the next period. Since each has his own assessment of the environment and other relevant factors, one forecast is likely to be different from the other. In view of this, it becomes necessary to have an average of these varying forecasts. Alternatively, steps should be taken to narrow down the difference in the forecasts. Sometimes this is done by organizing a discussion between the executives so that they can arrive at a common forecast. In case this is not possible, the chief executives so that they can arrive at a common forecast. In case this is not possible, the chief executive may have to decide which of these forecast is acceptable as a representative one.

This method is simple. At the same time, it is based on a number of different view points as opinions of different executives are sought. One major limitation of this method is that the executive's opinions are likely to be influenced in one direction on the basis of general business conditions.

Users' Expectations

Forecasts can be based on users' expectations or intention to purchase goods and services. It is difficult to use this method when the number of users is large. Another limitation of this method is that though it indicates users' 'intention' to buy, the actual purchases may be far less at a subsequent period. It is most suitable when the number of buyers is small such as in case of industrial products.

The Delphi Method

This method too is based on the experts' opinions. Here, each expert has access to the same information that is available. A feedback system generally keeps them informed of each other's forecasts but no majority opinion is disclosed to them. However, the experts are not brought together. This is to ensure that one or more vocal experts do not dominate other experts.

The experts are given an opportunity to compare their own previous forecasts with those of the others and revise them.

After three or four rounds, the group of experts arrives at a final forecast.

The method may involve a large number of experts and this may delay the forecast considerably. Generally it involves a small number of participants ranging from 10 to 40.

It will be seen that both the jury of executive opinion and the Delphi method are based on a group of experts. They differ in that in the future, the group of experts meet, discuss the forecasts, and try to arrive at a commonly agreed while in the latter the group of experts never meet. As mentioned earlier, this is to one person dominates the discussion thus influencing the forecast. In other words, the Delphi method retains the wisdom of a group and at the same time reduces the effect of group pressure. An appropriate when long-term forecasts are involved.

In the subjected methods, judgment is an important ingredient. Before attempting a forecast, the basic assumptions regarding environmental conditions as also competitive behaviour must be provided to people involved in forecasting. An important advantage of subjective methods is that they are easily understood. Another advantage is that the cost involved in forecasting is quite low.

As against these advantages, subjective methods have certain limitations also. One major limitation is the varying perceptions of people involved in forecasting. As a result, wide variance is found in forecasts. Subjective methods are suitable when forecasts are to be made for highly technical products which have a limited number of customers. Generally such methods are used for industrial products. Also, when cost of forecasting is to be kept minimum, subjective methods may be more suitable.

Quantitative or Statistical Methods.

Based on statistical analysis, these methods enable the researcher to make forecasts on a more objective basis. It is difficult to make a wholly accurate forecast for there is always an element of uncertainty regarding the future. Even so, statistical methods are likely to be more useful as they are more scientific and hence more objective.

Time Series

In time-series forecasting, the past sales data are extrapolated as a linear or a curvilinear trend. Even if such data are plotted on a graph, one can extrapolate for the desired time period. Extrapolation can also be made with the help of statistical techniques.

It may be noted that time-series forecasting is most suitable to stable situations where the future trends will largely be an extension of the past. Further, the past sales data should have distinctive trends from the random error component for a time-series forecasting to be suitable.

Before using the time-series forecasting one has to decide how far back in the past one can go. It may be desirable to use the more recent data as conditions might have been different in the remote past. Another issue pertains to weighing of time-series data. In other words, should equal weight be given to each time period or should greater weightage be given to more recent data? Finally, should the data be decomposed into different components, viz. trend, cycle, season and error? We now discuss three methods, viz. moving averages, exponential smoothing and decomposition of time series.

Moving Average

This method uses the last 'n' data points to compute a series of average in such a way that each time the latest figure is used and the earliest one dropped. For example, when we have to calculate a five monthly moving average, we first calculate the average January, February, March, April and May by adding the figures of these months, and dividing the sum by five. This will give one figure. In the next calculation, the figure for June will be included and that for January dropped thus giving a new average. Thus a series of averages is computed. The method is called as 'moving' average as it uses a new data point each time and drops the earliest one.

In a short-term forecast, the random fluctuations in the data are of major concern. One method of minimizing the influence of random error is to use an average of several past data points. This is achieved by the moving average method. It may be noted that in a 12-month moving average, the effect of seasonality is removed from the forecast as data points for every season are included before computing the moving average.

Exponential Smoothing

A method which has been receiving increasing attention in recent years is known as exponential smoothing. It is a type of moving average that 'smooths' the time-series. When a large number of forecasts are to be made for a number of items, exponential smoothing is particularly suitable as it combines the advantages of simplicity of computation and flexibility.

This method uses differential weights to time-series data. The heaviest weight is assigned to the most recent data and the least weight to the most remote data in the time series. A fraction known as 'smoothing' constants is used to smooth the data. Suppose a five monthly average is to be calculated January is denoted by 1, February by 2 and so on. Then the moving average for March will be:

The method uses differential weights to time-series data. The heaviest weight is assigned to the most recent data and the least weight to the most remote data in the time series. A fraction known as 'smoothing' constant is used to smooth the data. Suppose a five monthly moving average is to be calculated, January is denoted by 1, February by 2 and so on. Then the moving average for March will be :

$$M_3 = \frac{X_5 + X_4 + X_3 + X_2 + X_1}{5}$$

The moving average for the next period, i.e., April will be

$$M_4 = \frac{X_6 + X_5 + X_4 + X_3 + X_2}{5}$$

or, using the recursive relation

$$M_4 = \frac{M_3 + X_6 - X_1}{5}$$

If, X_1 is not available for some reason, then we could substitute M_3 for X_1 as we know that the former was based on X_1 as well. The use of M_3 as a substitute for X_1 could give us a 'best estimate' of X_1

$$M_{*4} = \frac{M_3 + X_6 - X_1}{5}$$

$$= \frac{X_0 + 1 - \frac{1}{5} M_3}{5}$$

Where M_4^* is used as an estimate of M_4 . This can be shown symbolically as follows:-

$$S_t^* = aX_t + (1-a)S_{t-1}^*$$

Where a varies between 0 and 1 and in the above example it is $1/5$ or 0.2 .

In case there are very small fluctuations in the time series, then we would like a to be small so as to maintain the effect of earlier data. However, in case of wide fluctuations a should be large so that our forecast is more realistic on account of its being responsive to these changes.

The main difficulty in exponential smoothing is how to ascertain the value of a . Where using this method, it is advisable to try out several values of a and ascertain the extent of forecast error in each case. The value of a which gives the minimum forecast error should be then chosen for smoothing the time-series.

This method consists of measuring the four components of a time series (i) trend, (ii) cycle, (iii) season, and (iv) erratic movement. The trend component indicates long term effects on sales that are caused by such factors as income, population, industrialization, the technology. The time period for a trend function varies considerably from a business cycle (which averages at 4-5 years).

The cyclical component indicates some sort of a periodicity in the general economic activity. When the data are plotted, they yield a curve with peaks and troughs, indicating and falls in the given series with a certain periodicity. A careful study of the impact of a business cycle must be made on the sale of each product. Cyclical forecasts are likely to be more accurate for the long term than for the short term. The seasonal component reflects changes in sales levels due to factors such as weather, festivals, holidays, etc. There is consistent reflects changes in sales levels due to factors such as weather, festivals, holidays, etc. there is a consistent pattern of sales for period within a year. Finally the erratic movements in data arise on account of events such as strikes, lockouts, price wars, etc. the decomposition of time enable identification of events such as strikes, lockouts, price wars, etc. the decomposition of time series enables of the error component from the trend, cycle and season which are systematic components.

Causal or Explanatory Methods

Causal or explanatory methods are regarded as the most sophisticated methods of forecasting sales. These methods yield realistic relevant data are available on the major variables influencing changes in sales. There are three advantages of causal methods. First, turning points in sales can be predicted more accurately by these methods than by time-series methods. Second, the use of these methods reduces the magnitude of the random component far more than it may be possible with the time series methods. Third, the use of such methods provides greater insight into causal relationships. This facilitates the management in marketing decision making. Isolated sales forecasts on the basis of time series methods would not be helpful in this regard.

Causal methods can be either (i) leading indicators or (ii) regression models. These are briefly discussed here.

Leading Indicators

Sometimes one finds that changes in sales of a particular product or service are preceded by changes in one or more leading indicators. In such cases, it is necessary to identify indicators and to closely observe changes in them. One example of a leading indicator is the demand for various household appliances which follows the construction of new houses. Likewise, the demand for many durables is preceded by an increase in disposable income. Yet another example is of number of births. The demand for baby food and other goods needed by infants can be ascertained by the number of births in a territory. It may be possible to include leading indicators in regression models.

Regression Models

Linear regression analysis is perhaps the most frequently used and the most powerful method among causal methods. As we have discussed regression analysis in detail in the preceding chapters on Bivariate Analysis and Multivariate Analysis, we shall only dwell on a few relevant points.

First, regression models indicate linear relationships within the range of observations and at the times when they were made. For example, if a regression analysis of sales is attempted on the basis of independent variables of population sizes of 15 million to 30 million and per capita income of Rs 1000 to Rs 2500, the regression model shows the relationships that existed between these extremes in the two independent variables. If the sales forecast is to be made on the basis of values of independent variables falling outside the above ranges, then the relationships expressed by the regression model may not hold good. Second, sometimes there may be a lagged relationship between the dependent and independent variables. In such cases, the values of dependent variables are to be related to those of independent variables for the preceding month or year as the case may be. The search for factors with a lead lag relationship to the sales of a particular product is rather difficult. One should try out several indicators before selecting the one which is most satisfactory. Third, it may happen that the data required to establish the ideal relationship, do not exist or are inaccessible or, if available, are not useful. Therefore, the researcher has to be careful in using the data. He should be quite familiar with the varied sources and types of data that can be used in forecasting. He should also know about their strengths and limitations. Finally, regression model reflects the association among variables. The causal interpretation is done by the researcher on the basis of his understanding of such an association. As such, he should be extremely careful in choosing the variables so that a real causative relationship can be established among the variables chosen.

Input –Output Analysis

Another method that is widely used for forecasting is the input –output analysis. Here, the researcher takes into consideration a large number of factors, which affect the outputs which affect the outputs he is trying to forecast. For this purpose, an input –output table is prepared where the inputs are shown horizontally as the column headings and outputs vertically as the stubs. It

may be mentioned that by themselves input-output flows are of little direct use to the researcher. It is the application of an assumption as to how the output of an industry is related to its use of various inputs that makes an input-output analysis a good method of forecasting. The assumption states that as the level of an industry's output changes, the use of inputs will change proportionately, implying that there is no substitution in production among the various inputs. This may or may not hold good.

The use of input-output analysis in sales forecasting is appropriate for products sold to governmental, institutional and industrial markets as they have distinct patterns of usage. It is seldom used for consumer products and services. It would be most appropriate when the levels and kinds of inputs required to achieve certain levels of outputs need to be known.

A major constraint in the use of this method is that it needs extensive data for a large number of items which may not be easily available. Large business organizations may be in a position to collect such data on a continuing basis so that they can use input-output analysis for forecasting. However, that is not possible in case of small industrial organizations on account of excessive costs involved in the collection of comprehensive data. It is for this reason that input-output analysis is less widely used than most analysis initially expected. A full discussion of input-output analysis is beyond the scope of this book.

Econometric Model

Econometric is concerned with the use of statistical and mathematical techniques to verify hypotheses emerging in economic theory." An econometric model incorporates functional relationships estimated by these techniques into an internally consistent and logically self contained framework." Econometric models use both exogenous and endogenous variables. Exogenous variables are used as inputs into the system but they themselves are determined outside the model. These variables include policy variables and uncontrolled events. In contrast, endogenous variables are those which are determined within the system.

The use of econometric models is generally found at the macro level such as forecasting national income and its components. Such models show how the economy or any of its specific segment operates. As compared to an ordinary regression equation they bring out the causalities involved more distinctly. This merit of econometric models enables them to predict turning points more accurately. However, their use at the micro-level for forecasting has so far been extremely limited.

Manager's Guide to Forecasting

It may be noted that each method has strengths and weaknesses and every forecasting situation is subjected to constraints like time, competence or data. It is, therefore, necessary to balance the advantages and limitations of forecasting methods in relation to the limitations and requirements of a situation to be forecast. This is an extremely difficult task which the management has to perform.

Manager should be given broad guidelines to help them decide on the most appropriate forecasting method. David M. Gorgoff and Robert G. Murdick have developed a chart that

groups and profiles as many as 20 forecasting methods and arrays them against 16 important evaluative dimensions. Their chart can be useful to managers in two ways. The first is in selecting the best possible method for a given forecasting situation. The second is in deciding two to combine two or more forecasting methods to obtain better forecasts.

There are several important factors which must be considered by managers before they finally decide to use a particular forecasting method. These are briefly discussed below.

Time Horizon:- One reason why this is important is that the relative importance of different sub patterns changes as the time horizon of planning changes. Thus, in the immediate term, the randomness; in the short term, the seasonal factor; in the medium term, the cyclical component; and in the long term, and trend component; dominate. Normally managers would like the forecast results to extend as far as possible into the future. However, if the period is too long, there are likely to be more complexities in the selection of a proper forecasting technique. It is because of this fact that some techniques are more suitable in a short span of time while others are not.

Technical Sophistication ; Manager may have to improve their skills in understanding the forecast results generated through the use of advanced computers and mathematics.

Cost ; There are three main elements of cost in a forecasting technique : development costs, data storage costs and costs of repeated applications. The relative importance of these elements varies with the technique of forecasting as well as the situation. A technique which is extremely costly may not be used even if it gives better forecasts. A point worth noting is that the cost of any method is more important at the beginning when it is being developed and installed.

Data Availability ; it is advisable for the manager to ensure that the data needed by a particular forecasting method are available and reliable. Sometimes one may find that a particular method needs extensive data that are not available.

Variability and Consistency of Data : Like the availability of data, the manager must also satisfy himself regarding the variability and consistency of data to be used in a forecasting method. In case the company expects a change to take place in some established relationship, the forecaster may apply his judgment in a quantitative method. Alternatively, it may be advisable to use a qualitative method of forecasting.

Amount of Detail Necessary: Very often managers have to determine sales quotas or allocate resources to different territories. In such cases, aggregate forecasts alone are not sufficient. In view of this, managers may go in for a forecasting method that can first accurately predict individual components which can be combined subsequently into an overall forecast.

Accuracy : The managers must aim at maximum accuracy of the forecast, and in the majority of forecasting situations accuracy is indeed regarded the most important criterion for selecting a forecasting technique. It may also be noted that some other are also frequently reflected in accuracy. For example, a less accurate forecast may be due to inadequate data or an inappropriate technique. Although there is no single universally accepted measure of accuracy, the following method is commonly used :

Where MSE is the mean squared error ; X_i is the actual value; F_i is the forecast and n is the number of data values. It can be seen that the lower the value of MSE, the more accurate the forecast.

