MARKETING RESEARCH

M-237

Self Learning Material

Directorate of Distance Education

SWAMI VIVEKANAND SUBHARTI UNIVERSITY
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UTTAR PRADESH

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UNIT– I

INTRODUCTION

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STRUCTURE

1.1 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- state the meaning and importance of marketing research;
- explain the trends of marketing research;
- know the functions of marketing research.

1.2 INTRODUCTION

Marketing research is the function that links the consumer, customer, and public to the marketer through information. This information is used to identify and define marketing opportunities and problems; to generate, refine, and evaluate marketing actions; to monitor marketing performance; and to improve understanding of the marketing process. Marketing research specifies the information, manages and implements the data-collection process, analyzes the results, and communicates the findings and their implications. Marketing research is concerned with the application of theories, problem-solving methods, and techniques to identify and solve problems in marketing. In order to offset unpredictable consumer behavior, companies invest in market research.

Increased customer focus, demands for resource productivity, and increased domestic and international competition has prompted an increased emphasis on

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marketing research. Managers cannot always wait for information to arrive in bits and pieces from marketing departments. They often require formal studies of specific situations. For example, Dell Computer might want to know a demographic breakdown of how many and what kinds of people or companies will purchase a new model in its personal computer line. In such situations, the marketing department may not be able to provide from existing knowledge the detailed information needed, and managers normally do not have the skill or time to obtain the information on their own. This formal study, whether performed internally or externally, is called marketing research.

The marketing research process consists of four steps: defining the problem and research objectives, developing the research plan, implementing the research plan, and interpreting and reporting the findings.

1.3 CONCEPTS OF MARKETING RESEARCH

Green and Tull[1] have defined marketing research as follows:

"Marketing research is the systematic and objective search for, and analysis of, information relevant to the identification and solution of any problem in the field of marketing."

The key words in this definition are; systematic, objective and analysis. Marketing research seeks to set about its task in a systematic and objective fashion. This means that a detailed and carefully designed research plan is developed in which each stage of the research is specified. Such a research plan is only considered adequate if it specifies: the research problem in concise and precise terms, the information necessary to address the problem, the methods to be employed in gathering the information and the analytical techniques to be used to interpret it.

Maintaining objectivity in marketing research is essential if marketing management is to have sufficient confidence in its results to be prepared to take risky decisions based upon those results. To this end, as far as possible, marketing researchers employ the scientific method. The characteristics of the scientific method are that it translates personal prejudices, notions and opinions into explicit propositions (or hypotheses). These are tested empirically. At the same time alternative explanations of the event or phenomena of interest are given equal consideration.

Not many years ago an agricultural engineering company developed an improved rice milling machine. The machine was introduced into Thailand where existing rice milling machines were of a design which resulted in a high percentage of brokens (broken kernels). The new rice mill produced a negligible percentage of brokens. Intuitively a successful product would be predicted, launched with hardly any need for marketing research when the new mill had such obvious advantages over existing products. The agricultural engineering company went

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through the expensive and time-consuming process of importing the machine into Thailand. They set up extensive distribution and servicing facilities only to be surprised when the mill failed to gain acceptance. In Thailand, smallholders take their rice to a miller.

Since they do not have sufficient cash to pay for milling their rice they get paid in 'brokens'. The miller then sells the 'brokens' for animal feed. The more effective milling machine simply did not fit into the Thai rice processing system. The company's assessment of the market was hardly objective. They saw the 'brokens' as a problem which their product solved. The prospective customer did not see it as a problem at all.

The third of the key terms in the definition given a little earlier was analytical. The marketing researcher's task goes beyond the collecting of data. He/she must also interpret the data in terms of what the it means to the organisation which commissioned the research. Knowing that 60% of those interviewed thought that product A was superior to product B is, in itself, of little value. The organisation needs to know the alternative ways it can respond to this data. Data is equivalent to the raw materials of manufacturing; it has to be converted into information before it becomes useful in decision making. The process of convening data into information is achieved through analysis.

Although the need for precision and thoroughness in marketing research has been stressed here, it is to be remembered that, in practice, there is a perpetual conflict between the demands of expediency and the search for truth. The reality is that management is frequently under pressure to make timely decisions. Therefore management often seeks answers through marketing research in the shortest time possible and, moreover, at minimum cost. On such occasions its methods tend to be less theoretically rigorous and its analysis more superficial.

Marketing research is the systematic gathering, recording, and analysis of data about issues relating to marketing products and services. The goal of marketing research is to identify and assess how changing elements of the marketing mix impacts customer behavior. The term is commonly interchanged with market research; however, expert practitioners may wish to draw a distinction, in that market research is concerned specifically with markets, while marketing research is concerned specifically about marketing processes.

Marketing research is often partitioned into two sets of categorical pairs, either by target market:

- Consumer marketing research, and
- Business-to-business (B2B) marketing research

Or, alternatively, by methodological approach:

- Qualitative marketing research, and
- Quantitative marketing research

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1.4 MARKETING RESEARCH CHARACTERISTICS

First, marketing research is systematic. Thus systematic planning is required at all the stages of the marketing research process. The procedures followed at each stage are methodologically sound, well documented, and, as much as possible, planned in advance. Marketing research uses the scientific method in that data are collected and analyzed to test prior notions or hypotheses.

Marketing research is objective. It attempts to provide accurate information that reflects a true state of affairs. It should be conducted impartially. While research is always influenced by the researcher's research philosophy, it should be free from the personal or political biases of the researcher or the management. Research which is motivated by personal or political gain involves a breach of professional standards. Such research is deliberately biased so as to result in predetermined findings. The motto of every researcher should be, "Find it and tell it like it is." The objective nature of marketing research underscores the importance of ethical considerations, which are discussed later in the chapter.

Marketing research involves the identification, collection, analysis, and dissemination of information. Each phase of this process is important. We identify or define the marketing research problem or opportunity and then determine what information is needed to investigate it., and inferences are drawn. Finally, the findings, implications and recommendations are provided in a format that allows the information to be used for management decision making and to be acted upon directly. It should be emphasized that marketing research is conducted to assist management in decision making and is not: a means or an end in itself. The next section elaborates on this definition by classifying different types of marketing research.

Following are the characteristics of good marketing research :

1. **Scientific method** : Effective marketing research uses the principles of the scientific method: careful observation, formulation of hypotheses, prediction, and testing.
2. **Research creativity :** At its best, marketing research develops innovative ways to solve a problem.
3. **Multiple methods :** Competent marketing researchers shy away from over-reliance on any one method, preferring to adapt the method to the problem rather than the other way around. They also recognize the desirability of gathering information from multiple sources to give greater confidence.
4. **Interdependence of models and data :** Competent marketing researchers recognize that the facts derive their meaning from models of the problem. These models guide the type of information sought and therefore should be made as explicit as possible.

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5. **Value and cost of information :** Competent marketing researchers show concern for estimating the value of information against its cost. Value/ cost evaluation helps the marketing research department determine which research projects to conduct, which research designs to use, and whether to gather more information after the initial results are in. Research costs are typically easy to quantify, while the value is harder to anticipate. The value depends on the reliability and validity of the research findings and management's willingness to accept and act on its findings. In general, the most valuable information tends to cost the most because it requires more intensive methods, but of course it is easy to spend a great deal of money on poorly conceived research.
6. **Healthy skepticism :** Competent marketing researchers will show a healthy skepticism toward assumptions made by managers about how the market works.
7. **Ethical marketing :** Most marketing research benefits both the sponsoring company and its consumers. Through marketing research, companies learn more about consumers' needs, and are able to supply more satisfying products and services. However, the misuse of marketing research can also harm or annoy consumers. There are professional ethical standards guiding the proper conduct of research.

Comparison with Other Forms of Business Research

Other forms of business research include:

- Market research is broader in scope and examines all aspects of a business environment. It asks questions about competitors, market structure, government regulations, economic trends, technological advances, and numerous other factors that make up the business environment (see environmental scanning). Sometimes the term refers more particularly to the financial analysis of companies, industries, or sectors. In this case, financial analysts usually carry out the research and provide the results to investment advisors and potential investors.
- Product research - This looks at what products can be produced with available technology, and what new product innovations near-future technology can develop (see new product development).
- Advertising research - is a specialized form of marketing research conducted to improve the efficacy of advertising. Copy testing, also known as "pre-testing," is a form of customized research that predicts in-market performance of an ad before it airs, by analyzing audience levels of attention, brand linkage, motivation, entertainment, and communication, as well as breaking down the ad's flow of attention and flow of emotion. Pre-testing is also used on ads still in rough (ripomatic or animatic) form.

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1.5 FUNCTIONS AND TRENDS OF MARKETING RESEARCH

The marketing manager and the researcher must work closely together to define the problem carefully and agree on the research objectives. The manager best understands the decision for which information is needed; the researcher best understands marketing research and how to obtain the information.

Managers must know enough about marketing research to help in the planning and to interpret research results. Managers who know little about the importance of research may obtain irrelevant information or accept inaccurate conclusions. Experienced marketing researchers who understand the manager's problem should also be involved at this stage. The researcher must be able to help the manager define the problem and to suggest ways that research can help the manager make better decisions.

Defining the problem and research objectives is often the hardest step in the research process. The manager may know that something is wrong without knowing the specific causes. For example, managers of a retail clothing store chain decided that falling sales were caused by poor floor set-up and incorrect product positioning. However, research concluded that neither problem was the cause. It turned out that the store had hired sales persons who weren't properly trained in providing good customer service. Careful problem definition would have avoided the cost and delay of research and would have suggested research on the real problem.

When the problem has been defined, the manager and researcher must set the research objectives. A marketing research project might have one of three types of objectives. Sometimes the objective is exploratory—to gather preliminary information that will help define the problem and suggest hypotheses. Sometimes the objective is descriptive—to describe things such as the market potential for a product or the demographics and attitudes of consumers who buy the product. Sometimes the objective is casual—to test hypotheses about cause-and-effect relationships.

Doing Research Right

Marketing research is a process that investigates both organizations and people. Of course, organizations are made up of people so when it comes down to it, marketing research is a branch of the social sciences. Social science studies people and their relationships and includes such areas as economics, sociology and psychology. To gain understanding into their fields, researchers in the social sciences use scientific methods that have been tested and refined over hundreds of years. Many of these methods require the institution of tight controls on research projects. For instance, many companies survey (*i.e.*, ask questions) a small percentage of their customers (called a sample) to see how satisfied they are with

the company's efforts. For the information obtained from a small group of customers to be useful when evaluating how all customers feel, certain controls must be in place including controls on who should be included in the sample.

Thus, doing research right means the necessary controls are in place to insure it is done correctly and increase the chance the results are relevant. Relying on results of research conducted incorrectly to make decisions could prove problematic if not disastrous. Thousands of examples exist of firms using faulty research to make decisions, including many dot-com companies that failed between 1999 and 2002.

As one might expect, the trade-off for doing research right is the increase in cost and time needed to conduct the research. So a big decision for marketers, when it comes to doing research, is to determine the balance between the need for obtaining relevant information and the costs involved in carrying out the research.

Research Validity and Reliability

As we discussed, not all research requires undertaking an elaborate study. But even marketers conducting small, informal research should know that any type of research performed poorly will not yield relevant results. In fact, all research, no matter how well controlled, carries the potential to be wrong. There are many reasons why research may not yield good results (a full discussion being beyond the scope of this tutorial), however, most errors can be traced to problems with how data is gathered. In particular, many research mistakes occur due to problems associated with research validity and research reliability.

Research Validity

This problem with data gathering represents several concepts that to the non-researcher may be quite complex. But basically validity boils down to whether the research is really measuring what it claims to be measuring. For instance, if a marketer is purchasing a research report from a company claiming to measure how people prefer the marketer's products over competitors' products, the marketer should understand how the data was gathered to help determine if the research really captures the information the way the research company says it does.

While research validity is measured in several ways, those evaluating research results should keep asking this simple question: Is the research measuring what it is supposed to measure? If the marketer has doubts about the answer to this question then it is possible the results should also be questioned.

Research Reliability

This problem relates to whether research results can be applied to a wider group than those who took part in a study. In other words, would similar results be obtained if another group containing different respondents or a different set

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of data points were used? For example, if 40 salespeople out of 2,000-person corporate sales force participate in a research study focusing on company policy, is the information obtained from these 40 people sufficient to conclude how the entire sales forces feels about company policies? What if the same study was done again with 40 different salespeople, would the responses be similar?

Reliability is chiefly concerned with making sure the method of data gathering leads to consistent results. For some types of research this can be measured by having different researchers follow the same methods to see if results can be duplicated. If results are similar then it is likely the method of data gathering is reliable. Assuring research can be replicated and can produce similar results is an important element of the scientific research method.

Risk in Marketing Research

The discussion above regarding doing research right shows that good marketing research, especially when it involves formal research projects, requires strict controls in order to produce relevant information. Being relevant means the probability is high that the research results reflect what is happening now or might happen in the future. But following the right procedures to produce a relevant study does not insure the results of research will be 100% correct as there is always the potential that results are wrong.

Because of the risks associated with research, marketers are cautioned not to use the results of marketing research as the only input in making marketing decisions. Rather, smart marketing decisions require considering many factors, including management's own judgment of what is best. But being cautious with how research is used should not diminish the need to conduct research. While making decisions without research input may work sometimes, long-term success is not likely to happen without regular efforts to collect information.

Additionally, risk in research extends to research produced by others. As we discuss in the Planning for Marketing Research unit III, the research process often includes using information initially gathered by other sources, such as market research firms. However, in many instances the methods for collecting this information is not be fully disclosed, thus questions exist regarding research validity and reliability. Marketers using research collected by third-party sources should do so with a reasonable level of skepticism. In fact, it is wise for marketers to always make an effort to locate multiple information sources that address the same issue (*e.g.*, two or more sales forecasts reports). A good rule-of-thumb for all marketers is never to rely on one source for making definitive statements about a market.

Research Trends: Information Advantage

In recent years the evolution of marketing research has been dramatic with marketers getting access to a wide variety of tools and techniques to improve

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their hunt for information. For instance, in its role as the foundation of marketing, marketing research is arguably marketing's most important task. Today marketers not only view research as a key ingredient in making marketing decisions they also consider information to be a critical factor in gaining advantage over competitors.

Because organizations recognize the power information has in helping create and maintain products that offer value, there is an insatiable appetite to gain even more insight into customers and markets. Marketers in nearly all industries are expected to direct more resources to gathering and analyzing information especially in highly competitive markets. Many of the trends discussed below are directly related to marketers' quest to acquire large amounts of customer, competitive and market information.

Research Trends: Internet Technologies

To address the need for more information, marketing companies are developing new methods for collecting data.

This has led to the introduction of several new technologies to assist in the information gathering process. Many of these developments are Internet-based technologies that include:

- **Enhanced Tracking -** The Internet offers an unparalleled ability to track and monitor customers. Each time a visitor accesses a website they provide marketers with extensive information including how they arrived at the website (*e.g.*, via a search engine) and what they did when on the website (*e.g.*, what products were investigated). In many ways the vast data available through Internet tracking has yet to be used by the majority of marketers. However, as tracking software becomes more sophisticated the use of tracking data will be a routinely used research tool.
- **Improved Communication –** Not only is the Internet enabling marketers to monitor customers' website activity, it also offers significant improvement in customer-to-company communication which is vital for marketing research. For instance, the ability to encourage customers to offer feedback on the company's products and service is easy using website popup notices and email reminders. Also, as we discuss in the Planning for Market Research in unit III, the use of the Internet for conducting online focus group research is expanding.
- **Research Tools –** A large number of Internet services have added options for conducting research. These include the ubiquitous search engines, tools for conducting online surveys, and access to large databases containing previous research studies (*i.e.*, secondary research).

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RESEARCH TRENDS: OTHER TECHNOLOGIES

In addition to the Internet, marketing research has benefited from other technological improvements including:

- **Virtual Reality and Simulations** - Marketers can use computer developed virtual worlds to simulate real world customer activity such as store shopping. While this type of research is mostly performed in a controlled laboratory setting, there are emerging virtual worlds on the Internet where marketers can test concepts and communicate with customers.
- **Global Positioning Systems** – GPS enables marketers to track inventory and even track mobile sales and service personnel. Soon GPS will be a common feature of customers' communication devices, such as cellphones, offering marketers the potential to locate and track customers.
- **Data Analysis Software** – As we will see in the Planning for Market Research, research includes gathering information and it also involves analyzing what is collected. A number of software and statistical programs have been refined to give marketers greater insight into what the data really means.

RESEARCH TRENDS: AFFORDABLE RESEARCH

For many years formal research projects were considered something that only the largest marketers could afford due to the expense of carrying out relevant research. However, the technologies discussed above make it affordable for companies of all sizes to engage in research that were financially prohibitive just few years ago. For instance, surveying customers is quick and easy using one of the many online survey services which charge low fees to create, distribute and analyze results.

RESEARCH TRENDS: MERGING DATA SOURCES

The wide range of technologies used to gather data has led to the creation of data centers where information is stored. Today many of these data centers are sharing information with other centers in a manner that offers the marketer a fuller picture of their customers. For instance, many companies have multiple contact points where customers can interact with the company (*e.g.*, in-person, on the web, via phone call). In the past the information gathered at these points was often stored separately so if a customer contacted the company through one contact point they may not be recognized if they also contacted the company through a different point.

Companies now see the value in knowing what customers do across all contact points and work to integrate customer information. Additionally, some marketers are going outside their own data collection and seek information on

their customers from other sources, such as information provided by credit card companies. This information is then merged with the company-owned information to get a fuller picture of customer activity.

Research Trends: Privacy Concerns

The continual demand for customer information, along with advances in technology and the merging of information sources, has lead marketing organizations to gather information in ways that raise concerns among privacy advocates. Many customers are unaware of the amount and nature of the data marketers collect. As new information gathering techniques and technologies emerge customer response to issues of privacy may determine whether these methods are feasible or forbidden.

1.6 IMPORTANCE OF MARKETING RESEARCH

Research, as a general concept, is the process of gathering information to learn about something that is not fully known. Nearly everyone engages in some form of research. From the highly trained geologist investigating newly discovered earthquake faults, to the author of best selling spy novels gaining insight into new surveillance techniques, to the model train hobbyist spending hours hunting down the manufacturer of an old electric engine, each is driven by the quest for information.