Turning Points : since turning points represent periods of exceptional opportunity or caution, the manager should examine whether a particular method is able to anticipate basic shifts. Here the manager has to be careful and identify methods which might give misleading signals for fundamental shifts.

Form: The form of a forecast varies considerably. Manager should prefer a method that gives some sort of central value and a range of possible outcomes. Arrange of forecasts comprising a high and a low figure may be more helpful to managers in determining the extent or risk, expected outcomes and most likely distributions.

It is true that even some quantitative forecasts involve an element of subjectivity. However, manager should be guided more by quantitative methods of forecasting rather by their own judgment. It has been well established by research on forecasting that quantitative methods are superior to the unstructured intuitive assessments of experts. Further, adjusting values of a quantitatively derived forecast on the basis of intuition or judgement of the manager will reduce the accuracy of such a forecast. Accordingly intention or judgement should be resorted to sparingly when there is sufficient justification to do so.

Finally, the task of forecasting should not be exclusively entrusted to a single person. While it should by one pensions, preferably the marketing research manager, such key people as sales managers and production managers must be actively involved in it. It is important to ensure that there is a consensus for a particular forecast. In the absence of it, the forecast is not likely to be taken seriously and, as a result, its utility will be much less.

Let's Recapitulate the Chapter

- ☐ Meaning of term 'Sales Analysis'
- ☐ Sales analysis helps a company to analyze its sales performance and know the reasons for such performance.
- ☐ Sales analysis may divided into four categories:
 - ☐ Sales analysis by territory.
 - ☐ Sales analysis by product.
 - ☐ Sales analysis by customers.
 - ☐ Sales analysis by size of order.

- ☐ Concept of market potential.

Market potential if the maximum demand response possible for a given group of customers within a well-defined geographic area for a given product or service over a specified period of time under well-defined competitive and environmental conditions.

- ☐ Methods of Demand forecasting may be either 'Subjective Methods' or 'Quantitative Methods'. Subjective methods may further be classified into following categories:
 - ☐ Field Sales Force Method.
 - ☐ Jury of Executives.
 - ☐ User's expectation.

- ☐ Delphi Technique

- ☐ Quantitative or Statistical methods may be classified as follows:

- ☐ Time Series
- ☐ Moving Average
- ☐ Exponential Smoothing
- ☐ Time-series decomposing
- ☐ Causal or Explanatory Methods
- ☐ Leading Indicators
- ☐ Regression Models
- ☐ Input-Output Analysis
- ☐ Econometric Model

- ☐ A manager need to keep following points in view while making forecast:

- ☐ Time Horizon
- ☐ Technical Sophistication
- ☐ Cost
- ☐ Data Availability
- ☐ Variability and Consistency of Data
- ☐ Amount of Detail Necessary
- ☐ Accuracy
- ☐ Turning Points
- ☐ Form

LESSON 34:

NEW PRODUCT DEVELOPMENT AND TEST MARKETING.

Introduction

In this lecture, we will move on to discuss the utility of Marketing research for the purpose of New product Development and Test Marketing the new product.

Lecture Objective

- New Product Development
- New Product Development Process
- Test Marketing
- Uses of Test Marketing
- Guidelines for designing Market Tests
- Other Approaches to Test Marketing

New Product Development And Test Marketing

New Product Development

A Company may find itself in a situation where it may be advisable to develop a new product. When sales of its current range of products have been declining over the past few years or when it receives complaints about its products from customers, distributors, retailers, it may have to find the possible reasons for the same. This may lead to the improvement of the existing product or the development of an altogether new product. As we know, the concept of product life cycle suggests that a product passes through different stages.

When a company finds that some of its products have entered the declining stage, it may have to take concrete measures to replace them. This can be achieved in two ways: acquisition and innovation. We are concerned here with the latter which can be broadly of two types: internal innovation and contract innovation.

New product development can be carried out in one of the following ways:

New products features can be developed by adapting, modifying, magnifying, minimizing, substituting, rearranging or combining the existing features of a product.

Different quality versions of the existing product can be developed so that the needs of different markets can be met.

Additional models and size of the existing product can be brought out.

If the company pursues the policy of internal innovation, it implies that it has its own research and development department which is engaged in the development of new products including modifications and improvements in the existing ones. If, on the other hand, the company pursues contract innovation it implies that it has engaged the services of outside researchers or new-product-development agencies for introducing new products for the company. Sometimes the company may prefer acquisition while at other times it may follow the strategy of innovation.

There is a dilemma faced by the management with respect to new product development. On the one hand, the company finds that it is necessary to develop new products, on the other, the stake involved in the new product development is very high on account of research and development activity being highly capital intensive. If the new product fails in the market, the company has to sustain a heavy loss. It is, therefore, necessary that new product development be carried out with extreme caution.

New product development is an extremely difficult and time-consuming process. The role of marketing research in new product development is not a straightforward as it might appear. Unforeseen situations may arise which may force the company to abandon its project mid-way. Such situations arise not infrequently. One has to be fully informed about the market and product opportunities before venturing into a new product development project. It is desirable project. It is desirable to proceed step-by-step in this process.

New Product Development Process

The development of new products involves the following stages: (i) idea generation, (ii) concept development and testing, (iii) product evaluation and development, (iv) business analysis, and (v) commercialization. In all these stages, marketing research techniques can be applied though they would vary in each stage. In the section that follows, these stages and the major marketing research techniques used therein are discussed.

Idea Generation

The objective of this stage is to obtain (a) new ideas for products, (b) new attributes for the existing products, and (c) new uses of the existing products. There are several sources of new-product ideas such as customers, company salesmen, dealers, scientists, competitors, top management, industrial consultants, advertising agencies, marketing research firms, industrial publications, universities and commercial laboratories.

Several methods can be used to generate new ideas. These are briefly discussed below.

Attribute Listing

Major attributes of an existing product, are listed. Then, one is asked to imagine how each of these attributes can be modified so that the product will improve. In this connection, Osborn suggested the new ideas can be generated with reference to a particular product: can it be put to the other uses? Can we adapt? modify? minimize? substitute? rearrange? reverse? combine?

Forced Relationships

This technique involves listing of several objects and then trying to find how each object can be combined with the other objects. For example, a bed and a sofa set, two separate

products, were combined into one—bed-cum-sofa set—fulfilling a ‘felt need’ of using furniture in a limited space.

Morphological Analysis

This term refers to a variety of techniques which are similar to forced relationships and attribute listing. Although there are several variations, a simple method of morphological analysis consists of the following stages. First, the parameters of the situation are listed. Second, each parameter is subdivided into its smallest parts. Third, these parts are represented in a matrix. Finally, all possible combinations of parameters and their sub-parts are examined. In this way, morphological analysis will enable identification of the components of current successful products and find new combinations of attractive features. Such an analysis has been extremely successful in the development of new technologies. No doubt, morphological analysis is time consuming. But the time spent is justified. A thorough search of all the possible combinations would not be possible without morphological analysis.

Problem Analysis

Here, the consumers are approached to find out if they have experienced any problem while using a particular product or product category. One can then select one or two major problems from such a list on the basis of their importance, the frequency of their occurrence, and the cost of effecting improvement in the product.

Brainstorming

This technique involves the use of a small number (usually between six and ten) of consumers who are asked to participate in a ‘brainstorming’ session. The purpose of such a session is to generate a number of new product ideas. In order to ensure that a brainstorming session is most effective, it is necessary to comply with certain rules suggested by Osborn. These are: (a) No criticism of any new idea should be made (b) Freewheeling is welcomed, indicating that the wilder the idea, the better it is. (c) A good number of ideas must be generated. (Quantity is important at this stage.) (d) Participants should suggest how or more ideas can be combined into still another idea.

Synectics

Some authors feel that a major limitation of brainstorming session is that it produces solutions too quickly before developing some perspectives. Instead of defining the problem specifically as in brainstorming sessions, the Synectics approach suggests by Gordon, defines the problem so broadly that the participants in the group have no idea of the specific problem. In such exercise, the participants give their viewpoints and as more and more facts are gradually interjected, their discussion tends to move towards specificity.

Concept Development and Testing

It should be obvious that the new product ideas generated, cannot be pursued. This may be on account of several reasons. The company may find that a particular new product idea is incompatible with its major objectives. Further, it may not have the requisite production or marketing skills. Another possible reason for not pursuing a new product idea is that it may not be technologically feasible. Thus, a preliminary screening will

eliminate a number of new products ideas. Those which survive this screening are then pursued further through concept testing:

- To get the reaction of consumers’ view of the new product idea.
- To give direction regarding the development of the project.
- To choose the most promising concepts for development.

To ascertain whether the product in question has adequate potential for its commercialization.

The concept test can take three different forms. First, it can be entirely verbal—a statement about what it does. Second, it can be *visual*—in form of a photograph or drawing. Third, a mockup of the product may be used. This is merely a dummy product to get across the idea.

Focus-group Interviews

The focus-group technique, as discussed earlier, is used for concept testing as well. Focus-group interviews are conducted with 8 to 12 participants where the moderator gives the group discussion a more specific direction than is the case in an idea generating session. The main objective is to have a deeper insight so that the concepts can be further refined.

Monadic Tests

In monadic testing, a respondent evaluates a single item in isolation from the other alternatives. The respondents are divided into groups, the number of groups depends on the number new product concepts. Thus there are as many groups as there are new product concepts to be tested. Each respondent evaluates only one concept on uniform dimensions as are used with respect to other concepts. Although the scale for recording the evaluations could be any of the attitude rating scales discussed in Chapter 8, the numeric rating scale is generally used.

When each respondent has given his rating on the specified dimensions, an average score for each product is calculated. The new product concept that obtains the highest score is chosen for further evaluation. If the groups are not comparable with respect to age, education etc., then their ratings to product concepts might be biased. Bias would be more when characteristics such as age and education have a bearing on the product concepts to be tested. In such a case, monadic tests will not be reliable.

Paired Comparison Tests

The method has been questioned on its ability to be a true preference testing. This is because it provides a measure of the respondent’s attitude towards an item rather than a comparison with all the other items. Paired comparison tests are an improvement over monadic tests. Instead of examining only one product concept as in the preceding method, the respondent examines two product concepts at a time indicating which of the two is preferable. Paired comparison tests have been discussed earlier in Chapter 8 on Scaling Techniques and are not repeated here.

An alternative to a paired comparison test is a sequential monadic or non-direct comparison test. Here, each respondent is exposed to each product concept, separately. After he has been exposed to all the product concepts, he is asked to give his

ratings. The one which secures the highest score is obviously selected for further evaluation.

A major advantage of this method is that it is more in conformity with the actual marketplace. Respondents evaluate products after they have been exposed to them at different time periods in the market. Moreover respondents are not 'forced' to select a product concept over another one just because they have been asked to do. This method may lead to a bias on account of the use of a particular order or presentation of the product concepts. This problem can be overcome by the process of randomization in sequencing the product concepts across respondents.

Conjoint Analysis

Another technique known as conjoint analysis can be used in testing new product concepts. This method attempts to ascertain the joint effects of two or more nominal independent variables on the ordering of a dependent variable. Here, respondents give their ratings on two or more attributes at a time. The use of conjoint analysis will not only indicate the relative importance of product attributes but also the manner in which they are related to each other. This will enable the researcher to identify the best combination of product attributes.

There are instances where the concepts testing has proved to be extremely helpful in successful marketing a new product. Paramount Products launched a new nail polish under their umbrella name 'Shingar' but the launch was unsuccessful on account of confusion of image—Indian name versus 'foreign' product concept. However, as a result of concept testing, a new positioning based on consumer beliefs and expectations was arrived at. The product was given a new name 'Tips an Toes' and advertising was geared to exploit this new name. Tips and Toes was then accepted by retailers and consumers.

Product Evaluation and Development

Product testing involves almost the same process used in concept development and testing. The objective of product testing is to ascertain the market response to the proposed product so that the management can decide whether or not the product should be carried forward. It may be emphasised that product testing, being a subsequent step to concept development and testing, is expected to yield more reliable results. This would involve a more realistic plan for the product exposure.

Another major difference between the product testing stage and the concept development and testing stage is that the former involves the trial use of the product by a group of respondents while the latter attempts to measure only the initial interest in the proposed product. Hence, some kind of usage test is undertaken to find out whether the respondents would be interested in it and whether they would subsequently buy it if it were available in the market.

Usage Tests

The new product can be tested in different types of usage situation. There are two usage tests: laboratory usage tests and consumer usage tests.

In the format test, R and D people may test a new product with respect to one or more attributes. For example, a car manufac-

turing unit will have its R and D department whose task is to effect improvements in the car, say, economy in fuel consumption. R and D personnel may evaluate the proposed vehicle by undertaking test drives under varying conditions. Generally, laboratory testing is found to be more rigorous for ensuring that performance norms come up to a certain level.

A point worth noting is that a consumer usage test and the laboratory test may give different evaluations of the same product. This is because consumers' perception may be different and accordingly they may attach importance to those attributes which were not considered by the R and D department. In a consumer usage test, a small number of consumers are given a sample of the new product. They are asked to use it in a normal fashion and later indicate their reaction to it as also the defects that they have noticed.

A variant of the consumer usage test is the blind usage test. In such a test, the consumer is given the product in question without disclosing its brand name or advertisement. This method is particularly useful when a new formulation of an established brand is to be tested.

In usage tests, the researcher should ensure that respondents have actually used the new product and that their responses are free from bias. This is important as many a time respondents indicate their willingness to buy the new product without eventually doing so. This would give a highly favourable picture of the product (which ultimately does not turn out to be so.)

Business Analysis and Commercialisation

New product ideas that survive the product evaluation and development stage are then taken up for an in-depth analysis to ascertain their business attractiveness. For this purpose, it is necessary to project the future sales, costs and profit, and if such estimates are reasonably good, the product in question is commercialized. However, as new information becomes available, the estimates of sales, costs and profit may have to be revised.

In order to carry out business analysis and commercialization of the new product, two important techniques—test marketing and simulated test marketing—are used. Both these techniques are based on application of experimental and quasi-experimental designs. The increasing use of these designs shows that they are dependable and yield reasonably good results.

When a new product concept has scored high in a business analysis, it is passed on to the R and D department which develops one or more physical versions of the accepted product concept. It develops a prototype that satisfies the predetermined criteria.

Test Marketing

After the concept testing and development of a new product, it is necessary to find out whether it is going to be accepted or not in the market. This is achieved through test marketing. The main objective of test marketing a new product is to reduce the commercial risk when it is brought in the market.

"Test marketing is a controlled experiment, done in a limited but carefully selected part of the market place, whose aim is to predict the sales or profit consequences, either in absolute or in relative terms, of one or more proposed marketing actions. It is essentially the use of the marketplace as a laboratory and of a

direct sales measurement which differentiates this test from other types of market research.”⁸

From the above definition it is clear that test marketing is essentially an exercise in experimentation, where the marketplace is a laboratory. It also brings out that the predictability of sales or profit is the objective of test marketing.