For marketers, research is not only used for the purpose of learning, it is also a critical component needed to make good decisions. Market research does this by giving marketers a picture of what is occurring (or likely to occur) and, when done well, offers alternative choices that can be made. For instance, good research may suggest multiple options for introducing new products or entering new markets. In most cases marketing decisions prove less risky (though they are never risk free) when the marketer can select from more than one option.

Using an analogy of a house foundation, marketing research can be viewed as the foundation of marketing. Just as a well-built house requires a strong foundation to remain sturdy, marketing decisions need the support of research in order to be viewed favorably by customers and to stand up to competition and other external pressures. Consequently, all areas of marketing and all marketing decisions should be supported with some level of research.

While research is key to marketing decision making, it does not always need to be elaborate to be effective. Sometimes small efforts, such as doing a quick search on the Internet, will provide the needed information. However, for most marketers there are times when more elaborate research work is needed and understanding the right way to conduct research, whether performing the work themselves or hiring someone else to handle it, can increase the effectiveness of these projects.

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EXAMPLES OF RESEARCH IN MARKETING

As noted, marketing research is undertaken to support a wide variety of marketing decisions. The table below presents a small sampling of the research undertaken by marketing decision area. Many of the issues listed under Types of Research are discussed in greater detail later.

Marketing Decision	Types of Research
Target Markets	sales, market size; demand for product; customer characteristics, purchase behavior, customer satisfaction, website traffic
Product	product development; package protection, packaging awareness; brand name selection; brand recognition, brand preference, product positioning
Distribution	distributor interest; assessing shipping options; online shopping, retail store site selection
Promotion	advertising recall; advertising copy testing, sales promotion response rates, sales force compensation, traffic studies (outdoor advertising), public relations media placement
Pricing	price elasticity analysis, optimal price setting, discount options
External Factors	competitive analysis, legal environment; social and cultural trends
Other	company image, test marketing

1.7 SUMMARY

- Marketing research is the function that links the consumer, customer, and public to the marketer through information. This information is used to identify and define marketing opportunities and problems; to generate, refine, and evaluate marketing actions; to monitor marketing performance; and to improve understanding of the marketing process.
- Systematic planning is required at all the stages of the marketing research process. The procedures followed at each stage are methodologically sound, well documented, and, as much as possible, planned in advance. Marketing research uses the scientific method in that data are collected and analyzed to test prior notions or hypotheses.
- Marketing research is a process that investigates both organizations and people. Of course, organizations are made up of people so when it comes down to it, marketing research is a branch of the social sciences.

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- For marketers, research is not only used for the purpose of learning, it is also a critical component needed to make good decisions. Market research does this by giving marketers a picture of what is occurring (or likely to occur) and, when done well, offers alternative choices that can be made.

1.8 REVIEW QUESTIONS

1. Define marketing research.
2. What are the major characteristics of marketing research?
3. Discuss the current trends of marketing research.
4. What is the importance of marketing research?
5. Compare marketing research with the other research of business field.

1.9 FURTHER READINGS

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UNIT– II

MARKETING RESEARCH PROCESS AND CLASSIFICATION

STRUCTURE

2.1 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- state the concept of marketing research process;
- explain the objectives and need of marketing research process;
- classify the research process such as exploratory, descriptive research process etc.,.

2.2 INTRODUCTION

In any organization, managers at all levels need accurate and timely information for managerial decision making. Whether the decisions made are at technical, tactical, or strategic levels, good, accurate, and timely information always leads to a better decision. Gathering of information is done through a sound and scientific research process. Each year organizations spend enormous amounts of money for research and development in order to maintain their competitive edge. Accurate information obtained through research leads to enormous benefits.

In this unit, we are going to discuss three most important methods of marketing research i.e., exploratory, descriptive and experimental research process.

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2.3 OBJECTIVES AND NEED OF MARKETING RESEARCH

"Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual (customer) and organizational objectives". The concept of marketing as a business philosophy defines marketing as a process that is intended to find, satisfy and retain customers while business makes a profit. But central to all these definitions is the role of the customer and his relationship to the product (i.e. whether he considers the product or service to meet a need or want).

Therefore, market research is imperative for a company to know what type of products or services would be profitable to introduce in the market. Also with respect to its existing products in the market, good market research enables a company to know if it has been able to satisfy customer needs and whether any changes need to be made in the packaging, delivery or the product itself. This enables a company to formulate a viable marketing plan or measure the success of its existing plan.

Market Research Is An Essential Management Tool

Market research consists of a plan that charts how relevant data is to be collected and analyzed so that the results are useful and relevant for making marketing decisions. Once the research and the related analysis are complete, the results are communicated to management. This provides management with in-depth information regarding crucial factors that have an impact on the target market and existing marketing mix. Market research allows management to make the changes necessary for better results through adopting a proactive approach.

The Role and Limitations of Marketing Research

"Marketing research does not make decisions and it does not guarantee success". Marketing managers may seek advice from marketing research specialists, and indeed it is important that research reports should specify alternative courses of action and the probability of success, where possible, of these alternatives. However, it is marketing managers who make the final marketing decision and not the researcher. The second observation, that marketing research does not guarantee success, is simply a recognition of the environment within which marketing takes place. In the fields of science and engineering researchers are often working with deterministic models of the world where $y = f(x)$. That is, x is a necessary and sufficient condition for y to occur. For instance, an increase in pressure is usually necessary and sufficient to bring about a rise in air temperature. In the social sciences, and this includes marketing and marketing

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research, the phenomenon under investigation rarely, if ever, lends itself to deterministic modelling. Consider the marketing problem of determining how much to spend on promotion in order to achieve a given market share. The link between promotional expenditure and sales is not so direct as that between pressure and temperature. There are a great many more intervening variables, including: the media used, the effectiveness of the promotional message, the length and frequency of the campaign, not to mention the many dimensions of the product, price and distribution. Marketing researchers work with probabilistic models of the form:

$$y = f(x_1)..(fx_2)...f(x_n)...$$

This reflects the fact that in order for a target market share to be reached some promotion (amount unknown) is necessary but will not be sufficient, on its own, to achieve the target. Y is a function of a number of variables and the interactions between them. The model is further complicated by the fact that these interactions are themselves often not understood. It is for these reasons that marketing researchers cannot guarantee that decisions based on their information will always prove 'successful'. Rather the best that a competent researcher and a well designed study will be able to offer is a reduction in the amount of uncertainty surrounding the decision.

THE MARKET RESEARCH BRIEF

Marketing research can be concerned with any of a variety of aspects of the market: the product, sales, buyer behaviour, promotion, distribution, pricing, packaging, etc. Since the researcher cannot investigate everything about a market, he/she must be selective. The question remains as to how the researcher decides where to focus the study, and to what depth each issue should be investigated. The answer should lie in a document called the research brief. The research design is a set of guidelines given to the researcher by the person(s) who have commissioned the research and/or the individual(s) who are to make use of the results in their decision making. The brief must inform the researcher which aspects of the market are particularly important. In particular, the research brief should include:

- the purpose of the research,
- the objectives stated in a clear, concise, attainable, measurable and quantifiable way,
- a time horizon,
- a resource allocation, including the budget and facilities,
- a reporting period.

Each of these components of the brief is explained in a little more detail in the section that follows.

THE PURPOSE OF THE RESEARCH

It is not at all unusual for marketing managers to neglect to tell the researcher the precise purpose of the research. They often do not appreciate the need to do so. Instead, they simply state what they think they need to know. This is not quite the same thing. To appreciate the difference consider the case of the marketing research agency which was contacted by the International Coffee Organisation (ICO) and asked to carry out a survey of young people in the age group 15-24. They wanted information on the coffee drinking habits of these young people: how much coffee they drank, at what times of day, with meals or between meals, instant or ground coffee, which other beverages they preferred and so on. In response, the research organisation developed a set of wide-ranging proposals which included taking a large random sample of young people.

In fact much of the information was interesting rather than important. Important information is that information which directly assists in making decisions and the ICO had not told the research company the purpose of the research. The initial reason for the study had been a suspicion, on the part of the ICO, that an increasing percentage of young people were consuming beverages other than coffee, particularly soft drinks, and simply never developed the coffee drinking habit. Had this been explained to the research company then it is likely that their proposals would have been radically different. To begin with, the sample would have been composed of 15-24 year old non-coffee drinkers rather than a random sample of all 15-24 year olds. Second, the focus would have been non-coffee drinking habits rather than coffee drinking habits.

Unless the purpose of the research is stated in unambiguous terms it is difficult for the marketing researcher to translate the decision-maker's problem into a research problem and study design.

CLEAR, CONCISE, ATTAINABLE, MEASURABLE AND QUANTIFIABLE OBJECTIVES

Suppose that the marketing manager states that he needs to know the potential market for a new product his/her organisation has been developing. At first glance this might appear to meet all of the requirements of being clear, concise, attainable, measurable and quantifiable. In practice it would possibly meet only one of these criteria, *i.e.*, it is concise!

Here is another case to be considered. A small engineering firm had purchased a prototype tree-lifter from a private research company. This machine was suitable for lifting semi-mature trees, complete with root-ball intact, and transplanting such trees in another location. It was thought to have potential in certain types of tree nurseries and plantations.

The problem with the objective is that the marketing manager needs to know the potential market for the new tree-lifter is that it is not attainable. One could find out how many tree-lifters were currently being sold but this is not the

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same as the objective set by the marketing manager. The market potential for any new brand is a function of at least four things, as shown in *Figure 2.1.*

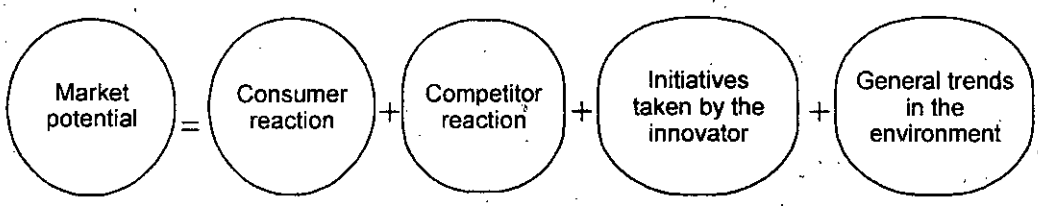

Fig. 2.1.

It was possible to test customer reaction to the concept of the new tree-lifter by showing pictures, line drawings and by supplying product specifications to prospective buyers. However, since the company had not decided their pricing policy an important element could not be tested. In large measure, it was also possible to gauge the likely reaction from competitors. The researchers began by looking at the basis of competition to determine whether it was on price, product quality or unique product features. The researchers were able to look at precedents. They examined the pattern of response on past occasions when one or other of those companies already in the market had launched a new product. An audit of the environment was undertaken too, but the missing component was the company's' own plans for exploiting the market. Since the company had no involvement in the agricultural engineering sector, prior to acquiring the rights to the tree-lifter, they had no agreements with distributors, no idea of which, if any, of the distributors would be prepared to stock their product; they had no salesmen trained in selling into this industry and so on. The product's potential depended very much on such initiatives.

The solution would have been to undertake a study which would have described the market in detail in terms of customers, competitors and the environment. The company could then have put a marketing plan together and conducted a follow-up study to test their propositions out on the marketplace.

The Need to Set a Time Horizon for Marketing Research

Inevitably there are deadlines which the marketing research activity must fit and these must be stated clearly at the outset of the research. As was said earlier, because of time pressures, management is often seeking quick answers from marketing research. If the researcher is aware of the time constraints then this will become an overriding factor when he/she plans the research design. He or she is likely to put forward a design which is less elegant, and gives rise to less precise information but delivers the results on schedule.

A Resource Allocation, Including the Budget and Facilities

There are essentially two approaches to establishing the resource allocation to a particular marketing research exercise. Management can start with the

problem and work out how much it will cost to solve it. Alternatively, they can decide how much the management can afford to spend, at the time, and seek the best answer they can for the time, money and manpower allocated. In practice the decision-makers prefer the latter approach and the researchers the former. In the end, some kind of compromise develops. The researcher rarely gets all of what he/she judges is required to reach a satisfactory conclusion but if the research proposal is well thought out and persuasively presented some concessions can be obtained.

Whichever the approach to resource allocation adopted, it is imperative that the researcher is aware of the financial and other constraints within which he/she must complete the work.

2.4 FUNDAMENTALS OF RESEARCH PROCESS

Many marketers do not produce a formal design plan when conducting research. For example, a small retailer who asks a returning customer how she liked the product she purchased the previous week is engaged in research and doing so without the need to produce a formal plan. But for marketers looking to undertake formal research, a written research design plan is important.

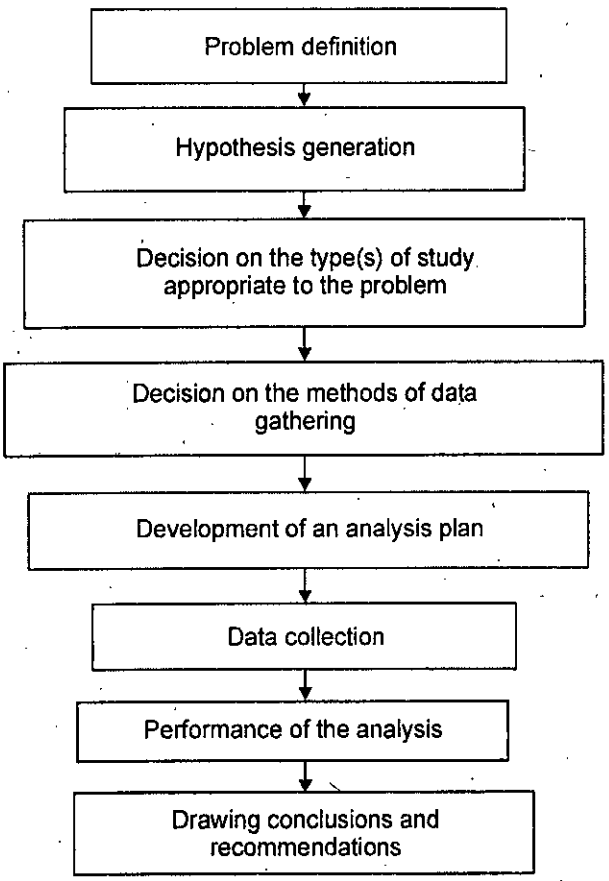

Fig. 2.2. Research Process

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Any research involves several chronological steps, but that does not mean each step must be completed before the next step is undertaken.

Furthermore, the process of research is dynamic and the process may change as the research progresses. The steps involved in most research endeavors are shown in *Figure 2.2 above.*

Applied versus Pure Research

Research can be defined as scientifically and methodically delving into the unknown in order to provide information for solving problems. The heart of this definition is the concept of problem solving. Both applied and pure (also known as basic) research attempt to solve problems. In applied research, the researcher attempts to solve a known problem and find answers to specific questions. In other words, the emphasis of applied research is on practical problem solving. For instance, when a paper recycling company wants to determine whether or not their recycled papers meet the required specification as to the thickness of the paper across the roll, they might design a systematic procedure for answering this specific question. The research in such a situation represents applied research. Another example of applied research might be that of prediction. As an example, consider a trucking company that is interested in predicting the tonnage of material shipped in the next quarter. The practical problem is predicting the tonnage and determining which variables are good predictors of tonnage for the next quarter.

Applied research can help make a decision about the following, including a variety of other business and management decisions:

- pricing a new product,
- where to locate a new retail store,
- how many employees to hire,
- how many products to offer,
- what to pay employees.

Applied research can be used to collect information about markets, competitors, and customers. For example, research can help pinpoint the optimal business location and the size of markets. It can also be used to monitor competitive actions. Customer research determines customer loyalty, customer satisfaction, and customer preferences.

On the other hand, pure, or basic, research does not necessarily try to answer specific questions or solve specific problems. Pure or basic research is done in order to expand knowledge and probe into the unknown. For example, when a researcher is interested in determining how employee demographics and tenure on the job relate to preference for flexible work schedules may represent pure research. Both pure and applied research deals with problem definition and problem solving. Most basic research is conducted by professors in academic

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institutions (*i.e.*, colleges and universities), by the government, or by consulting firms. Few business organizations will engage in pure research related to business problems. However, understanding the process and methods used for both applied and basic research are important to interpreting research results.

The Research Questions

Managers' needs for information are the primary source of problem definition and the research question. Managers need information to make educated decisions arising from unanticipated as well as planned changes. As such, managers must select between different alternatives and thus require information about the organization and its environment. The question to be answered or the problem to be solved must first be clearly defined. Questions to be answered could be very specific or extremely broad. The more specific the questions, the easier it will be to answer the research questions. There might be hypotheses that could be tested scientifically. Once the questions to be answered are clearly defined then the value of the research must be assessed. Clearly, if the costs of performing the research project exceed the value that the research will provide, then the project should not be continued.

The Research Proposal

Research endeavors require a proposal that explains the problem to be address and the procedure by which the questions will be answered. The researcher's proposal tells the managers what they should expect from the research. It is a contract between the managers and the researcher. For instance, if a company wants to know the degree to which its new incentive program is effective in improving employee performance, then the consultant or employee conducting the research will create a proposal that indicates to that company how the question will be addressed and what specific information the company will have at the end of the research process. The proposal may indicate, for example, that the research will indicate the level of satisfaction of employees with the new incentive plan, the increased firm performance with the plan, and the individual increases in performance (as measured by managers) with the incentive plan. The purpose of the research proposal is to effectively guide the researchers in their development of the research design and data collection to answer the specific research questions.

Research Design

Once the proposal is approved, the researcher has a foundation for development of the research design. The plan for conducting the research is the research design. There are two general forms of research design, namely non-experimental (ex-post-facto) and experimental. In a non-experimental design, the researcher does not control or alter any of the independent variables. The

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researcher merely studies existing situations, variables, and the interrelation among variables and reports the results of his or her findings. The two major non-experimental designs are field studies and surveys. Field studies combine literature review and possibly analysis of some case studies. For example, if one is interested in determining the effectiveness of total quality management (TQM), there will be a thorough literature search on the topic as well as a study of the firms that have applied TQM and have been successful. A literature review means that a researcher identifies previous writings and research on a topic, summarizes the current knowledge on the topic, and assesses the value of that prior research on the current problem. On the other hand, surveys deal with the formulation of a questionnaire (survey instrument) by which one can measure the magnitude of the desired variables as well as the interrelation among the variables. Non-experimental designs are primarily exploratory in nature and provide descriptive measures and can also be used for predictive purposes.