Uses of Test Marketing

There are two uses of test marketing. First, it may be used as a tool for managerial control. Second, it may also be used as a predictive research tool. These two uses are discussed in some detail here.

Test Marketing as a Managerial Control Tool

Test Marketing frequently serves as a pilot operation for large-scale marketing activity. When a company intends to expand its business operations, some element of risk is involved. This is particularly true in respect of new products or brands where the management may be understandably apprehensive. There are, for example, many physical problems such as handling of the product, breakage, storage, stocking and transportation which if not handled properly, may prove to be costly mistakes. In such cases, test marketing is used to improve the mechanics of the marketing operation so that the management may know in advance the problems that are likely to arise and hence improve its marketing operations.

Here, the role of test marketing is limited. It is not advisable to elaborate and time consuming test marketing as this may be unnecessary. It is used as a device to gain experience, to identify the problems likely to arise in marketing operations, and to develop a sound marketing programme eventually. It is not used for purposes of prediction of sales or profit.

Test Marketing as a Predictive Research Tool

Test marketing is often used as a predictive research tool in two different situations. These are:

1. The introduction of a new product or brand, and
2. The evaluation of alternative marketing variables.

Test Marketing for New Products or Brands

When a new product or brand is to be introduced in the market place, the management is apprehensive about its performance. This will be true particularly where the new product does not have any direct substitutes. In such a case the management neither has any information of its own nor any experience of the others. In such a situation, test marketing can be used to predict the likely performance of the new product.

More often, one finds that test marketing is used for a new brand of an existing product category. However, a new brand may be substantially different from the others in the product category or it may be just another brand and may not be very different from the others. In the former case, some form of blind product testing is desirable to find out whether the new brand is more acceptable to the consumers. In the latter case where new brand is just another addition to the product category, test marketing may not be desirable. When heavy

investment is required for the new brand, it may be advisable to run a test market to ensure its market acceptability first.

Test marketing is also used while recycling an existing brand. When a company is seriously considering a new packaging for its product, its repositioning, or some improvement in an existing brand, it may use test marketing before introducing such a change. In case of an existing brand, test marketing should be used only when the change is substantial otherwise it will be only a wasteful expenditure.

When a test market is conducted for a new product or new brand, the management would like to know how this new product or new brand will do in terms of sales and profits at the national level. In this regard three approaches as suggested by Gold.⁹ can be used.

1. **Buying Income Method:** Here the test area sales of the new product/brand are expanded by the ratio of national income to the test area's income. Thus,

$$\text{Estimate of national sales} = \frac{\text{Total income of the country} \times \text{Test area sales}}{\text{Test area income}}$$

2. **Sales Ration Method :** Here the test area sales of the new product/brand are expanded by the ratio of national sales of other product to test area sales of this other product. Thus,

$$\text{Estimate of national sales} = \frac{\text{National sales of other product} \times \text{Test area sales of test product}}{\text{Test area sales of this other product}}$$

This 'other' product or brand should be related to the test product in some way. Management should have sufficient evidence to think that the relationship in regard to the 'other' product would hold good with respect to the test product.

3. **The Share-of-Market Method :** Here the ratio of test area sales of new product to test area sales of the whole product category is to be multiplied by the national sales of this whole product category.

$$\text{Estimate of National Sales} = \frac{\text{Test area sales of new brand} \times \text{National Sales of this Whole product catg.}}{\text{Test area sales of this whole Product category}}$$

of these three methods, Gold found that the share-of-the – market method yielded most accurate results. At the same time, since it needs information of all the competing brands, it is very costly.

Subsequently, other methods in the form of mathematical models have been suggested for projecting test market results and are generally based on consumers' panel data. It is reported that the use of panel data in such models has given very accurate projections of sales of new brands at the national level. The discussion of these models is beyond the scope of this book.

Test Marketing for Evaluating Alternative Marketing Variables

Another predictive use of test marketing is to evaluate alternative individual marketing variables. For example, test marketing may be used to find whether a new media pattern is better than the existing one and, if so, to what extent. Similarly, one may use test marketing to ascertain whether a higher advertising budget is more profitable than a lower one. One can think of several situations where test marketing can be applied to measure the effect of a variable.

However, one has to be extremely careful in designing a test so that it gives dependable projections. A little later we shall discuss design methodology for a test market. A more important topic is discussed here: should test marketing be conducted or not?

The Decision to Undertake Test Marketing

The management is often faced with the dilemma of going in for test marketing or not. This decision has to be based on a cost-benefit analysis. Against the expected benefits, the management has to examine various costs involved in a test market. As the likely benefits of test marketing have been discussed, here the discussion is confined to the other aspect, namely, costs.

Both direct and indirect costs are involved in test marketing. The direct costs include (i) cost of setting up a pilot plant (ii) commercials (iii) advertising (iv) expenses incurred on the production of point-of-sale material (v) couponing (vi) sampling and (vii) trade allowances offered to obtain distribution. An indirect cost, for example, would be the cost of disclosing a new product idea to a competitor. Other indirect costs are: (i) deployment of sales force from the existing and established products to test marketing (ii) opportunity cost of sales lost in case of a successful introduction (iii) possible negative impact on other products, etc. The fact that test marketing would mean high direct and indirect costs, necessitates that there should be a very careful analysis of benefits and costs before using this device.

It is advisable to spend adequately on a test market so that one is able to get decisive results rather than to save on its designing and implementation, reducing its scope and thereby obtaining inconclusive results. In the latter case the entire expenditure on a test market will be in vain.

In deciding whether or not to undertake a test market, major problems associated with test marketing must also be considered. An overwhelmingly important problem is the lack of projectivity of the test market results. This is due to a number of reasons. One possible reason could be that a company's competitors might have learned about its test marketing and engage themselves in monitoring its results. They may then come out with a similar product leading to still competition.

When to Test Market

Having looked into both the costs and benefits and the problems likely to arise in test marketing, the company may like to decide the timing of a test market. A few considerations become relevant in deciding as to when test marketing should be undertaken.

First, the cost and risk of failure should be considered against the profit and probability of success. A product with low costs and low risk of failure may not need testing.

Second, the investment needed in plant both for test marketing and national introduction should be considered. In case the difference in investment is not much, one should prefer introducing the product at the national level. In contrast, if the difference is considerable, test marketing should be undertaken first.

Third, the possibility and speed with which the competitors are likely to initiate and/or preempt the proposed product should be considered. The faster the competitive firm's response (and the more likely it is to do so), the stronger the need to avoid test marketing.

Fourth, the effects of a national failure on the trade and consumers should be considered. One should ascertain whether the company's reputation and its other products are likely to suffer in the event of a failure in test marketing.

In the light of these factors, a company may decide in favour of or against launching a test market. If in a given situation only one factor is relevant, then the company may decide on the basis of only that factor and this process will be much simpler than in other situations where two or more factors, mentioned above, are involved.

Guidelines for Designing Market Tests

The following guidelines will be helpful in designing a good market test:

1. The market test must be representative of the whole. This is an extremely important aspect otherwise the projectivity of the test will be faulty. In order to achieve this, the sample markets should be randomly dispersed. It may be desirable to stratify the universe by regions or states first and then choose individual markets within the regions or states. The sample markets should be normal and should not be dominated by one industry.
2. It is desirable to run the test for at least a year. This is to ensure that a seasonal pattern, if existing, does not distort the results. This is particularly necessary in case of those products that are likely to have a seasonal pattern. Further, the test market should also reflect a repeat purchase situation. This is possible only when the duration of the test market is sufficiently long.
3. The test market must be carefully controlled. As far as possible, extraneous variables must not be allowed to unduly influence the test. This is particularly relevant in testing alternative variables where a control group is necessary. Where a control group has to be set up for comparison with the test area, one should ensure that both should be selected in an identical manner. Similarly, the control group should be as randomly dispersed as the test area in addition to being as large as the test area.
4. It is necessary to ensure that the test market gives accurate results. Without a relevant and accurate measurement of the test market, the projective results will be misleading. In this connection, three things should be looked into: (i) the measurement criterion such as sales, market share or profit; (ii) the selection of the base period against which

comparisons are to be made; (iii) the method of projecting the results of the test market.

5. It is advisable to test only one variable at a time since a large area is needed to test even one variable. Moreover, the introduction of another variable in the same test market may lead to unnecessary complications.
6. In order to ensure that projections made on the basis of a market test are realistic, it is advisable to use at least one year's back data as the base. This will enable us to choose the most appropriate method for forecasting. Sometimes it may be desirable to use more than one method for forecasting and to average the projections obtained from these methods.
7. The basic principles in market tests should never be sacrificed for the sake of expediency. A market test where several important principles are compromised will lead to confusing and misleading results.
8. It is desirable to undertake basic marketing research prior to the test marketing. Adequate research done before running a test market will give more reliable results. At the same time, it may indicate that test marketing is not needed in certain cases. Greater attention should, therefore, be given to pre-market test research to derive the maximum advantage from the test marketing.

Other Approaches To Test Marketing

There are some other types of test marketing which are different from what has been mentioned above. One approach is the controlled test market or mini-market test.

In the controlled test market, the test is run in a small area/areas where an effective control over most of the marketing variables can be exercised. The advantages of the controlled or mini-market test are that it can be conducted in a very short time and is extremely economical. One disadvantage is that it does not have projectability. As Achenbaum has said "mini-market testing is an excuse for real testing: like so much in research, some are more concerned with cost and speed irrespective of utility.

The second type of test marketing is known as pre-emptive roll-out. When a company feels confident about the new product and finds that competition is going to be heavy, it may use this method. It may introduce the new product in a few markets or in a particular region of the country. Although such markets may not be representative of the entire region or country, they may give some indications of the acceptability of the new product. Obviously, introducing the product in a few markets would involve much less risk as compared to that in a national introduction.

Another type of test is known as the simulated test market. High costs of test marketing have led to the development of simulated test markets, especially for frequently purchased consumer goods. These tests are conducted in a laboratory environment and involve in-store shopping. The method is normally used in measuring an alternative marketing variable rather than a new-product introduction. Here, the stores in a marketplace are split into two groups, each containing one approach. It is necessary to control test markets and to ensure

that extraneous considerations in the two groups do not distort the test.

Let's Recapitulate the Chapter

- There are several reasons which push a company to consider launching a new product. These reasons include declining sale of existing product, complaints about the existing products etc.
- New product development process consists of following phases:
 - Idea Generation
 - Concept development and testing
 - Business analysis
 - Commercialization
- Various methods used for generating new ideas may be enumerated as below:
 - Attribute listing
 - Forced relationships
 - Morphological analysis
 - Problem Analysis
 - Brainstorming
 - Syntectics
- Concept development and testing phase of New product development process may use following tools:
 - Focus Group Interviews
 - Monadic tests
 - Paired comparison tests
 - Conjoint analysis
 - Product evaluation and Development
 - Usage tests
- Business analysis and Commercialization phase uses following techniques:
 - Test Marketing
 - Simulated Test Marketing
- Main objective of Test Marketing is to reduce the commercial risk for a new product when it is brought in the market.
- There are several approaches to Test Marketing other than the most commonly used one. Other types include Controlled Test Market or Mini-market test, Pre-emptive roll-out and simulated test market.

Q: Distinguish between sales analysis and sales forecasting.
Q: What are the different methods of idea generation?

Q: Distinguish between sales analysis and sales forecasting.
Q: What are the different methods of idea generation?

LESSON 36:

ADVERTISING RESEARCH

Introduction

In this chapter we will study the application of Marketing Research in the field of Advertising research.

Lecture Objective

- Importance of Advertising
- Need for Advertising Research
- Media Research
- Copy Testing
- Paradoxes in the evaluation of Advertising Research

Advertising Research

Importance of Advertising

A study done by the Centre for Media Studies emphasizes the phenomenal growth in advertising that has taken place in India in recent years. It observes: "By any count 1986-88 years will go down as a turning point in the Indian advertising industry." A number of factors have contributed to this growth. First, advertising expenditure has crossed the Rs.1000 crore mark. Second, advertising through TV has become a force to reckon with. Third, consolidation and realignment of advertising agencies has taken place. Fourth, newspapers and magazines have to woo advertisers and advertising agencies. Fifth, advertising expenditure is no longer questioned following the new buoyancy in the market.

Another study – shows that five consumer megatrends have swept across the urban landscape in India. These are: the new individualism, the growing multi-culture orientation, the search for status a harder look at brand values, and the new aspirations among the consumers. These megatrends have emerged as a result of four forces of change in the Indian society. These forces are: more purchasing power with consumers, availability of wide variety of products and brands, availability of greater information about products and brands, and changes in the socio-economic environment in the country. In view of these developments, advertising has assumed more importance in recent years. This rising trend will continue on account of a number of factors such as increase in urbanisation, expansion of education, increase in per capita income, etc.

This would mean that companies will give far more attention to their advertising efforts, use more sophisticated and improved advertising techniques and be more concerned about knowing the impact of their advertising efforts.

Need for Advertising Research

The role of research in advertising can be seen in various stages of advertising planning. First, what should be the objectives of advertising? Unless the objectives are clear, advertising cannot be useful. Research would enable the company to be clear in its objectives of advertising. Second, advertising research should be used for developing a strategy for marketing the product in

question. Further, the selection of the target audience can be facilitated by advertising research. In this connection, mere demographic classification will not be adequate. It may be equally necessary to pay attention to product usage behaviour. Another aspect where research can be useful is the selection of message that an advertisement should carry and through what media it should be conveyed. This is a major area of advertising research. Finally, research has to concern itself with the evaluation of advertising in order to find out whether the expenditure on advertising has been justified or not. If not, the reasons should be ascertained so that in improvement in advertising can be made in the future. In short, research can be instrumental in increasing the efficiency of advertising as a result of which the pay-off from advertising expenditure will increase.

Media Research

The main issues in media research are: (a) How to choose amongst media types – television, radio and newspapers? (b) How to decide on a specific insert within a particular type of media, say, television? In order to decide on these two issues, it is necessary to have some data. The Advertising Research Foundation (ARF) suggested the following type of data for this purpose:

1. Media vehicle distribution: the circulation number for a magazine or newspaper or the number of television or radio sets available to carry the advertising.
2. Media vehicle audience: the number of people exposed to the media vehicle. This would be larger than the number in (1) above as more than one person reads the same newspaper/ magazine or watches on the same television set.
3. Advertising exposure: the number of people exposed to a specific advertisement in the media vehicle. This number would be less than the number in (2) above as all those who are exposed to a newspaper/magazine may not notice a particular advertisement.
4. Advertising perception: the number of people who perceived the advertisement in question. This number would be less than that in (3) above. The people may perceive an advertisement because of several factors such as its large size, use of attractive colours or its positioning in the media vehicle or on account of the product involved.
5. Advertising communication: the number of people who comprehend specific things about the advertising. This number would obviously be less than the number of people who perceived.
6. Sales response: the number of people who buy the product in question as a result of advertising. This number would be far less than that in (5) above.