There are two broad categories of experimental designs: field and laboratory. In both field experiments and laboratory experiments, the researcher controls and may alter and introduce some variables in order to determine the effect of a given variable. Field experiments are done in a natural setting, whereas laboratory experiments are undertaken in a simulated setting. Studies on the effectiveness of different configurations of teams and their level of effectiveness can be undertaken in both field and office settings. In an office setting, a researcher might organize workplace teams, using different criteria to establish each, then measure the success of their group interactions and their productivity on real work tasks. This would be a natural setting, except for the way in which teams were organized. Team composition could also be studied in a laboratory in which the researchers had complete control over more variables. To study team effectiveness in a laboratory setting, individuals would be placed in teams using different criteria, then asked to perform a series of tasks specially designed to measure team interactions and performance. This laboratory setting would allow the researcher more control, because the types of individuals involved could be chosen, rather than using only the employees available in a field setting; by designing tasks specific to the study, rather than using existing work tasks; and by having more ability to watch and measure team performance without hindering organizational performance.

2.5 TYPES OF RESEARCH PROCESS

The first part of the research design is to decide on the type of research that will work best for the purpose (*i.e.*, explain, predict, monitor, discover, hypothesis test) and information that is sought. Research method choices can be broadly categorized as:

- Descriptive Market Research

- Exploratory Market Research
- Causal Market Research

As we will see, these methods differ in terms what each hopes to learn and how information is acquired.

Exploratory Market Research

The exploratory approach attempts to discover general information about a topic that is not well understood by the marketer. For instance, a marketer has heard news reports about a new Internet technology that is helping competitors but the marketer is not familiar with the technology and needs to do research to learn more. When gaining insight (*i.e.*, discovery) on an issue is the primary goal, exploratory research is used.

The basic difference between exploratory and descriptive research is the research design. Exploratory research follows a format that is less structured and more flexible than descriptive research. This approach works well when the marketer doesn't have an understanding of the topic or the topic is new and it is hard to pinpoint the research direction. The downside, however, is that results may not be as useful in aiding a marketing decision. So why use this method? In addition to offering the marketer basic information on a topic, exploratory research may also provide direction for a more formal research effort. For instance, exploratory research may indicate who the key decision makers are in a particular market thus enabling a more structured descriptive study targeted to this group.

The chief purpose of exploratory research is to reach a better understanding of the research problem. This includes helping to identify the variables which should be measured within the study. When there is little understanding of the topic it is impossible to formulate hypotheses without some exploratory studies. For example, crop residues such a straw are high in lignin (a wood-like substance) and low in nutrients. This makes them a poor animal feed since the lignin acts against digestibility and the low nutrient content means poor food value. However, if treated in a strong alkali, plus a little heat, the lignin breaks down and the nutrient content increases. A company was established to exploit this technology and did so successfully for four seasons. After this period sales began to slow down. Three other manufacturers had entered the market by this time. The company, Animal Feed Systems, did not know whether the whole industry had slowed down or if only their product was suffering. Nor did they know if the problem was temporary in that perhaps the market comprised of "early adopters" had been saturated but it was only a matter of time before other farmers began to buy their systems when they saw how well they worked. It was also possible that if a problem did exist it could lie in any one of a number of areas: animal populations might be declining, distributors may not be promoting the product

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aggressively, customers may be experiencing difficulties in getting the chemicals, and so on and on.

This is a good example of a situation where insufficient knowledge prevented the development of clear objectives, since the problem could not be articulated with any precision and therefore research of an exploratory nature was required. Such research can take the form of literature searches, informal personal interviews with distributors and users/non-users of the product and/or focus group interviews with farmers and/or distributors.

Exploratory research is intended to help researchers formulate a problem in such a way that it can be researched and suggest testable hypotheses.

Descriptive Market Research

The focus of descriptive research is to provide an accurate description for something that is occurring. For example, what age group is buying a particular brand, a product's market share within a certain industry, how many competitors a company faces, etc. This type of research is by far the most popular form of market research. It is used extensively when the research purpose is to explain, monitor and test hypotheses, and can also be used to a lesser extent to help make predictions and for discovery.

Marketers routinely conduct basic descriptive research using informal means. For instance, the head of marketing for a clothing company may email a retailer to see how the products are selling. But informal descriptive research, while widely undertaken, often fails to meet the tests of research validity and reliability and, consequently, the information should not be used as an important component in marketing decisions. Rather, to be useful, descriptive research must be conducted in a way that adheres to a strict set of research requirements to capture relevant results. This often means that care must be taken to develop a structured research plan. Under most circumstances this requires researchers have a good grasp of research methods including knowledge of data analysis.

As the name suggests, descriptive research is concerned with describing market characteristics and/or marketing mix characteristics. Typically, a descriptive study specifies the number and size of market segments, the alternative ways in which products are currently distributed, listing and comparison of the attributes and features of competitive products, etc.

This type of study can involve the description of the extent of association between variables. For example, the researcher may observe that there is an association between the geographical location of consumers and their tendency to consume red meat. Note that the researcher is able to describe the relationship rather than explain it. Nonetheless if the relationship between the two is fairly stable this descriptive information may be sufficient for the purposes of prediction.

The researcher may, for example, be able to predict how fast the per capita consumption of red meat is likely to rise over a given time period.

The principal difference between exploratory and descriptive research is that, in the case of the latter, specific research questions have been formulated before the research is undertaken. When descriptive research is conducted the researcher must already know a great deal about the research problem, perhaps because of a prior exploratory study, and is in a position to clearly define what he/she wants to measure and how to do it.

Causal Market Research

In this form of research the marketer tries to determine if the manipulation of one variable, called the independent variable, affects another variable, called the dependent variable. In essence, the marketer is conducting an experiment. To be effective the design of causal research is highly structured and controlled so that other factors do not affect those being studied.

Marketers use this approach primarily for purposes of prediction and to test hypotheses, though it can also be used to a lesser extent for discovery and explanatory purposes. In marketing, causal research is used for many types of research including testing marketing scenarios, such as what might happen to product sales if changes are made to a product's design or if advertising is changed. If causal research is performed well marketers may be able to use results for forecasting what might happen if the changes are made.

Causal research deals with the "why" questions. That is, there are occasions when the researcher will want to know why a change in one variable brings about a change in another. If he/she can understand the causes of the effects observed then our ability to predict and control such events is increased.

2.6 EXPERIMENTATION IN MARKETING RESEARCH

An experiment involves the creation of a contrived situation in order that the researcher can manipulate one or more variables whilst controlling all of the others and measuring the resultant effects. For instance, when United Fruits were considering replacing their Gros Michel variety of banana with the Valery variety, a simple experiment was first carried out. In selected retail outlets, the two varieties were switched on different days of the week and sales data examined to determine what effect the variety had on sales volumes.

That is, the variety was being manipulated whilst all other variables were held constant. United Fruits found that the switch back and forth between Gros Michel and Valery had no effect upon sales. United Fruit were therefore able to replace Gros Michel with Valery.

Boyd and Westfall have defined experimentation as:

"...that research process in which one or more variables are manipulated under conditions which permit the collection of data which show the effects, if any, in unconfused fashion."

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Experiments can be conducted either in the field or in a laboratory setting. When operating within a laboratory environment, the researcher has direct control over most, if not all, of the variables that could impact upon the outcome of the experiment. For example, an agricultural research station may wish to compare the acceptability of a new variety of maize. Since the taste characteristics are likely to have a major influence on the level of acceptance, a blind taste panels might be set up where volunteers are given small portions of maize porridge in unmarked bowls. The participants would perhaps be given two porridge samples and the researcher would observe whether they were able to distinguish between the maize varieties and which they preferred. In addition to taste testing, laboratory experiments are widely used by marketing researchers in concept testing, package testing, advertising research and test marketing.

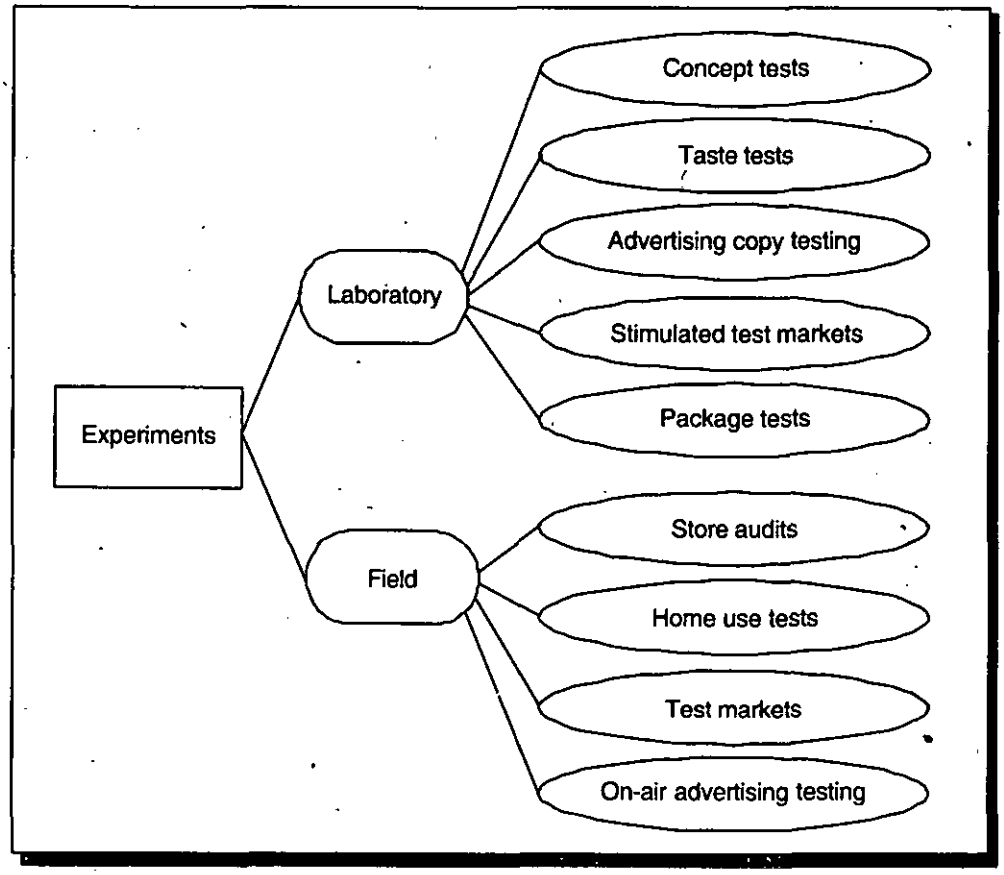

Fig. 2.3. Types of Experiment used in Marketing Research

When experiments are conducted within a natural setting then they are termed field experiments. The variety test carried out by United Fruits on their Gros Michel and Valery bananas is an example of a field experiment. The

researcher obviously has less control over variables likely to have an effect upon the experimental variable but will strive to exert whatever control is possible.

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Basic Concepts in Experimentation

Dependency: Experiments allow marketing researchers to study the effects of an independent variable on a dependent variable. The researcher is able to manipulate the independent variable (*i.e.*, he/she is able to change the value of the independent variable) and observe what effect, if any, this has upon the value of the dependent variable. Put another way, an independent variable is one which can be manipulated independently of other variables. Independent variables are selected for inclusion in an experiment on the basis of an assumption that they are in some way related to the dependent variable being studied. It is for this reason that independent variables are on occasion referred to as explanatory variables. The dependent variable is the one under study. The researcher begins from the premise that changes in the value of the dependent variable are at least in part caused by changes in the independent variable. The experiment is designed to determine whether or not this cause and effect relationship actually exists.

Causality: A causal relationship is said to exist where the value of one variable is known to determine or influence the value of another. *Green et al.* draw a distinction between two types of causation: deterministic and probabilistic.

Where the independent variable *(X)* wholly explains changes in the value of the dependent variable *(Y)* and the researcher is able to establish the functional relationship between the two variables then this can be expressed as follows:

$$y = f(x)$$

In this case, it is said that X is both a necessary and a sufficient condition for *Y* to occur. The value of *Y* is determined by *X*, and *X* alone. Thus it can be said, in these circumstances, that *X* is a deterministic cause of *Y*. An illustrative example would be where the demand for agricultural commodities, say sugar, is dependent upon the world price. Further suppose that the functional relationship between sugar demand and world prices is known, then the formula becomes:

Changes in demand for sugar = f(World Price)

Whilst this example serves to illustrate the point it is rare to find such relationships when studying marketing problems. In most instances, the value of the dependent variable will be a function of several variables. For instance, only in exceptional cases would the demand for a product, even a commodity, depend solely upon price movements. Factors such as the reputation of the supplier, terms of sale, promotional activities, packaging etc., are likely to have an impact on demand as well. A more common causal model is one where the value of the dependent variable is a function of several independent variables.

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Marketing problems are more often multivariate than univariate and so the relationship between dependent and independent variables is more often probabilistic than deterministic. A probabilistic relationship could be expressed as:

$$y = f(x_1, x_2, ...x_n).$$

What is depicted here is a situation where the dependent variable *(y)* is a function of several variables $(x_1, x_2, ...x_n)$. If marketing research can establish the form of the relationship *(f)* between the independent variables and also between the independent and dependent variables then the value of *y* can be predicted. In this instance x_1, for example, is a necessary but not sufficient condition for y to occur. The same is true of each of the other independent variables. Rather, each individual independent variable is said to be a probabilistic cause of the value of *y*.

Inferring Causal Relationships

The evidence for drawing inferences about causal relationships can take three forms: associative variation, consistent ordering of events and the absence of alternative causes.

Associative variation associative,	Causality cannot be established unless there is or concomitant, variation. That is, the data must show that a change in one variable is almost always accompanied by a change in the other.
Consistent order of events	If variable A causes variable B, then variable A must occur before or simultaneously with B, and not after it. It can happen that two events cause and effect one another. For example, the uptake of marketing innovations among farmers may show a high correlation with the number of visits by extension personnel. Closer study could reveal that extension personnel visit farmers who are immediately responsive to them more frequently than they do other farmers.
Absence of other causes	Before inferring causation researchers should check for equally plausible alternative explanations for the phenomenon under study. A vegetable trader might, for example, assume that the increase in her sales is due to improved grading procedures which she has introduced. However, there may be several other factors that act individually, or in combination, to bring about the sales increase. The trader might find her competitors are experiencing similar sales increases and that this is actually due to upward shifts in disposable incomes.

It should be noted that none of these forms of evidence, nor all three in combination, can unequivocally prove that a relationship exists. Rather, they help put the notion that a relationship exists beyond reasonable doubt. If all evidence points towards the same conclusion then the conclusion that a relationship exists is all the more compelling.

Impediments to Valid Results from Experiments

The validity of experimental results, *i.e.*, the extent to which results reflect the truth, is obviously a matter of importance. There are two distinct forms of validity which marketing researchers are concerned about when using experimentation: internal and external validity.

Internal validity	The question being asked is whether the experimental treatment is actually responsible for changes in the value of the dependent variable or if confounding factors have been in operation. Since laboratory experiments afford greater opportunities for controlling extraneous or confounding variables than do field experiments, internal validity is a bigger problem in the case of the latter.
External validity	External validity has to do with the extent to which experimental findings can be generalised to the population from which the participants in the experiment were drawn. In other words, the issue is the degree to which the sample represents the population. Given the naturalistic setting of field experiments, this category generally provides greater external validity than do those experiments conducted within a laboratory environment.

In some cases the marketing researcher seeks to exclude extraneous factors that can confound the results of an experiment. However, this is not always possible since it is difficult to determine when certain types of extraneous variable is in operation and even more difficult to measure them. In these circumstances, the researcher will seek to control confounding variables in a different way. Examples of confounding are:

Internal Validity	
History:	events taking place at the same time as the experiment is underway
Pre-testing:	errors arising from the process of taking "before" and "after" measures from the same sample as that providing "after" measures
Maturation:	biological and/or psychological changes in participants

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Instrumentation:	changes in the calibration of measurement instruments, questionnaires, interviewers or interviewing technique
Sampling bias:	assignment of participants to experimental groups in a way likely to prejudice outcomes
Mortality:	differential loss of participants from experimental groups
External Validity	
Interactive effects testing:	pre-exposure measurements going rise to heightened of awareness
Interactive effects of sampling bias:	non-random assignment of participants to experimental groups leading to differing responses to the experimental treatment
Contrived situations:	experimental setting elicits responses that differ from those which would be obtained in the real world.

Internal Validity

History: The term 'history' has been used to describe events that happen whilst the experiment is underway and serve to distort experimental results. A common occurence is when a commercial organisation is testing a new product within a small geographical area, prior to launching the product nationwide, and competitors intentionally set out to distort test results by giving additional promotional support to their own competing product and/or by cutting the price of their product.

Pretest effect: It is sometimes considered necessary to take some preliminary measures before the main experiment is carried out. For instance, a company wishing to promote monogerm sugar beet seed in Pakistan wanted to first establish how much farmers already knew about the different types of seed available. A particular district was chosen as a test area and a pretest was undertaken where a sample of farmers from that area were asked to list the types of seed of which they were aware. The farmers were also asked to list the brands of sugar beet seed with which they were familiar. This constituted the 'before' measure. A little later a promotional campaign was launched within the test area and after a period of time the sample of farmers were again visited and asked to identify the brands of seed with which they were familiar. It is likely that any increase in awareness of the company's brand was due, in part at least, to the heightened awareness of issues relating to seeds caused by the pretest activity. That is, the pretest is likely to increase interest in matters relating to seeds and therefore make farmers more attentive to the brand promotion than they otherwise might be.