It may be noted that of these six categories, there is an interaction of media and message in the last four categories. This

makes it difficult to obtain the numbers for media alone in respect of these categories. Accordingly, media vehicle data are generally obtained for the first two categories, viz. media vehicle distribution and media vehicle audience.

Media Audiences

Media research comprises, inter alia, the measurement of the size and break-up of individual vehicle audience. We will discuss this under two heads – print media and radio and television.

Print Media

Prior to the reports of the Audit Bureau of Circulation (ABC), the measures regarding the individual vehicle audiences were those which the media themselves claimed. Such measures were rather inflated as any individual media vehicle would suggest that its circulation is far and wide. Since the ABC's reports are now available, these inflated measures have ceased. The ABC compiles its report which gives the size of circulation of a newspaper/magazine on the basis of certified audits.

This information while being useful, it's not sufficient. It is difficult to estimate precisely the size of audience for a particular publication. The data collected by merely asking respondents as to whether they have looked at a particular copy would be unreliable. This is because some respondents may regard reading a particular magazine as a status symbol and hence they may report exaggerated readership. Likewise, reading of some magazines may be regarded as below one's status and hence their readership may be reported to be much less than in reality.

Another important aspect in determining the audience size for print media is the extent of duplication between magazines. This is because readership of three or more magazines among respondents is quite common. But the data on readership seldom give the extent of duplication. The problem is how to get the size of 'unduplicated' audience. A detailed study is determine the duplication among a large number of magazines would obviously be very expensive, not to mention the time it would involve.

Radio and Television

There are four methods to measure the size of the audience for any radio and television programme. These methods are discussed briefly below.

Coincidental Method

First of all, a sample of households having a telephone is selected. This is followed by an inquiry on telephone as to whether a particular programme on radio is being listened or being watched on television. Other information such as the name of the sponsor and the product being advertised is also collected.

The main advantages of this method are that it is quick and economical. It has some limitations though. First, the method has to be confined to only those households which own telephones. In a country like India, a large number of households do not have telephones and hence they have to be excluded. Second, since the enquiry has to be conducted while a particular programme is in progress only a limited number of households can be contacted in this short duration. Finally, it is

extremely difficult to undertake an enquiry with respect to late night programmes.

Roster Recall

As the same names implies, a roster or list of programmes is used to facilitate respondents to recall what programmes were listened to or watched. Respondents are contacted personally by interviewers.

This method has some major limitations. First, the responses are dependent upon memory. Second, depending on the status or popularity or otherwise of a particular programme, respondents may give their replies regardless of whether they have listened to a programme (or seen it). Third, the method is unable to provide information on a continuing basis. Finally, it is not possible to estimate duplication in the audience as respondents are approached for programmes within a short estimate duplication in the audience as respondents are approached for programme within a short time period. It is possible to estimate the number of persons who watch both programmes, falling within the same time span on which respondents are being contacted.

Diary Method

As the name implies, this method uses a diary for estimating the number of persons listening to or watching different programmes. A diary, especially designed for this purpose, is issued to respondents who have agreed to furnish the desired information. Each respondent records his radio listening or television viewing, along with personal data such as age and sex in this diary. If respondents accurately record their radio listening or television viewing, this method would give accurate and complete information, eliminating the errors that may arise due to memory lapse and interviewer bias. Further, it is cheaper than other methods involving personal interviewing and recall.

However, in practice, one may find that respondents are not so careful in listing the programmes listened to or viewed by them. Besides, there is a lack of continuity in the flow of information as the diary method is unable to provide the estimate of an audience, say, minute-by-minute. Apart from this, some respondents in the panel may stop giving the information sought or move to another address. In such a case, how far the panel will remain representative of the population is a moot question.

The Audimeter

As Audimeter is an electronic machine attached to a television set. As soon as the television set is turned on, the machine records it on the tape. In advanced countries, this method is frequently used. The audimeter ensures a continuous flow of information which is not possible in any of the earlier methods. This is its main advantage. Another advantage of this method is that there is complete objectivity in the information thus collected. Moreover it is possible to have a cumulative estimate of the audience since the audimeter sample will be almost the same from month to month. The method suffers from some limitations as well. First, turning a set on does not necessarily mean that the programme in question is being

watched. Second, the method cannot indicate as to who is watching a programme.

Copy Testing

Another important area in advertising research is copy testing. The word 'copy' is used to denote an entire advertisement, including the message, pictures, colours, etc, regardless of the medium in which the advertisement has appeared. As Shirley Young says:

"Copy testing is troublesome for almost everybody. Most advertisers and agencies have a checkered history of its use and often differ on both what and how to measure. This continued dissatisfaction, with copy testing has led to a never ending search for the next new technique to embrace."

Methods of copy testing can be divided into two categories, viz. 'before' tests and 'after' tests. The former category includes all those tests that are used in ascertaining the suitability or otherwise of an advertisement before it is finally released. Their purpose is to effect improvements in the copy or advertisement. The latter category includes tests to measure the effectiveness of an advertisement after it has been formally released. Despite this distinction, at times the difference between the two types of method gets blurred. This is because some 'before' methods require that an advertisement should be run one or two media.

'Before' Methods

A number of pre-test methods are used for copy testing. In this section, we will discuss the following methods: (i) consumer jury, (ii) portfolio tests, (iii) rating scales, (iv) physiological methods, (v) dummy advertising vehicles, (vi) on-the-air tests, (vii) inquiries, and (viii) laboratory testing.

Consumer Jury

In this method, a sizeable number of consumers from the target audience are shown a set of rough and unfinished advertisements. With respect to these advertisements, they are asked such questions as: Which copy would you prefer to read? Which one would induce you to buy the product? Which headline is the most interesting? Paired comparisons or ranking may be used by respondents. The assumption in this method is that at least one of the advertisements shown will be liked by them.

Rating Scales

This method involves the use of certain standards against which a copy is tested. The copy is rated on the basis of scale values. As a result, a numerical score is obtained. It may be added that weights may be assigned to different factors or items on the basis of which a copy is to be tested, depending on their relative importance or relevance. This method is generally used by professional advertising agencies which are able to 'rate' advertisements without any difficulty.

This method has one major advantage as it provides a list of factors against which a copy is to be tested. However, there are certain limitations. First, the problem is how weights are to be assigned to different items. Second, different respondents will rate the items differently. It is difficult to say who is right in his rating. Third, an overall high score of a copy does not necessarily mean a superior copy. This is because that copy might have

scored high ratings with respect to several items and low ratings with respect to only a few items. It is these few items which may be extremely relevant in judging the copy.

Portfolio Tests

According to this method, a number of alternative copies that are to be tested are placed in a portfolio. At times, the copies are placed in dummy copies of magazines or newspapers. Respondents are given the portfolio and asked to go through it. After they have done so they are asked to recall the copies from memory. Such a recall may be either unaided or aided. The interviewer may facilitate recall by asking about specific advertisements. The interviewer may further ask the respondent to recall the advertisement as much as possible. The extent of recall will indicate the strength of the copy.

Psychological Tests

This method uses a number of psychological techniques to find out the reactions of respondents to a given advertisement. Techniques such as word association, sentence completion, depth interviewing and story telling are used by trained psychological to find out what respondent see in a given advertisement and the influence it has on them. As it is extremely difficult to interpret the information obtained on the basis of psychological tests, only trained persons should be appointed to carry out this test. In view of this, only a small sample can be used for such tests.

Laboratory Testing

This method uses mechanical devices to measure the respondent's psychological responses to a given advertisement. The commonly used tests are the galvanic skin response and the eye movement. As regards the former, a device is used to measure changes in the amount of perspiration in the hands. This may be taken as a measure of emotional change as a response to an advertisement. However, the test is unable to indicate whether such an emotional change is favourable or unfavourable to an advertisement. In the latter test an eye camera registers the continuous movement of the eye as it reads an advertisement. However, the results obtained from the an eye camera are difficult to interpret. For example, if the eye was fixed on a certain point could it be interpreted that the respondent was interested in the advertisement or that he was confused?

Inquiry Tests

Some advertisements may invite several inquiries from the readers about a given product or service. However, it is questionable whether a large number of inquiries can be regarded as a good yardstick for a successful advertisement.

Inquiry tests can take several forms. One way could be to place the same offer in different copies in different issues of the same magazine/newspaper. These offers are keyed to a specific advertising copy. If the number appeals more to readers. Another variant could be to give the same offer in different advertising copies that appear in different newspapers or magazines. This assumes that there are only negligible differences among different media. However, this may not be the case. Sometimes, the same offer is made through two pieces of copy. One piece of copy is carried in half the copies of the

newspaper or magazine and the second piece of copy is carried in the remaining half. Inquiries received are then linked to the two pieces of copy.

Inquiry tests can be developed in the form of controlled experiments to ascertain the impact of an advertisement copy. However, one has to exercise great care in isolating the effect of other factors from that of advertising.

Simulated Sales Tests

These tests expose prospective consumers to different pieces of copy through point-of-purchase displays or direct mail. Thus, one may select two groups of similar stores where two alternative pieces of copy are displayed at the entrance or at some other place in the store. Sales of the product in question are measured both before and after the display of copy in the two groups of store. The copy in those stores which have registered a higher increase in the sale of the product over time is regarded as a better copy. Likewise, comparisons can be made between two pieces of copy using direct mail.

While these tests are both more economical and simpler than actual sales tests, one major limitation is that there is no certainty that the advertisement when actually given will have the same result as at the time of the test.

Day-after Recall Tests

These tests are generally undertaken for television commercials. The test involves an on-air exposure of a commercial in a couple of cities. This is followed by a telephonic enquiry of the respondents to find out if they can recall the message. The aggregate recall score that is arrived at is compared with a standard score based on similar studies. If the score given by the commercial is higher than the standard score, it is inferred that the advertisement is useful and should be telecast on a larger television network.

The main advantage of this test is that it is performed in a natural setting. Moreover, a proper sample design can be used in this method. In contrast, the major limitation is that it turns out to be a test of the respondent's ability to remember. This does not necessarily establish that the respondent will behave in a different way as a result of watching the commercial on television. How far can be recall be related to a change in the respondent's attitude and behaviour? This is a pertinent question which is difficult to answer in the context of day-after recall tests.

'After' Tests

There are three methods that are frequently used to test an advertisement after its formal release. These are recognition test, recall test and sales test. They are described below.

Recognition Tests

These tests are carried out with respect to a printed advertisement and commonly referred to as a readership study. Here, the respondents are asked if they have read a particular issue of a magazine. They are further asked as to what they saw and read. Generally, the respondent is shown a particular page of the magazine and then the following measures of recognition are taken

1. Noted - the percentage of readers who have seen the advertisement earlier.

2. Seen-Associated – the percentage of readers who read a part of the advertisement which indicates the brand or advertiser.
3. Read Most – the percentage of readers who read a major part of the advertisement.

Scores are assigned to these three measures and overall scores are determined for all the advertisements contained in a particular issue of the magazine. These scores are then related to the expenditure incurred on the advertisement. In this way, cost ratios can be determined.

The recognition method has certain limitations. Some respondents may confuse specific advertisements with similar or identical advertisements seen elsewhere. Respondents may forget having seen an advertisement earlier or falsely claim that they have seen it.

Recall Tests

In this method respondents are asked to recall specifics of the advertisement. In the foreign countries, there are some advertising agencies that offers a post-testing readership service. To begin with, copies of test magazines are sent to a sample of respondents who are asked to read them in a normal manner. Telephone interviews are held on the following day. Respondents are read out a list of advertisements and asked to identify those they remember and the extent to which they are able to recall. Thus, scores are assigned to the ability of the respondent to remember the name of the product, the underlying message contained in the advertisement and their favourable attitude regarding the advertisement.

Recall tests, no doubt, go beyond recognition tests but it is difficult to say that recall scores indicate the desired consumer behaviour. Recall scores may be high and yet there may not be any perceptible change in the consumer behaviour with respect to the product in question.

Sales Tests

This method measures the effect of an advertisement on the sale of the product. The assumption is that changes in sales are as a result of the advertisement. However, as there are several factors influencing sales, one has to be extremely careful in establishing a relationship between advertising and sales. It is desirable to isolate the influence of other factors while determining the impact of an advertisement on the sale of the product. Experimental studies can be designed to study the impact of an advertisement on sale. An experimental study of this type is explained in Example 2 in the chapter on Experimental Designs.

After having discussed the 'before' and 'after' tests, we now turn to two recent studies on advertising research in the Indian context.

Examples of Advertising Research Studies in India

An advertising research study dealing with Santoor, a brand of toilet soap was done by Ravi Menon and Ashutosh Sinha. Simulated Test Marketing (STM) methods were used to choose between two alternative advertising themes for the relaunch of Santoor. Although the study relates to simulated test marketing which formed the subject of the preceding chapter, it is discussed here as it also pertains to advertising research.

Santoor was launched in 1986. In early 1989, a relaunch of the brand was being contemplated. At this time its distribution was not yet fully national. The few states where Santoor had been quite successful contributed to a large part of the brand's sales volume.

A number of changes were now contemplated: a new perfume and a new pack design, while distribution was to be extended to smaller towns and to all the states in the country. Finally, a change in the advertising was also planned: the brand was to be positioned 'for the modern women'.

The advertising agency, Ulka, came up with two alternative appeals for advertising:

'Romance': to have soft fragrant skin that makes one attractive to men.

'Young Skin;' to have youthful skin.

Three alternative advertisements were developed for the 'young skin' concept, while one was developed for 'romance'.

In the first phase of the study, qualitative research using focus group discussions was conducted in Bombay, by Probe Qualitative Research (PQR). Of the three alternative advertisements for 'young skin', one ad (i.e. 'Bookshop') was found most appealing. The lone ad for the 'romance' concept was also shortlisted through qualitative research.

The two ads (one for each concept) thus shortlisted are described below:

Aamir Khan (Romance): The ad features a dreaming Aamir Khan (a film star).

Bookshop (young skin): The mother of a young girl is mistaken for a college student at a bookshop.

The question to be probed was: Will Aamir Khan actually succeed in generating a higher increment of trial?

An adapted form of a STM model was employed to answer this. The study was conducted in Bombay (where the focus was on the potential new tiers for the brand) and Cochin (where the main interest was the existing user base: Kerala being a strong market for Santoor). Two panels of respondents were recruited. The Aamir Khan ad was shown to one panel, while the other panel was exposed to the Bookshop ad.

The exercise was carried out over the following five stages:

Stage I: Women who met the target group definition were recruited. The recruitment interview also assessed the brands of soap ever tried and those currently used. Preferences between brands were also measured using a Constant Sum Preference scale.

Stage II: Respondents were brought to a central location. They were shown advertising for Santoor as well as other ads in a clutter of commercials, after a short television programme.

Stage III: A coupon worth Rs.12 was handed over as a 'gift'. The ladies were then led to a stall that stocked Santoor as well as several other brands. They were free to buy whatever they wished, or not buy anything at all, in which case they could collect cash in exchange.

Stage IV: An optional in the STM procedure. In order to obtain a detailed assessment of the advertising itself, the test advertisement was screened once again, followed by a short interview. At the end of this, the brand (Santoor) was given as a gift to those who had not purchased it at the simulated shop.

Stage V: After a lapse of a week, the respondents were once again interviewed at their homes for their evaluation of the product. Their preference between brands was measured once again, this time including Santoor in every instance.

The Total Sample Size Was Over 500.

It may be noted that the STM system is based on the ascertain that if we know something about a person's attitudes, we can make a statement about his or her likely behavior. So if a person's preference between brands is known, then we can say something about his relative chance of buying these brands.

The study concludes that as the trial part of the model works well, this is a good method for advertisement testing. The trial at the simulated shop offers an absolute standard which is lacking in any kind of 'intention to buy' scale.

Another study done by Sankara Pillai examines the impact of clutter on advertising viewer ship and recall. One of the major problems with regard to television media planning in India is the dichotomous choice between two types of vehicles. On the one hand, there is the option of buying an extremely high viewership programme that has a string of 30-40 ads, and on the other the choice is that of a moderate viewership programme with only a moderate clutter level.

The study by Sankara Pillai uses Near-Coincidental Interviews and a series of controlled Forced Exposure Tests to provide measures of the effects of clutter on advertising. Before embarking on a study it was necessary to define how exactly clutter affects advertising. It was believed that there would be two influences at work. Firstly, the viewer may take advantage of the predictably long capsule to attend to other task. Thus, he may switch on the set later than the announced programme time or alternatively, even if the set is switched on, he may not be physically present in front of it. While the former situation implies a non-response to all of an audio. There could also be intermediary situations in the quality of exposure, with the viewer being physically present in front of the set but doing something else, which results in varying degrees of attention being paid to the screen.

The second effect of clutter would be one of notice ability and registration of the advertising message. There is some evidence to show that between 1965 and 1981, a period in which the number of ads aired increased greatly, the recall levels for the last ad seen on television declined from 18 per cent to 7 per cent. Krugman hypothesizes that this could be due to perceptual defence created by the viewer in the form of increased 'distraction opportunities'. Evidently, any study on the impact of clutter would also need to take into account the effect of clutter on notice ability and registration of the advertising message.

The study as designed by the IMRB, thus, had two separate components to measure each of these two effects. The method for measuring the first effect of clutter on set switching-on behaviour consisted of Near-Coincidental Interviews. Respon-

dents pre-selected on demographic quotas were interviewed within 30 minutes after the conclusion of the programme. This was done to avoid interrupting the viewing which could lead to non-cooperation on the respondents part. The interview ascertained whether the programme was watched and if it was, whether the viewing commenced from the previous programme, the advertising capsule or after the commencement of the programme. If the viewing commenced during the capsule the exact time of starting the viewership was anchored by providing the respondent with the sequential list of advertisement telecast before the programme. The same technique was adopted to monitor the movement of the viewer out of the room, if at all, after commencement of viewing. For non-viewers of the capsule the opportunity-to-hear was also determined. Data were collected for 23 programmes in this manner with a sample size ranging between 200 and 400 for each programme. The study was carried out in nine places – four large metropolitan cities and five smaller towns. Of the 23 programmes, 11 belonged to the high clutter category while the remaining 12 were of the low clutter category.

For measuring the second effect, the impact of the clutter on notice ability and recall, a series of Forced Exposure Tests were carried out. Matched panels were exposed to a test ad (being aired for the first time) either in a low clutter capsule of 12 ads or in a high clutter capsule of 30 ads. All ads were in Hindi, of 20 seconds duration each, and represented major product categories advertised on TV. In either case, the ad capsule preceded 20 minutes of a popular programme. The position of the test ad was varied within the capsule to measure the effect of position. A total of 800 people formed the sample for this component of the study, with one half of the sample being exposed to the high clutter capsule and the other half being exposed to the low clutter capsule.

The study clearly establishes that the impact of clutter is something that media planners can no longer ignore. This is especially true when planning TV media schedules for products targeted at certain segments, like the older age group, where the impact of clutter seems to be maximum.

Of the two effects of clutter on advertising, the impact on advertising notice ability and recall is much greater than that of the erosion of advertising viewership. Any study on the impact of clutter would, therefore, need to take into account both these aspects.

These examples of advertising research studies indicate that with the increasing importance of advertising in India, certain aspects of advertising are studied by professional marketing researchers. The studies also reflect the sophisticated methodology used in seeking out the right answers. It may be emphasised that these are only illustrative examples and in reality a wide variety of advertising problems are taken up for research from time to time. However, a good number of studies done by consulting firms are not made public because of the condition of confidentiality stipulated by the sponsoring organisations.

Need for More Systematic Copy Testing Research

Despite the improvement that has taken place in copy testing, there is a strong case for undertaking it in a far more systematic manner. Ostlund, Clancy and Sapra reached some interesting

conclusions in this regard. One of the conclusions was that although advertisers and agencies were spending a great deal of their money on copy testing services, there was hardly any assurance of the validity of this method. According to them the inaction concerning the assessment and improvement of copy-testing method performance is probably due to the lack of minimum standards for reliability, sensitivity and validity for either TV copy-testing methods or print methods.

Almost the Same Observations are Echoed by William Rubens. He Says

“Billions of dollars are spent each year on television advertising, and to make sure that those dollars are spent wisely, millions of dollars are spent each year on the measurement of the television audience. But relatively little is spent to make sure that audience measurement is being done correctly.”

In the survey conducted amongst advertisers and advertising agencies, Ostlund, Clancy and Sapra avoided the use of the words reliability and validity. They asked the respondents to indicate the extent to which they were accustomed to testing a commercial, i.e. two or more times by the same method or two or more times by different testing methods. It may be mentioned that the reliability of the copy testing method can be ascertained by testing the same commercial twice by using the same method. Likewise contrast validity of the copy testing method can be assessed by testing a commercial two or more times by using different methods. This construct validity may be regarded as a step prior to the more demanding and complicated requirements of empirical validation through field methods such as experimental designs. The authors observed that for advertisers, testing the same commercial twice by the same method or by a different method was very uncommon. About 40 per cent of the advertiser respondents indicated that such repeat testing occurred less than 5 per cent of the time. About 20 per cent claimed to test a commercial twice by the same method or twice by a different method about 5 per cent to 25 per cent of the time. As regards the advertising agencies, about 90 per cent stated that they conducted the testing of a commercial twice by the same method in less than 5 per cent of the cases. Only 7 per cent of agency respondents claimed to test twice by the same method, 5 per cent to 25 per cent of the time. Another 37 per cent of agency respondents claimed to test twice by different methods in 5 per cent to 25 per cent of the cases.

On the basis of these results, the authors conclude that both advertisers and advertising agencies are indifferent in providing an assessment of the reliability and validity of the test methods that are used on a variety of products and copy executions. This clearly underlines such tests cannot be used continuously on account of the expenditure involved, some effort is called for in this direction.

Let's Recapitulate the Chapter

- Advertising research serves many purposes like determining the objectives of advertising, carving marketing strategy for the product, selection of target audience and finally the evaluation of the advertising.
- The main issues in media research are as follows:
 - Choice of Media Type

- Decision about the specific type of insert
- Methods of copy testing may be divided into two categories:
 - 'Before' Tests
 - 'After' Tests
- There is a number of pre-test methods used for copy testing. These methods may be enumerated as follows:
 - Consumer Jury
 - Rating Scales
 - Portfolio tests
 - Psychological tests
 - Laboratory testing
 - Inquiry tests
 - Simulated sales tests
 - Day-after recall tests
- Following are the three methods for conducting the 'After' tests:
 - Recognition tests
 - Recall tests
 - Sales tests
- There are certain paradoxes in the evaluation of advertising research, Thus there is the need for integrating advertising research into an overall programme of marketing research

LESSON 37: MARKET SEGMENTATION AND BRAND POSITIONING.

Introduction

In this lecture, We will devote our attention to two inter-related themes viz. market segmentation and brand positioning. A proper understanding of these concepts and the procedures involved in identifying market segments and positioning of the product or brand in the target segment is of profound importance to marketing management.

Lesson Objectives

- Market Segmentation
- Brand Positioning
- Perceptual Mapping
- Interrelationship between Market Segmentation and Brand Positioning

This chapter is devoted to two inter-related themes – market segmentation and brand positioning. Over the years, these have become important areas in marketing research. A proper understanding of these concepts and the procedures involved in identifying market segments and positioning of the product or brand in the target segment is of profound importance to marketing management. It enables the company to design most suitable strategies to improve its market share and earnings.

Market Segmentation

Market segmentation is the process by which the total heterogeneous market for a product is divided into several sub-markets or segments. Each segment is homogeneous in all major aspects and is different from the other. In economic terminology it can be said that though there is only one demand schedule for the total market, if it is divided into different segments, each segment would have a separate demand schedule.

The need for market segmentation arises because a company with its limited resources cannot cater to the demand of the total market. In view of this, it has to identify the segments where its product would be most suitable and market that would be most profitable.

There are several benefits of market segmentation. It helps in designing products that match with the market demand. A company could determine the most effective promotional strategy and position its promotional efforts to synchronise with the period when the consumer's response is likely to be the maximum.

While the concept of market segmentation is simple, the problem arises when a company has to identify suitable market segments for its product or service. It has to identify segments in such a way that they are different from each other but have homogeneity within the segment. This is an extremely complex problem to be faced while segmenting the market.

Bases for Market Segmentation

There are several ways by which a company can segment its market. The methods may vary from one product to another.

An important way of segmenting the entire Indian market is to divide it into (i) ultimate consumers and (ii) industrial users. The ultimate consumers buy and/or use products or services for their own use. In contrast, industrial users are industrial, business or institutional organisations which buy products and services in order to manufacture their own products. Since the two markets buy the products or services very differently, this division of the entire market into two, i.e. consumer market and industrial market, is extremely relevant and important from the viewpoint of marketing. In this chapter, the discussion is focused on consumer market segmentation. An illustrative list of bases for segmenting consumer markets is given in Table 23.1.

Table 23.1 Bases for Segmenting Consumer Markets

Demographic Bases	Psychographics Bases	Behaviouristic Bases	Brand-related Attitudes
Region	Life style	User status	Brand perceptions
States	Personality	Usage rate	Brand preferences
Districts		Benefits sought	
City size		Readiness stage	
Density			
Climate			
Age			
Sex			
Family size			
Income			
Occupation			
Education			
Religion			
Social Status			

Demographic Segmentation

Market segmentation can be effected on the basis of demographic characteristics of the respondents. Demographic characteristics or bases are factors such as age, sex, race, nationality, religion, family size, urbanisation, income, occupation, etc. These measures are commonly used while segmenting the market.

Studies using demographic bases normally relate to large samples. They use structured and underguised questionnaires for collecting primary data from the sample respondents. In addition to the demographic characteristics, the respondents are questioned on their purchasing power of a particular brand and their consumption rate of each brand.

It is said that in many cases, demographic segmentation is unable to discriminate perfectly between heavy and light users or between users and non-users. All the same, such a measure as rural-urban population or male-female respondents will show significant differences in usage rates of consumer goods. In

view of this, demographic segmentation cannot be ignored. It is relatively easy to use demographic characteristics in a research study. In addition, it is easier to understand their impact on the level of consumption or usage. Such an understanding will no doubt, be quite useful to advertising agencies to identify the media suited to get the desired results.

Psychographics Segmentation

Like demographic bases, the purpose of psychographic bases is the same, i.e. to identify various market segments. Psychographic bases are used to classify respondents with respect to their attitudes, beliefs, opinions and activities.

Several steps are involved in order to obtain psychographic data. First, a number of statements are framed. Second, the statements are listed in random order in a questionnaire. Third, it is desirable to have several statements in a questionnaire for each activity, attitude, belief etc., which is to be measured by the researcher. Finally, the respondents are asked to indicate to what extent they agree or disagree with each of the statements, say, on a ten-point scale. Respondents are asked to report their consumption of the given brand/product and of various advertising media. On the basis of these responses, the researcher has (i) to identify groups of respondents having different activities, interests, attitudes and opinions; and (ii) to ascertain how these groups differ with regard to their product, brand and media usage.

For example, let us consider a psychographic study done by Pathfinders, a marketing research agency. Pathfinders conducted personal interviews of 10,303 working and non-working women, aged between 18 and 45 years, with family income of more than Rs.350 per month, in 36 towns and cities across the country.

The study known as P : SNAP analysed the data collected from the interviews, conducted over a period of three-and-a-half months, and came up with eight identifiable types of Indian housewives:

1. *The gregarious hedonist*: Found predominantly in the east, she is most likely to speak Bengali and is intensely extrovert and liberal. She does not believe in sacrificing her life just to keep her family happy.
2. *The gregarious hedonist*: She is on the threshold of change. While she has not given up many traditional values, she aspires for modernity and is least likely to be living in north India. She feels the need to do something more meaningful besides housekeeping. She is fashion-conscious.
3. *The affluent sophisticate*: She lives mainly in the west zone. She is the highest user of all kinds of consumer products. She is comfortable talking to men outside her family circle, and would not mind if her children marry outside the community.
4. *The right-fisted traditionalist*: Leading a sheltered life, she prefers to follow the film stars in her dress habits but is particular about prices. She restricts her circle of friends within her community. A majority live in north India.
5. *The troubled home-body*: Neither a leader nor an emulator, she is largely illiterate and is the least exposed to the media.

Fashion takes a back seat and the future, according to her, is written in the stars.

6. *The anxious rebel*: Less likely to be found in the south, she would much rather be working than staying at home. She is anxious, thrifty but discerning in her shopping, though quite willing to try out new products.
7. *The archetypal provider*: Living overwhelmingly in the south, she is satisfied being a housewife. She sees TV much less than the average viewer, and is disinclined towards fashion. But she is ever willing to try out new food recipes, and loves to spend on her children and guests.
8. *The contented conservative*: She is extremely confident out probably the most efficiency householder of all. She is a great optimist, is very conscious of the family's health and is, by and large, the advertising man's dream as she believes that ads are a great source of information.

The study observes that although the first three modern types represent more than 35 per cent of Indian housewives, life-style patterns outside the house remain largely traditional. As regards the housewives in different zones, it is the housewife in the east who emerges as the most modern and socially integrated. The housewife in the west is more confident of her ability to achieve something in life. The southern housewife emerges closest to the conception of conservative. The housewife in the north is introvert, the least hospitable and the most dominated by her husband. While the survey concludes that the Indian housewife sees herself basically as a traditional provider, all the same, a growing number of urban women are beginning to see themselves in a more modern context.