Maturation: Maturation refers to biological and/or psychological changes to respondents that occur in the period between the 'before' and 'after' measurements

and consequently affect the information which they provide. Experiments requiring the cooperation of respondents over a substantial period of time are most likely to suffer from maturation effects. Consumer and farmer panels are examples of experimental instruments that demand longer term participation by panel members. Suppose that a farmer panel were established to measure the level of adoption of new marketing practices or technologies promoted by agricultural extension officers. As the years pass the marketing extension officer has noted that farmers on the panel appear to be adopting fewer of the innovations being proposed by the extension service. However, the lower rates of adoption may not be explained by either the marketing extension service becoming less effective in communicating the benefits of innovative marketing practices and technologies nor by current innovations being somehow less appropriate or offering more marginal benefits. Rather, the explanation may be that the panel itself is aging and as farmers get older they may become more resistant to change. Certainly as people get older their needs and attitudes are subject to change. In these circumstances the data drawn from the panel is a function of the maturation of the panel rather than the experimental variables (i.e. the efforts of the marketing extension officers and the characteristics of the marketing innovations).

Whilst it is not always possible to adjust the experimental design so as to eliminate each of these potential threats to the validity of results, it is always possible to measure their impact upon results. The chief device for doing so is to include a 'control group'.

Instrumentation: From time to time, measurement instruments have to be recalibrated or their readings become suspect. Although marketing research does make use of a wide range of mechanical, electrical and electronic instruments in experiments that clearly require periodic readjustment, (e.g. tachistoscopes, pupilometers, audiometer) there are other, more commonly used, marketing research test instruments that also need to be checked for consistency, such as, questionnaires, interviewers, interviewing procedures.

Questionnaires may contain standardised questions with the challenge to consistency coming from the interpretation of the meaning of the question. Consider the apparently straight-forward question, "How big is your farm?" There are several equally valid responses to this question that could combine to give a totally misleading set of data. The variation is due to farmers' interpretation of what the researcher really wants to know. Some farmers will include only the land area that they had under crop in the year of the survey whilst others will include both productive and nonproductive land. In other instances, farmers may understand the question to mean the area of land they actually own. Some farmers may believe it is the farmland that they own and/or rent.

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Another aspect is that of consistency in the conduct of interviews. There can be variation in the data collected during an experiment if either different interviewers are used to collect data after the experiment from those who conducted interviews before the experiment; or interviewers change the way questions are put to participants as they become more familiar with the content of the questionnaire.

Mortality: Over time there is a danger that some participants will drop out of an experiment. This can happen when people literally die or decide withdraw from an experimental group for one reason or another. This obviously changes the composition of the experimental group. Where the effects of a marketing variable are being studied by comparing data drawn either from two groups that have been matched to ensure that their composition is identical or the same group at different points in time then mortality can confound the results.

Sampling bias: Sampling bias occurs when the method of assigning participants to experimental groups results in groups whose behaviour cannot be compared to one another because they differ in some important respect(s). Consider the task of evaluating the implementation of new weighing and grading practices within a municipal grain market. It could be that it is easier for larger grain traders to adopt the new practices since they are better able to afford the grading and weighing equipment required. If during a field experiment conducted to study the rate of adoption two groups are established with a view to comparing the rate of adoption within them and one of those groups is predominantly comprised of larger (or smaller) traders then this is likely to distort the results.

External Validity

Interactive effects of testing: The design of the experiment itself may give rise to measurement variations between the "before" and "after" phases of the research. Consider a test of consumer acceptance involving two exotic rice varieties being evaluated as possible replacements for a popular indigenous variety which is suffering from a disease and is therefore in short supply. The experimental design involves leaving a trial pack of rice *A* with a sample of households and returning a few weeks later to interview members of the household about rice *A* and to deliver a second trial pack containing rice *B*. *A* third visit is subsequently made during which household members are asked questions about rice *B*. Respondents' assessment of rice *B* is not made under the same conditions as their assessment of rice *A*. When trying rice *A* the respondents are likely to have made comparisons, perhaps only subconsciously, with existing rice varieties that they already use. However, when evaluating rice *B* the respondents will also be making comparisons with rice *A*. This problem can be overcome, to some extent, by splitting the sample so that half are given the trial varieties in the order rice A then rice *B*; the remaining half are given the two varieties in the reverse order of rice *B* then rice

A. A more difficult problem to overcome is that whatever the sequence of presentation, by the time household members are asked about the second trial variety, they have become more 'experienced' interviewees and respond differently simply because they feel they better understand what the interviewer wants and how to answer the questions. By the same measure, the interviewer becomes more experienced the second time around, having become more familiar with the product, the interviewing process, and the questionnaire (or interview schedule), and may pose the questions in a different way. As a result, the interviewer may elicit different information on the third call from that which was obtained on the second visit.

Interactive effects of sampling bias: It can happen that participants are assigned to an experimental group without due concern for possible bias and this then interacts with the experimental treatment producing a spurious outcome. Such an interactive sampling bias would result from unknowingly assigning heavy users of a particular product category to one experimental group and using favourable responses to a new formulation within the category as the basis for projecting national demand.

Contrived situations: Any laboratory experiment is, by definition, unlike the real world. Typically, the researcher manipulates the situation so that only those variables in which he/she is immediately interested in studying are allowed to operate as they would in the real world. On occasion this leads to experimental results which are not replicated in the real world. An outstanding example of this set of circumstances is that of Coca Cola's infamous blind taste panels. Coca Cola was concerned at the creeping increases in market share of Coke's main competitor Pepsi. Coca Cola decided to conduct sensory analysis tests where participants were asked to score two colas on taste preference. The participants were given the colas in unmarked cups (*i.e.*, a 'blind' tasting) before being asked which they preferred. On balance, the preference was of Pepsi's slightly sweeter cola. Coca Cola reacted in a way seldom seen anywhere in the world. The brand leader was removed from the market and a new, slightly sweeter formulation was launched under the Coca Cola brand name. It was to prove a costly mistake. Coca Cola were inundated by calls from consumers who were irate over the company's tampering with a product that has almost become a national institution. Most Americans have grown up with Coca Cola and could not accept that it could be changed. The company was forced to reintroduce the original formulation under the title of Coke Classic.

Coca Cola's taste panels were conducted in an artificial environment in which such variables as the brand name, the packaging and all the associations which go along with these were not allowed to operate. The research focused only on the taste characteristics of the product and a particular result was obtained.

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However, in the real world people consume Coca Cola for many reasons, many of them having little to do with the taste.

EXPERIMENTAL DESIGNS

The process of experimentation is one of subjecting participants (*e.g.*, target consumers, farmers, distributors etc.) to an independent variable such as an advertisement, a packaging design or a new product, and measuring the effect on a dependent variable (*e.g.*, level of recall, sales or attitude scores).

"After-only" Designs

As the name suggests, with after-only experimental designs measures of the independent variable are only taken after the experimental subjects have been exposed to the independent variable. This is a common approach in advertising research where a sample of target customers are interviewed following exposure to an advertisement and their recall of the product, brand, or sales features is measured. The advertisement could be one appearing on national television and/or radio or may appear in magazines, newspapers or some other publication. The amount of information recalled by the sample is taken as an indication of the effectiveness of the advertisement.

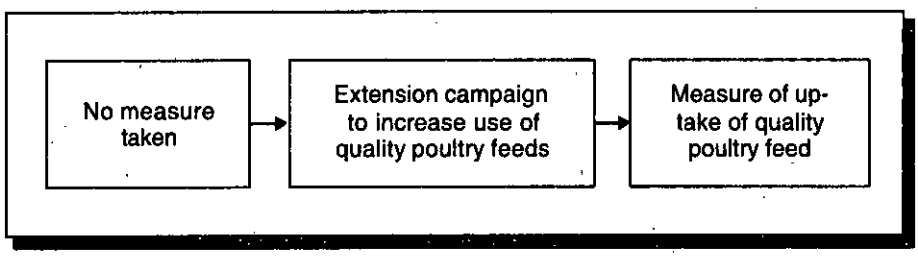

Fig. 2.4. An Example of an after-only Design

The chief problem with after-only designs is that they do not afford any control over extraneous factors that could have influenced the post-exposure measurements. For example, marketing extension personnel might have completed a trial campaign to persuade small-scale poultry producers, in a localised area, to make use of better quality feeds in order to improve the marketability and price of the end product. The decision to extend the campaign to other districts will depend on the results of this trial. After-only measures are taken, following the campaign, by checking poultry feed sales with merchants operating within the area. Suppose a rise in sales of good quality poultry feed mixes occurs four weeks after the campaign ends. It would be dangerous to assume that this sales increase is wholly due to the work of the marketing extension officers. A large part of the increase may be due to other factors such as promotional activity on the part of feed manufacturers and merchants who took advantage of the campaign, of which they were forewarned, and timed their marketing programme to coincide with the extension campaign. If the extension service erroneously

drew the conclusion that the sales increase was entirely due to their own promotional activity, then they might be misled into repeating the same campaign in other areas where there would not necessarily be the same response from feed manufacturers and merchants.

After-only designs are not true experiments since little or no control is exercised over any of the variables by the researcher. However its inclusion here serves to underline the need for more complex designs.

"Before-after" Designs

A before-after design involves the researcher in measuring the dependent variable both before and after the participants have been exposed to the independent variables.

The before-after design is an improvement upon the after-only design, in that the effect of the independent variable, if any, is established by observing differences between the value of the dependent variable before and after the experiment. Nonetheless, before-after designs still have a number of weaknesses.