Limitations of Psychographic Segmentation

There are some limitations of psychographic segmentation. Some people hold the view that lifestyles of people are too heterogeneous to be classified into watertight groups. Even, so, the general feeling among marketing people is that psychographic measures bring out some useful insights into market segmentation on the basis of such factors as attitudes, interests and activities of the respondents. Psychographic segmentation seems to be more useful as compared to the demographic segmentation. The former enables researchers to draw meaningful inferences in the sphere of advertising. For example, such studies may reveal how different segments respond to advertising messages. At the same time, a major limitation of such studies is that analysis of psychographic data is not only complex but also very subjective. A psychographic study generally involves the use of cluster analysis. There are different techniques of cluster analysis. The application of different techniques to the same set of psychographic data may bring out different market segments. Since the researcher himself has to choose a particular technique to be used, the analysis of psychographic data tends to be subjective. This is considered to be the major limitation of psychographic segmentation.

Behaviouristic Segmentation

Markets can also be segmented on the basis of the behaviour of respondents. One behaviouristic basis is to first identify heavy, moderate and non-users of a product and then no

ascertain how demographic, psychographic and media usage characteristics vary among the three categories. This approach leads to the usage rate segmentation.

Usage Rate Segmentation

In order to use this method, it is necessary that data on the consumption of a particular product from a large number of consumers are available. Such data can be obtained through a consumer panel. If panel data are not available, then a field survey has to be undertaken to collect the requisite data. While collecting the data, a structured and non-disguised questionnaire is designed, provided demographic characteristics are to be used for segmentation. In the other case, a structured and disguised questionnaire is used. The measures of usage rate can be in the following forms:

- a Users and non-users,
- b Heavy users and light users, or
- c Heavy users, light users and non-users.

The consumers' groups thus formed are then analysed either on demographic or psychographic measures.

It may be noted that in respect of several products/brands, a relatively small proportion of the total population accounts for a large proportion of total consumption. In view of this, the usage rate approach for market segmentation seems to be justified. This apart, the use of this approach is not only quite easy but also straightforward. These are the major advantages of this approach. As against these advantages, it has been criticized on the grounds that it fails to take into account the brand preferences of different consumers and is unable to provide any reason as to why a particular brand is chosen by a consumer and not the other brand/s. These shortcomings can be overcome if product or brand attributes approach is used instead.

Brand-related Attributes

In view of the limitations of the forgoing approach, there is now an increasing trend in favour of brand attributes approach. It is based on the consumer's perceptions of the characteristics of various brands. Here, it is believed that consumers always compare their perceptions of each brand's characteristics against an "ideal" brand. As these perceptions seem to form the basis for purchase decisions of the consumers, segmentation based on product or brand attributes has a distinct advantage.

Another way of predicting a consumer's purchase behaviour depends on two things, viz. his belief about the brand's attributes and the importance assigned to these attributes. Suppose a given brand has three attributes – attractive, smooth and durable. Further, suppose the relative importance of these three attributes is 4, 3 and 3; and total weight being 10. Now, a consumer assigns a score on a scale of 10 to each of these attributes on the basis of his perception. These scores are: attractive 6; smooth 3; and durable 7. Then his total score for that brand will be $(6 \times 4) + (3 \times 3) + (7 \times 3) = 54 \div 10 = 5.4$. Similarly, scores for other competitive brands can be obtained. On the basis of the scores for each brand, it is possible to make a prediction of the consumer's preference ranking. Such an exercise will enable the researcher to know in depth (i) the product

characteristics that different consumers want, and (ii) their perception with regard to these characteristics for each brand. If the researcher also knows the consumer's "ideal" with regard to these characteristics, then he can decide on the positioning of new products/brands. Decision on some related issues such as introduction of new products, repositioning old products and forecasting market-share trends can also be taken.

As regards statistical techniques for clustering of consumers into homogeneous groups, multiple discriminant analysis and cluster analysis are more frequently used. These techniques can also be used in studies on market segmentation based on product or brand attributes.

It may be pointed out that marketing management is favourably inclined to this approach. This is because of its relative advantage over other approaches. Its main strength is that it enables management to know how its brand is perceived by various segments in terms of the attributes which are important to them. On account of the availability of this information along with demographic, psychographic and media usage data pertaining to each segment, managers are in a position to choose target market segments. They can then design effective copy and media strategies for the preferred segments.

Despite this advantage, this approach is regarded as a very difficult exercise in marketing research on account of two reasons. First, it calls for a lot of competence and expertise for handling the large quantities of data involved. Second, the relationships brought out by the analysis tend to be merely descriptive and do not reveal any causes for the same. As a result, the conclusions drawn by marketing researchers tend to be based largely on their assumptions and inferences.

Requirements for Effective Market Segmentation

Before we close this section, it may be worthwhile to know how market segmentation can be effective. There are three conditions which must be fulfilled if market segmentation is to be made effective.

1. The bases for segmenting, i.e. the characteristics on the basis of which customers are to be classified into different categories, must be measurable and the data accessible.
2. It is necessary that market segments are accessible. A company should cater to the chosen segment or segments on the basis of the existing channels of distribution, the advertising media and the sales force. This should be possible with minimum cost and waste.
3. Finally, the market should be segmented in such a manner that each segment is large enough for a company to have adequate sales and profits from that segment.

Target Marketing

The foregoing discussion indicated how the marketing research can identify different segments of the market. Having thus identified market segments, a company may have to adopt target marketing. In this connection, there are three broad strategies available to a company from which it has to choose one.

The company may adopt the strategy of undifferentiated marketing, which implies that it may cater to the largest part of the market with one offer and marketing mix. Alternatively, it may go in for concentrated marketing which means it favours a narrow market segment and will develop the ideal offer and marketing mix for it. Yet another alternative before the company is differentiated marketing which means it has decided to cater to several market segments, developing an effective offer and marketing mix for each chosen segment. Excepting the undifferentiated marketing strategy, the company has to choose its target market segments.

How does one choose target markets? To begin with, the company has to analyse each segment as a distinct opportunity? Such an analysis will indicate the profit potential of each market segment. Once this information is available, the company has to consider several factors that are relevant in choosing the target market segment. These are: resources available with the company, product homogeneity, product stage in the life cycle, market homogeneity and competitive marketing strategies. Once the target market segment has been identified, it will enable the company to concentrate all its promotional and media efforts for a given product or brand on the chosen market segment. It has to make itself fully aware of the target consumers' characteristics, needs, and expectations. Since there may be some competitive brands in the same target market segment as the company has chosen, it has to decide how best it can 'position' its brand vis-à-vis other brands. This brings us to the concept of 'positioning'.

Brand Positioning

Brand positioning is a relatively new concept in marketing. The concept owes its origin to the idea that each brand occupies a particular space in the consumer's mind, signifying his perception of the brand in question in relation to other brands. While product or brand positioning has been defined by various authors in different ways, the underlying meaning conveyed through these definitions seems to be the same. Instead of giving several definitions, we may give one here. According to Green and Tull,

"Brand positioning and market segmentation appear to be the hallmarks of today's marketing research. Brand (or service) positioning deals with measuring the perceptions that buyers hold about alternative offerings."

From this definition it is evident that the term 'position' reflects the essence of a brand as perceived by the target consumer in relation to other brands. In view of this, the management's ability to position its product or brand appropriately in the market can be a major source of company's profits. This seems to be an important reason for the emergence of product or brand positioning as a major area in marketing research.

Components of Positioning

Positioning comprises four components. The first component is the product class or the structure of the market in which a company's brand will compete. The second component is consumer segmentation. One cannot think of positioning a brand without considering the segment in which it is to be offered. Positioning and segmentation are inseparable. The

third component is the consumer's perception of the company's brand in relation to those of the competitors. Perceptual mapping is the device by which the company can know this. Finally, the fourth component of positioning is the benefit offered by the company's brand. A consumer can allot a position in his mind to a brand only when it is beneficial to him. The benefits may be expressed as attributes or dimensions in a chart where brands are 'fitted' to indicate the consumer's perceptions.

As perceptual maps are used to indicate brand positioning, blank spaces in such maps show that a company can position its brand in one or more of such spaces.

Techniques for Perceptual Mapping

There are a number of techniques for measuring product positioning. Some of these which are important are:

- Image profile analysis
- Factor analysis
- Cluster analysis
- Multi-dimensional scaling

We will not go into the detailed mechanism of these techniques. All the same, we will briefly explain the techniques.

Image Profile Analysis

This technique is the oldest and most frequently used for measuring the consumer's perceptions of competitive brands or services. Normally, a 5 or 7 point numerical scale is used. A number of functional and psychological attributes are selected. The respondent is asked to show his perception of each brand in respect of each attribute on the 5 or 7 point scale.

It will be seen that the figure provides some insight as to which brands are competing with each other and on what attribute(s). This technique has some limitations. First, if the number of brands is large, it may not be possible to plot all the brands in a single figure. Second, there is an implicit assumption in this technique that all attributes are equally important and independent of each other. This is usually not true. However, this limitation can be overcome by using the technique of factor analysis

Factor Analysis

As regards factor analysis, it may be pointed out that its main object is to reduce a large number of variables into a small number of factors or dimensions. In Chapter 17, two examples have been given to illustrate the use of factor analysis. The discussion also brings out some major limitations of the method.

Cluster Analysis

Cluster analysis is used to classify consumers or objects into a small number of mutually exclusive and exhaustive groups. With the help of cluster analysis, it is possible to separate brands into clusters or groups so that the brand within a cluster is similar to other brands belonging to the same cluster and is very different from brands included in other clusters. This method has been discussed in Chapter 17.

Multi-dimensional Scaling

Multi-dimensional scaling too has been discussed in Chapter 17, pointing out how perceptual maps can be developed on the

basis of responses from consumers. In this connection, two illustrations of perceptual maps were given. The first illustration related to selected Business Schools based on hypothetical data. On the basis of two criteria, viz. how prestigious and quantitative an MBA course is, different Business Schools have been shown in the map. It will be seen that the MBA course of Business School 'C' is extremely different from that offered by Business School 'G'. Points which are close to each other indicate similarly of the MBA courses in the student's perception. The second illustration related to four brands of washing soaps based on a survey data from Calcutta. This is a non-attribute based example where a paired comparison for four high-and-medium-priced detergents-Surf, Sunlight, Gnat and Key was undertaken. As mentioned there, Sunlight and Surf are closet and Surf and Key are farthest. In other words, the first two brands are most similar and the remaining two are most dissimilar. How the points in the figures for the four brands have been arrived at has been explained at length in that chapter and so it not repeated here.

Subroto Sengupta has discussed at length product positioning in his book. While explaining different techniques of product positioning, he has shown how the concept of positioning can be used to improve the image of the concerned product or brand. He has given a number of examples covering a wide variety of products such as coffee, soft drinks, washing soaps, toilet soaps, shampoos and magazines. As Sengupta points out the perceptual maps of product class also indicate holes or vacant positions in the market. These open spaces can be helpful to the management in suggesting new product opportunities as also possibilities for repositioning of old products. While it is true that the management does get the clues on preferred attributes of the product in question, it is unable to know all the relevant features of the new product such as its form, package and price. This problem can be overcome through the application of the conjoint analysis. In addition, Sengupta has discussed some research studies in respect of advertising positioning.

We now give a detailed version of a study indicating how a brand which was putting up a poor performance in the market was repositioned. As a result, it improved its image and contributed to increased market share and profits.

An Illustration of Repositioning of Brand

A study done by the Indian Market Research Bureau (IMRB) relates to repositioning of the Singer sewing machine. In the early eighties, Singer, which was renamed the Indian Sewing Machine Company Limited, realised that the market for sewing machine had come to near stagnation. This was partly on account of a multitude of new household appliances.

On the basis of a focus-group study, the study team came to know the presence of two segments in the market. One segment described the sewing machine as "a must and a utility that gives convenience". The other segment was one where there was a growing perception that sewing is a drudgery. A quantitative study gave indications of the size of the two segments existing then:

Drudgery Segment	57 per cent
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Utility Segment	43 per cent
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It may be emphasized that over the years, Singer had come to be seen as a brand that embodied the values: trustworthy, dependable and durable. However, these core values were no longer motivating enough for the drudgery segment. The Sewing Machine Company Limited, therefore, needed to improve its image. It wanted to add new values in the form of "excitement" and creativity" for its product. Accordingly, the company set up a plant to manufacture a sophisticated sewing machine, which was characterized by a large variety of decorative stitches, and advanced technology. In early 1986, Fashionmaker entered the Singer showrooms.

The study team hypothesized that Fashionmaker would have made an impact (a) on the brand image of Singer, as well as (b) on the product category per se. As there was no suitable pre-launch study, the study team made use of data from a study that was done after the launch of Fashionmaker.

For this purpose, a quantitative study was done to collect data on attitude to sewing at home. This was through obtaining the level of agreement/disagreement on a Likert scale for each statement in a battery. In addition, data were obtained on brand image of Singer and Competition. For this purpose, a semantic-differential scale was used to collect ratings of the two brands on a set of pre-chosen image attributes.

Data on attitude to sewing were gathered from a representative sample of housewives. As regards brand image data, interviews of sewing machine owners and potential buyers were conducted.

The study team chose to split the sample into parts: (a) one part contained respondents who were not exposed to Fashionmaker in any way, and (b) another part contained the rest. It was ensured that the profiles of the two parts were fairly well matched on key demographic dimensions so that there might be comparability of data between pre-Fashionmaker situation and post-Fashionmaker situation.

The data on attitude to sewing were used to understand the segments in the market. Use was made of the technique of cluster analysis, and then, of discriminant analysis to enable the study team to describe the clusters.

The analysis showed a dramatic shift in the post-Fashionmaker situation. A new third segment emerged, together with a shrinking "drudgery" segment. The new segment did not see sewing at home as a laborious task. It held the view that the machine was meant for much more than repairing and alternations – perhaps, for more frequent and creative use.

In order to know the changes that have taken place in brand image, the attributes of brand image were reduced to "factors", and then these were regressed against the "overall" attribute to arrive at the importance attached to the factors.

As would have been expected, with the appearance of the new segment "versatility" in the market, the post-Fashionmaker situation saw emergence of two new dimensions – "exciting" and "creative" as being important.

Table 23.2 shows the relative importance of image dimension in the two situations.

Table 23.2 Relative importance of Image Dimensions

Pre-Fashionnaker Situation		Post-Fashionnaker Situation	
Image Dimension	Relative Importance (%)	Image Dimension	Relative Importance (%)
Trustworthy,		Trustworthy,	
Dependable and		Dependable and	
Durable	53	Durable	41
Attractive looks	24	Exciting and	18
		Trouble-free	
Leader	23	Creative	16
		Leader	15
		Modern	10

Based on the results of the factor analysis of the image attributes, the study team determined the scores for the two brands – Singer and the Competition, on the key dimensions. It found that Singer had been able to gain an edge over the Competition through reorganizing its set of values.

The study has thus shown how the emergence of new segments followed by suitable advertising has enabled the management to reposition Singer Swing Machine.

In this connection, it will be interesting to know some observations made by Ranu Raj. Writing on the importance of brand image, the author observes that, “new product development could also mean recycling existing brands... The real excitement comes from recreating the brand, from changing its image in consumers’ minds and by adding drama to the product.” The author further goes on to observe that Horlicks, the age-old brand of HMM, regained its dipping volumes by rejecting a fresh lease of life into its fading product image. The brand was given a new formulation feeling by adding calcium into its existing ingredient mix, by changing its advertising, packaging and labeling. In short, adding value to the equity of the band, and making it more contemporary and relevant to new, emerging needs of consumers.

Integration of Market Segmentation And Brand Positioning

At this stage, the need for combining market segmentation study and brand positioning study may be emphasised. As a consumer segment would respond to a brand that occupies the position preferred by it, so also a brand must be positioned to appeal to that target consumer segment. In other words, the two should be integrated. As David W. Cravens has rightly observed. “Target market and positioning strategies are like the two sides of coin. They are inseparable and each depends upon the other.”

Green and Tull provide a good example of integrating target segment and positioning of brand (beer) in their book. The authors conducted a study in a particular region of the United States, taking a sample of males addicted to beer. The data related to 12 different brands of beer. On the basis of this

study, the authors showed how the questions of product positioning and market segmentation and propensities of consumer switching from one brand to another could be interrelated in a single study. It is, therefore, advisable to combine market segmentation and brand positioning in a more comprehensive single study. Such a study will be far more useful to the management in formulating suitable marketing strategy of the company than the two studies done at different times, as if they are completely unrelated.

Let’s Recapitulate The Chapter

- Market Segmentation is the process by which the total heterogeneous market for a product is divided into several sub-markets or segments.
- There may be the several basis for Market Segmentation which have enumerated below:
 - Demographic Segmentation
 - Psychographic Segmentation
 - Behaviouristic Segmentation
 - Usage rate segmentation
- A company may opt for concentrated marketing or differentiated marketing, for this purpose it has to choose its target market segment.
- Brand positioning is a relatively new concept in marketing. Brand positioning deals with measuring the perceptions that buers hold about alternative offerings. Thus ‘position’ reflects the the essence of a brand as perceived by the target consumer in relation to other brands.
- ‘Perceptual Mapping’ is the device for knowing the consumer’s perception of the company’s brand in relation to those of the competitors. Following are the main techniques of the ‘Perceptual Mapping’:
 - Image Profile analysis
 - Factor analysis
 - Cluster analysis
 - Multi-Dimensional scaling
- Target market and positioning strategies are like the two sides of coin. They are inseparable and each depends upon the other. As a consumer segment would respond to a brand that occupies the position preferred by it, so also a brand should be positioned to appeal the target consumer segment.

Q: How would you measure the size of television audiences?
Evaluate each of the methods that can be used.

[illegible]This image shows a vertical rectangular sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it is resting on a surface.

LESSON 39:

EXPORT MARKETING RESEARCH

Introduction

A company may decide to enter the export business due to several reasons. The export marketing is a highly complex operation. So in this lecture, we will discuss special issues related to export marketing research.

Lecture Objective

- Why Export?
- Problems in Export Marketing Research
- Organizing Export Marketing research
- Scope of Export Marketing research
- Information requirements of International Marketers
- Use of Secondary data
- Collection of Primary Data
- Major sources of error in International Surveys
- Analysis and Interpretation of the Data and Preparation of the Report
- The role of International Trade center

Export Marketing Research

Why Export?

The need for export marketing research will arise only when a company is genuinely interested in exporting its product. There can be several reasons which may motivate it to export. These may be as follows:

1. There is a surplus production capacity which can be utilized if overseas market is harnessed.
2. The home market is saturated or passing through a no-growth phase. Exports can moderate the influence of fluctuations in the home market.
3. There is a heavy pressure of competition in the home market. This may not be so in the overseas market.
4. Overseas markets seem to be more attractive as there may be substantial business.
5. Emphasis on export may help improve the quality of indigenous product as the exporter has to face the challenge from the foreign competitor.
6. An exporter is entitled to preferential treatment under the import policy in our country. As such, he may have more access to imported units than a non-exporter.
7. Export profits are exempted from the income tax under Section 80 HHC of the Income Tax Act.
8. The top management of the company may be very ambitious and wants to enter the export trade so that its company may in due course become a multinational corporation.
9. A company may find that its senior management is specially equipped for export marketing on account of managerial experience and competence.

10. A company might have developed a new product the demand for which may be far more in the overseas market than in the domestic one.

A company interested in exporting its products must know which of the above-mentioned factors are applicable in its case. It must seriously consider the various aspects of entering into export field. It should adopt a long-term approach and should retain from entering and leaving the export field as and when it pleases.

The importance of export marketing research has been aptly emphasized by Milton L. Rusk while releasing the publication of American Management Association. Market Research in International Operations, as far back as in 1960:

“Marketing abroad is no longer simply a matter of skimming the cream from the top of rich market. Today, successful marketing abroad requires thorough market investigation and effective sales follow-through. Market investigation means market research: determining market possibilities, evaluating competitive conditions, directing local customs, tastes and preferences. On the basis of this research, marketing and sales plans and advertising programmes are shaped, products and corporate images succeed or fail. In response to the growing need for more adequate market research abroad, international companies have increased their market research staffs, and independent research organisations have begun to stress their international services.”

This shows that the export marketing is a highly complex operation which cannot be carried out efficiently and successfully unless it is based on sound research. However, as we shall see below, there are special problems in export marketing research.

Problems in Export Marketing Research

These are special problems and conditions in export marketing research which differentiate it from the domestic marketing research.

First, marketing researcher may have to analyse several national markets instead of a single national market, if the company wants to be well informed. Since each of the national markets has unique characteristics, the marketing researcher has to bring them out distinctly in his analysis. As small markets may have low profit potential, it may be advisable to undertake marketing research and the amount to be spent on such research would involve the same approach as explained earlier in Chapter 3 on Value of Information.

Second, the problem of reliability of secondary data available in the concerned country/ countries becomes extremely relevant. At times it is felt that the statistics available in developing countries are not realistic and they are manipulated in order to show a rosy or gloomy picture on account of political and other considerations.

Third, if research involves the collection of primary data through a survey in a foreign country, the export marketing research may sometimes find it difficult to collect such data. This may be on account of the reluctance of respondents to give the required information to foreigners who are strangers. This problem is further accentuated especially in rural areas which account for a sizeable proportion of total population and where the level of education is very low.

Fourth, when a survey is to cover two or more countries, differences in economic and social environment, demographic aspect, physical distribution facilities, legal constraints, etc., would affect the comparability of data.

Fifth, the availability of media may also affect the comparability of data for two or more countries. In most of the developing countries, for instance, telephonic interviewing would be quite inappropriate as a large proportion of households do not own telephones. Further, as a vast majority of households do not own TV sets in developing countries, the effect of TV advertising may not be comparable with that in advanced countries where TV sets are owned by a good majority of households.

Finally, religious and cultural customs vary from country to country. These may pose obstacles to marketing researchers particularly when they undertake field surveys. For example, in the Middle East, interviewing housewives may pose a problem on account of the purdah system.

In view of these special difficulties in export marketing research, one has to be extremely careful in conducting such a study, particularly, if it is to be based on field survey.

Organising Export Marketing Research

A Company intending to enter overseas markets for its products has to ensure that marketing research is organised on sound lines. There are several methods that may be used in organizing an export marketing research study. The company has to know their strengths and limitations so that it can make a judicious choice. In this context, the alternative methods for conducting research are, using

- Own staff:
- Importing agents:
- Research agencies in overseas markets:
- A domestic marketing research agency along with the services of a consultancy firm in the importing country: and
- The services of a consortium of research agencies.

Each of these methods has some advantages and limitations. As regards the use of own staff, it may be pointed out that it would be very expensive. As such, only large companies can afford to use this method. Most of the multinational companies use this method.

Using the services of importing agents may not give an objective assessment of the market as they may have other interests. This apart, as research is a highly specialized job, it is doubtful whether importing agents can give adequate information with absolute objectivity.

As regards the use of a research agency in overseas markets, its major advantage is that it will be very well informed of its home market. However, it may be difficult to select the right

marketing research agency as complete information about different agencies may not be available to the exporting company. It is because of this reason, there is an element of risk in choosing an overseas marketing research agency.

Perhaps, the fourth method, viz. using a domestic marketing research agency along with the locally based consultancy firm offers some advantages over the preceding method. The method is, however, complicated on account of the difficulty in ensuring a meaningful link between the two organizations. Small and medium-sized companies which do not have their own trained research staff may find this method quite suitable.

An exporting company may hire the services of a consortium of research agencies. Apart from being expensive, the quality of service may considerably vary amongst the member firms. If the exporting company can ensure proper coordination amongst the member firms of the consortium, the method may be extremely useful in having adequate and reliable information of overseas markets.

In India, export marketing research is undertaken at different levels. First, there are several specialized corporations such as the State Trading Corporation, the MMTC, etc. Second, we have industry-wise export promotion councils for major industries. Third, there are specialized institutions such as the Indian Institute of Foreign Trade, the India Trade Promotion Organisation that are engaged in export marketing research. Fourth, there are consulting firms specializing in marketing research which may take up export marketing research on behalf of the sponsoring firm. Finally, large companies both in the public and the private sector too undertake such research on their own depending on their individual requirements.

As was mentioned earlier, it may perhaps be more appropriate for the above-mentioned agencies to seek the help of an overseas agency when research involves a field survey. Such a collaboration will improve the quality and comparability of primary data. When two or more countries are involved in the survey.

Scope of Export Marketing Research

The scope of any given export marketing research will depend on the following considerations:

- the objective of the proposed research;
- the nature of the product, its market and marketing arrangements, and the availability of relevant data about them;
- the availability of financial resources and time; and
- the competence, experience and training of the marketing researcher.

It may also be noted that in most of the cases, marketing research agencies will indicate a compromise between the information desirable to obtain and the information possible to obtain given the factors listed in (ii), (iii) and (iv) above

The marketing researcher has to organize his research in such a way that the study is completed within the stipulated time and budgetary allocation. He has to decide how much and what type of secondary data are to be used and how primary data, if necessary, are to be collected. Finally, he has to decide on the methods of analyzing data. To a great extent, the quality of

research will depend on the competence, experience and organizing ability of the marketing researcher himself.

The discussion that follows first specifies information requirements for international marketers and then deals with the secondary data. Finally, it deals with the collection of primary data through a field survey.

Information Requirements of International Marketers

Although the nature of marketing decisions does not differ from country to country, on account of environmental differences, information needs may vary from one country to another. A company intending to do business abroad may undertake studies in different spheres such as markets, promotion, distribution, price or products. Information requirement in each of these spheres will vary as will be evident from the discussion that follows:

Market Information

When a company intends to test a market before entering it or even when giving it up, it needs information market performance, market share, and sales analysis and forecasting. This information can be obtained through market research.

Product Information

A company operating in foreign countries has to decide which product line it should add, which it should discontinue, and which needs to be strengthened. In order to take a sound decision on these issues, the company requires a good deal of information. Apart from product line information, the company may need information on individual products. For example, it may like to know the behaviour of product life cycles in different countries in respect of one or more of its products.

Promotional Information

Marketing research can provide information on promotional activities of the company, i.e. advertising and direct selling. The company may have to decide how much expenditure on advertising is to be made, what media are to be used for advertising, which copy is to be used so that the best possible results can be obtained, etc. Likewise, marketing research can be helpful in taking decisions on personal selling such as number of salespersons to be appointed, their remuneration, formation of sales territories and the allocation of salespersons to these territories.

Distribution Information

Marketing research can be helpful in providing information on the availability of channels and their relative desirability. Again, requisite information on warehousing, inventory, and transportation can be collected through proper marketing research studies.

Price Information

Pricing a product is a crucial problem before a company. It may like to know what price is to be fixed for its product so that it can maximize its profit. The effect of price on the demand for its product has to be ascertained. Here, too, marketing research can find out the consumers' perception in respect of a given product's quality and price.

Environment Information

Regardless of the nature of international marketing study, it is necessary that marketing researchers take into account different types of environment in a foreign country of interest. This means that they scan the economic, political, social, cultural and legal environments so that marketing strategies can be decided in the light of special features obtained in these environments.

General Research Information

The foregoing discussion briefly indicated the type of information needed in specific area. However, in any overseas marketing research study, some general information is needed. This is spelt out below:

1. General information about
 - a Community-type conditions such as elections, cultural events, religious celebrations, etc.
 - b Business conditions such as business ethics and traditional associations
 - c Lifestyles and living conditions, i.e. social and cultural customs and taboos and
 - d General economic conditions such as the standard of living of various groups of people and the economic infrastructure such as transportation, power supply, and communication.
2. Industry information: government policies affecting industry, availability of land and labour current or potential competitors, local companies as also third country companies etc.
3. Study-related information: collateral data generated to complete a particular marketing research study. This information will vary on account of the nature of study. For example, if a study relates to the introduction of a new product in a foreign market, it may need information on the existing products, technology available in the country, sources or raw materials, and possibilities of setting up joint ventures.

Use of Secondary Data (Or Desk Research)

Export marketing research can be undertaken on the basis of either secondary data or primary data or a combination of both types of data. In the literature on export marketing research, the term 'desk research' is used to indicate the collection and analysis of secondary data. Through proper desk research, it is possible to conduct a preliminary screening. This will enable the marketing researcher to identify those export markets which are potentially attractive. This preliminary screening should be reasonably comprehensive so that one may not overlook more prospective export markets. One should not only know the most promising overseas markets but should also know why certain markets do not need any further investigation.

International agencies such as the United Nations, International Monetary Fund, the OECD provide data on such items as population, education, national and per capita income and position with regard to foreign exchange. In particular, the OECD's World Trade Statistics and the United Nations' International Trade Statistics are useful sources of secondary data. In addition, national government publications are

available on import regulations, customs duties and related legislation affecting marketing. Many countries bring out yearbooks or statistical abstracts that are immensely useful to an exporter.

Sources of Secondary Data in India

A major source of the most authentic data on foreign trade in the Government of India's publication entitled Monthly Statistics relating to India's Foreign Trade. These statistics are published in separate volumes for export and import trade. The statistics contained in this publication are quite comprehensive. A potential exporter can know from this source the nature and extent of exports to different countries, the rate of change in exports, etc.

Another source of information on various aspects of export marketing is available in the research studies done by the Indian Institute of Foreign Trade, India Trade Promotion Organisation and Export Promotion Councils.

At times, the financial dailies such The Economic Times bring out special features, each time devoted to a particular country, for different countries. They contain useful and most recent information.

Like export statistics, import statistics of the selected importing countries are important. Such statistics may be available in foreign embassies or consulates in India and chambers of commerce. Besides, Indian embassies abroad may furnish some broad information to a potential exporter on request. Major sources of secondary data are given in Appendix 1 to this chapter.

Secondary data are becoming more plentiful in quantity. In addition, their quality has improved over the years. Studies based on secondary data are obviously much cheaper. The marketing researcher should, therefore, explore fully the availability of secondary data. However, before using such data, he must ensure their reliability and suitability for the proposed research by evaluating such data. He must follow the same detailed procedure for their evaluation as described in Chapter 6 on Secondary Data.

Collection of Primary Data (Field Survey)

Sometimes the information required by an exporting firm is just not available. In such a case, the marketing researcher has to be extremely vigilant in organizing it.

In order to conduct a field survey in a foreign country, the marketing researcher has to follow the same steps that are involved in a domestic survey. Since these steps have been explained earlier in Chapter 4 on "The Research Process", they are not repeated here. However, some additional precautions are needed. For example, when marketing research is to be undertaken in a country where English language is not commonly used, it is necessary to get the questionnaire translated in that foreign language. Proper translation of the questionnaire is very necessary. Again, for conducting the interviews, properly qualified interviewers have to be recruited on an ad-hoc basis for that survey only. It is advisable to hire the services of a professional marketing research agency in the country concerned. This will be extremely helpful to the firm as it will have to face several difficulties in conducting the field survey in a foreign

land. However, it will indeed be quite expensive to avail the services of a professional marketing research agency. Only large firms which are keen to export their products in overseas markets can afford to do so. Even when a company is able to afford large expenditure on marketing research after it has been convinced that it will pay off, it may not be able to do so on account of restrictions on the release of that much of foreign exchange. However, in view of liberalization policy of the government and increase in our foreign exchange resources, the government may release the foreign exchange as needed.

A field survey in a foreign country can be of two types, viz. product-oriented survey and market-oriented survey.

Product-oriented Survey

A firm which is exploring the possibilities of selling its product or products in foreign markets may undertake a product-oriented survey. Keeping in mind its own product, it will try to identify those countries where this product is consumed, the extent and pattern of its consumption, price at which it is available in the overseas market, the countries currently exporting it and the magnitude of competition. It has to be a comprehensive survey.

Market-oriented Survey

In a market-oriented survey, a firm may like to know which product or products can be sold in a particular market. Here, the firm has already identified one or more countries where it would like to export. It will be primarily interested in identifying the products that are currently imported in that market and the possibility of marketing any new product there. Such a survey may be extremely useful to an export organisation or a new unit which is interested in entering the export trade.

Need for Personal Visits

Even when primary data are being collected through a field survey without the visit of the exporter himself, it may be difficult to know the nature and extent of competition in the foreign markets. A personal visit to that country will provide the exporter with an opportunity of having discussions with knowledgeable persons and agencies. It will also enable him to form perceptions of consumption patterns and habits of the population as also of the current business practices in that country. Such information will be immensely useful for a comprehensive and perceptive export marketing study. Further, personal visits to foreign countries may also be helpful in setting up contacts which can be exploited in the subsequent marketing effort. It would be much better if these visits coincide with specific product fairs in the concerned countries.

Major Sources of Error in International Surveys

Since surveys conducted in foreign countries to collect primary data are not so easy as the domestic surveys, certain errors crop up in such surveys. It may, therefore, be worthwhile here to know the major sources of error so that one may avoid them to the extent possible. It may be noted that a detailed discussion on the sources of errors has been given in the chapter on the Research Process. However, here the emphasis is on the lack of comparability on account of cultural differences in different countries.

Definitional Error

Such an error arises on account of lack of conceptual, definitional, temporal and market structure equivalence. Conceptual differences may arise, for example, in respect of certain food products which are either not known in some countries or are used differently. Definitional equivalence is an offshoot of the conceptual problem. Further, temporal equivalence may be affected if the surveys are not conducted simultaneously in the concerned countries. The comparability of data may be vitiated on account of seasonal factors in some countries while they are non-existent in others.

Instrument Error

An instrument error may arise on account of problems of linguistic equivalence, contextual equivalence, instrument equivalence and response style equivalence. Linguistic equivalence may get distorted while translating a questionnaire in another language. A contextual equivalence may get distorted, for example, in the Middle East where the respondents may resent the visit of the interviewer to their homes on the ground that it is an intrusion into their privacy. As such, they may be reluctant to give the desired information. As regards instrument equivalence, it may not yield representative data for all countries. Finally, response style equivalence deals with the style of people responding to the interviewer. Respondents in some countries may be quite willing and cooperative while in others they may be reluctant and reserved. Between these two extremes, there may be several variations depending on the extent of cooperation.

Frame Error

This type of error arises on account of the varying sampling frames used for different countries. Some sampling frames, on the basis of which a sample is drawn, may be defective in the sense that they account for a relatively small proportion of the population. Further, the definitions of dwelling units and households may be different in different sampling frames.

Selection Error

This type of error arises in the process of selecting respondents in two or more countries. For example, if a study is undertaken to compare consumption behaviour in respect of say, breakfast cereal, in two countries A and B, it may happen that respondents in country A may be comparable with those in country B, except their age. Country A may have proportionately more young respondents than in country B. This may have an impact on the consumer behaviour in the two countries. As a result, their consumer profiles are not strictly comparable.

Non-response Error

On account of the variation in response in two or more countries, the non response error will arise. To a large extent, the magnitude of response will vary on account of educational and cultural differences in the countries covered in the survey.

Sampling Error

This type of error is the only one which is free from cultural differences in different countries. On the basis of statistical principles, the sampling error can be computed.

Further, one should note it is extremely difficult that a survey will be completely free from any error. Even in a domestic survey, it is rare that all errors are completely eliminated. In a

multinational survey, errors are bound to arise. All the same, the marketing researcher should try to minimize the varying types of errors so that the comparability of data can be maintained.

Analysis And Interpretation of the Data And Preparation Of The Report

When all the data from the secondary sources or/and through a field survey have been collected, it is necessary to process these data. Sometimes it is seen that poor data processing has reduced their utility despite the fact that enormous effort was made as also considerable expenditure was incurred in their collection. Proper processing of data will enable the researcher to have suitable statistical tables. Chapter 12 deals with this aspect in detail.

After the tabulation of data, the researcher has to ensure their analysis. There are different methods of analysis ranging from simple averages and percentages to a host of multivariate techniques. A judicious selection of one or more of these techniques in a given problem has to be made. Different techniques of data analysis have been discussed in detail in Chapter 13 to 17. As many export marketing research studies will be concerned with the export potential and demand forecast of a given product in an overseas market, it is necessary that sound forecasting methods are used. As mentioned earlier in Chapter 20, a number of subjective and objective methods of forecasting are available to the researcher. He has to ensure that the method he uses is the best, keeping in view the limitations, if any, of the data collected.

As regards interpretation, it may be pointed out that data analysis and interpretation are interlinked. Often analysis of the data and the interpretation of results are done simultaneously. The brief discussion on interpretation as given in the beginning of Chapter 19 is equally relevant here.

After the data are processed, tabulated, analysed and interpreted, the researcher has to prepare a report on the research study. Needless to say, the report should be objective and reasonably comprehensive. It should be written keeping in mind the objectives of the study. It may be emphasized that writing a good report is not as simple as it might appear before one actually attempts to write. Chapter 19 provides guidelines for the preparation of a research report. The researcher should particularly indicate the reliability as well as the limitations of the facts presented in the report. In addition, sufficient care must be exercised to ensure that the report enlightens the prospective exporting firm in respect of following questions:

Will it be profitable for the concerned firm to enter the foreign market under consideration?

Are the products as currently produced by the firm acceptable in the markets surveyed? If not, what product modifications will be necessary in terms of quality, packaging, presentation and sizes?

At what competitive prices can the market potential be gainfully tapped?

What distributional strategy the firm will need to adopt in the concerned market.

What publicity and promotion will need to be undertaken by the firm.

In case an after sales service is needed for the given product, can it be entrusted to an existing local concern? If not, will the firm have to train people for the same?

Needless to say, if the report on export marketing research fails to provide a clear direction to the prospective exporting firm in respect of the foregoing questions, then all the effort made and money spent on the study will be in vain.

The Role of International Trade Centre

Before we close this chapter, it may be worthwhile here to emphasise the role of the International Trade Centre (ITC) in promoting export trade.

The ITC was established at the request of the developing countries to help them promote their exports. It was set up in 1964 with headquarters in Geneva. The ITC assists developing countries in a number of ways, one of which is:

Developing a national trade promotion strategy, including export potential, choosing priority markets and setting export targets.

The ITC has developed a detailed methodology in analyzing international demand for a country's products. Developing countries can approach it to get detailed information on their requirements. An excerpt from an article on this aspect is given. This is followed by another excerpt from an article on determining users' needs for trade information.

Analysing International Demand

While participation in international trade is one of the key factors for national economic growth, a major handicap is that information on the export portfolios of many developing countries remains incomplete. As a result, policy-makers in those countries are at a loss to know in which product group their country has a competitive advantage on the international market.

In order to get over this deficiency, ITC has developed a methodology whereby one can have an overview of the performance of the leading export products of individual countries and the growth pattern of those exports. The methodology provides information on each country both graphically and in table form. The details give replies to the following questions:

What are the leading export products of the country concerned? How concentrated or diversified is the country's export portfolio?

What are the products in which the country has performed better on the international market than other countries and increased its market share? Which of its export products are falling behind those of competing suppliers?

Which countries are the major competitors for the export products under review?

To what extent are the leading export products being marketed in expanding or shrinking markets?

For which products does the country have a revealed comparative advantage?

In what market segments by unit value are the leading export products found?

For which product has the country been particularly successful in South-South trade?

The ITC methodology is based on trade data reported by 76 countries and territories to the "Comtrade" database of the UN Statistical Office. These reporting countries account for more than 90% of world trade.

In overseas marketing research, the need for comprehensive information is imperative. In this respect a Trade Information Service (TIS) can play its role effectively only when it provides information useful to exporters, which is not available from any other source. As the international trading environment is rapidly changing, it is necessary to undertake TIS on a continuing basis.

A number of techniques can be used to assess the information needs of the clients of TIS. These techniques are mail surveys, interviews, users' meetings and everyday contact of the TIS staff.

As assessment of users' needs should not be looked upon as a one-time exercise. Instead, it should be a continuous effort. Preferably, a special unit within the trade information service should be set up to determine the users' needs on a regular basis. Finally, the analysis of needs should be followed by effectiveness of providing each type of information service requested and, last but not least, the availability of the requested services in other organizations of the country. The TIS can then set priorities for its services in the future.

Let's Recapitulate the Chapter

- Export Marketing research has its own peculiar problems and conditions as the researchers have to analyse several national markets instead of a single national market. Other specific problems include reliability of secondary data available in the concerned countries, difficulties in collecting primary data, availability of media affects the comparability of data, and variation in religious and cultural customs pose obstacles in the conduct of field surveys.
- Scope of export marketing research depends on the following considerations:
 - The objective of the proposed research.
 - The nature of the product, its market and marketing arrangements, and the availability of relevant data about them.
 - The availability of financial resources and time
 - The competence, experience and training of the market researcher
- A field survey in a foreign country can of two types viz. Product oriented survey and market-oriented survey.
- Major sources of error in international surveys may be enumerated as follows:
 - Definitional errors
 - Instrument error
 - Frame error
 - Selection Error
 - Non-response Error
 - Sampling Error

LESSON 40: TUTORIAL

Q: Discuss the importance and scope of export marketing research.

Q: How would you proceed to shortlist possible overseas markets for your product?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

LESSON 41: CASE STUDIES RELATED TO FOURTH UNIT.

1. Brand Tracking

Of late, the Indian economy has opened up as a result of liberalization policy of the government. This has resulted in the entry of many brands some of which are international. These brands pertain to FMCG, consumer durables and consumer semi-durable. The competition among the brands has further become intense on account of improved communication channels. The consumer, today, is far more informed than hitherto.

Under these circumstances, a company engaged in the manufacturing of washing machine, would like to know the performance of its brand/s. This can be known only a systematic study. It has assigned you this study. You are expected to offer your considered advice on the following:

1. Should brand tracking be continuous or intermittent?
2. What measure can be used in the brand performance?
3. How long should the company track the performance of its board?
4. Should the company itself to the tracking of its brand alone or should it extend it to other brands as well?

2. TV Advertising

Television has become an important medium of entertainment in urban household in India. For the past couple of years, colour television sets are being increasingly sold in large cities all over the country. Some of the programmes have become extremely popular with the viewers. Many business enterprises have closely observed the popularity of television programmes and have realized that the impact of television is very considerable on the audience.

Several enterprises have started advertising on television although the costs of such advertisements are very high. However, small and medium-sized firms are to go in for television advertisements because of excessive cost.

ABC company is interested to use television for advertising some of its products, in a particular some canned foods based on soya beans. Although there is a general impression that television is an effective medium of advertisement, the directors if the ABC company wish that their judgement be based on fact, not opinion. Hence, they feel that there is a need for conducting a study to provide them with satisfactory answers to their problems. In particular, they are interested to measure the 'effectiveness' of television advertising. For this purpose, they have consulted a professional marketing research agency.

This agency has told the directors that the best method for measuring the effectiveness of television advertising would be to conduct a 'before and after' study. It would involve a comprehensive survey of a market just before it got television and a re-survey of the same market after a period of, say, six months, to ascertain what changes had occurred. The directors

discussed the nature and utility of such a study with the marketing research agency and finally agreed that such a study should be undertaken.

The same marketing research agency was engaged to conduct the study. However, it encountered some research problems while planning it. For example, one of the problems faced was whether the sample of respondent should be same in both the 'before and after' interviews or whether two independent samples should be used. In case the same respondents were to be interviewed. It was feared that they would be 'conditioned' by the initial questioning. This would necessitate the setting up of a 'control'. This could perhaps be done by a split-sample technique. It was also thought proper to introduce some further control. For this purpose, it was decided to interview a complete cross section of a city, including respondent who did not own television sets. Further, to ensure reliability of the study, the research agency felt that it was necessary to have a large sample. It decided to cover 10,000 households in a metropolitan city. Finally, to measure the effectiveness of advertising at different levels, a questionnaire was designed covering tests of brand awareness, familiarity, preference and actual behaviour of respondent.

Questions

1. Critically examine the proposed methodology?
2. Do you think an alternative approach would be appropriate?

3. High Fashion-wear

Mr. Ashok Anand has recently completed a course from the prestigious National Institute of Fashion Technology. Ever since he joined the NIFT, he had been thinking to do something on his own instead of seeking a job after the completion of the course. However, soon after his studies he found himself in an odd situation. He was unable to set up his own enterprises on account of financial constraints and, as such, accepted a job with a readymade garments unit in Delhi.

The readymade garment unit, where Ashok Anand is working, is doing reasonably well. It has been catering to the domestic market. Since the Anand has specialized in highly sophisticated fashion-wear, the firm has now become interested in exploring the possibility of exporting fashion-wear. The firm has sufficient financial resources to enter the foreign market but it wants to go cautiously as it has no prior experience of overseas markets. It is particularly interested to know the export potential for ladies fashion dresses that would be easily acceptable among the college going girls and working women in west.

Questions

The firm has approached you to take up this assignment. It would like you to submit a detailed research proposal of the proposed study.

[illegible]

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