Consider the case of the vegetable packer who is thinking about sending his/her produce to the wholesale market in more expensive, but more protective, plastic crates, instead of cardboard boxes. The packer is considering doing so in response to complaints from commissioning agents that the present packaging affords little protection to produce from handling damage. The packer wants to be sure that the economics of switching to plastic crates makes sense. Therefore, the packer introduces the plastic crates for a trial period. Before introducing these crates, the packer records the prices received for his/her top grade produce. Unless prices increase by more than the additional cost of plastic crates then there is no economic advantage to using the more expensive packaging.

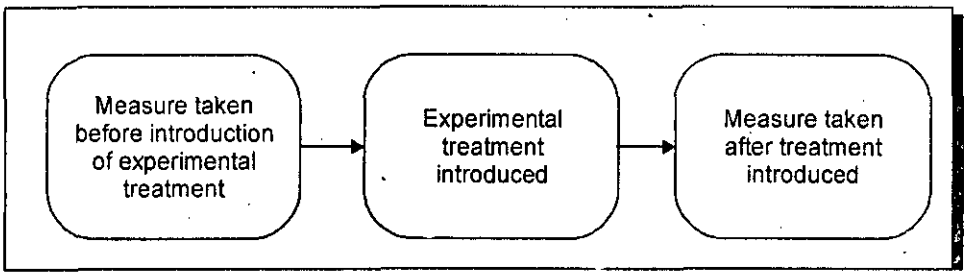

Fig. 2.5. An Example of a before-after Designs

Suppose, for instance, that the packer was receiving Rs. 15 per crate, when these were of the cardboard type, but that the price after the introduction of plastic crates had risen to Rs. 17 per crate. The Rs. 2 difference would be attributed to better quality produce reaching the market as a result of the protection afforded by the plastic crates. However, there are several equally plausible explanations for the upward drift in produce prices including a shortfall in supply, a fall in the quality of produce supplied by competitors who operate in areas suffering adverse weather conditions, random fluctuation in prices, etc.

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"Before-after with Control Group" Design

This design involves establishing two samples or groups of respondents: an experimental group that would be exposed to the marketing variable and a control group which would not be subjected to the marketing variable under study. The two groups would be matched. That is, the two samples would be identical in all important respects. The idea is that any confounding factors would impact equally on both groups and therefore any differences in the data drawn from the two groups can be attributed to the experimental variable.

The "After-only with Control Group" Experimental Design

Again, this design involves establishing two matched samples or groups of respondents. There is no measurement taken from either group before the experimental variable is introduced and the control group is not subsequently subjected to the experimental variable. Afterwards measures are taken from both groups and the effect of the experimental variable is established by deducting the control group measure from the experimental group measure. An illustrative example will help clarify the procedures followed.

A Sri Lankan food technology research institute was trying to convince small-scale food processors to adopt solar dryers to produce dried plantain and other dehydrated vegetables. Much of the initial resistance to the adoption of this technology was due to the belief that the taste characteristics of this snack food would be altered from those of traditional sun-dried plantain. The research institute was able to convince the food manufacturers that there would be no perceptible changes in the taste characteristics by carrying out an "after-only with control group" experiment. Sensory analysis experiments conclusively showed that almost none of the participants was able to discriminate between plantain dehydrated by means of the solar powered dryer and that which was sun-dried.

Many product tests are of the "after-only with control group" type. This design escapes the problems of pretesting, history and maturation. However, this form of "after-only design" does not facilitate an analysis of the process of change, whereas a comparable "before-after design" would. The attitudes, opinions and/or behaviour of individual participants can be recorded both before and afterwards and changes noted. For instance, the effect of the experimental variable on those participants who held unfavourable attitudes can be compared with those they held in the "before" measurement. Changes in those that held favourable attitudes in the "before" measurement can also be assessed after exposure to the experimental variable.

Ex Post Facto Design

The ex post facto design is a variation of the "after-only with control group" experimental design. The chief difference is that both the experimental and control

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groups are selected after the experimental variable is introduced rather than before. This approach eliminates the possibility that participants will be influenced by an awareness that they are being tested.

Following market liberalisation in Zimbabwe a number of maize meal producers, using hammer mill technology, came into the industry to compete against millers using roller mill technology. The hammer milled product was much coarser than the highly refined roller milled maize meal to which most urban consumers had grown accustomed.

The hammer milled product, however, had superior nutritional benefits since meal produced in this way retained a much larger amount of the germ, bran and endosperm. One production miller sought to communicate the nutritional advantages of hammer milled meal through point-of-sale material in stores and provisions merchants. A sample of consumers who claimed to have seen the point-of-sale material was subsequently assigned to an experimental group and a matching selection of consumers who denied having seen the point-of-sale material comprised the control group. It was hypothesised that those who had seen the point-of-sale material would suggest that hammer milled maize meal had superior nutritional properties to that of roller meal to a far greater extent than would those who had not seen the point-of-sale aids.

The results supported the hypothesis in as much as 68 percent of those recalling having seen the point-of-sale promotional aids reported hammer milled meal as nutritionally superior whilst only 43 percent of those unaware of the point-of-sale aids said that hammer mill was more nutritious than roller meal. However, some care has to be taken in making the conclusion that the point-of-sale campaign was an unqualified success. It is to be remembered that participants were assigned to the two groups on the basis of self-selection. Those reporting having seen the promotional material were probably those on whom the campaign had made most impression. It is quite likely that some of those in the control group also saw the material but do not recall having done so.

Where exposure to the experimental variable can be determined objectively, on an ex post facto basis, the bias introduced by self-selection can be eliminated and the design, in essence, becomes identical to the "after-only with control group" design.

In these circumstances, the ex post facto design is an improvement upon the "after-only with control group" design since the experimental variable would have its impact in a natural situation. Suppose, for example, that government has been using radio to communicate thy benefits of giving vitamin supplements to children under two years of age and that these are available in tablet form, free-of-charge, in local clinics. Ownership, and access, to a radio can be established objectively.

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2.7 SUMMARY

- In any organization, managers at all levels need accurate and timely information for managerial decision making. Whether the decisions made are at technical, tactical, or strategic levels, good, accurate, and timely information always leads to a better decision.
- Market research consists of a plan that charts how relevant data is to be collected and analyzed so that the results are useful and relevant for making marketing decisions.
- Marketing research can be concerned with any of a variety of aspects of the market: the product, sales, buyer behaviour, promotion, distribution, pricing, packaging, etc.
- The first part of the research design is to decide on the type of research that will work best for the purpose *(i.e.,* explain, predict, monitor, discover, hypothesis test) and information that is sought.
- An experiment involves the creation of a contrived situation in order that the researcher can manipulate one or more variables whilst controlling all of the others and measuring the resultant effects.

2.8 REVIEW QUESTIONS

1. Discuss the role and limitations of marketing research.
2. What are the principal purposes of marketing research?
3. How is exploratory marketing research conducted?
4. Discuss the method of descriptive marketing research.
5. Explain the internal and external validity of experimentation of marketing research.

2.9 FURTHER READINGS

- Boyd, H.W. Jr. and Westfall, R. (1972) ***Marketing Research: Text and Cases***, Irwin.
- Dillon, W.R., Madden, T.J. and Firtle, N.H. (1994), ***Marketing Research In A Research Environment***, 3rd edition, Irwin.
- Green, P.E., Tull, D.S. and Albaum, G. (1993), ***Research For Marketing Decisions***, 5th edition, Prentice-Hall.
- Cooper, Donald R., and Pamela S. Schindler. ***Business Research Methods***. 8th ed. New York: McGraw-Hill, 2003.
- Davis, Duane. ***Business Research for Decision Making***. 6th ed. South-Western College Publishing, 2005.

UNIT– III

DATA COLLECTION

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STRUCTURE

3.1 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- state the concept of primary and secondary sources of data;
- explain the process of data collection and analysis;
- discuss the method hypothesis testing and questionnaire construction;
- know the planning and rating system in measurement.

3.2 INTRODUCTION

Data collection is the process of gathering the specific information used to answer the research questions. There are a number of issues associated with data collection, including the use of primary or secondary data, survey design, sampling, survey administration, and increasing response rates.

Data collection methods for marketing research are divided into quantitative and qualitative methods. Quantitative studies use mathematical analysis, which can disclose differences that are statistically significant. The sample size used is quite large.

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Qualitative methods are used to provide a base for quantitative research and help in quantitative research design development. They target problem defining, generating hypotheses and identifying determinants. They consist of one to one interviews to probe for personal opinions, beliefs and values and serve to uncover hidden issues. The sample size in this method is small.

3.3 PRIMARY AND SECONDARY SOURCES OF DATA

Data can be primary or secondary, and whether one or both are used, and which is used, depends largely on the research question and the availability of these data sources. Secondary data refer to data gathered by others or from other studies. Secondary data is generally less costly and less time consuming than gathering primary data, typically is accumulated before primary data is gathered, and may even help determine the course by which primary data is pursued. An example of secondary data is if a company uses data from the U.S. Census or data collected for another organizational activity (*e.g.*, performance information for individuals from the company's annual performance appraisal). While secondary data can be used for background information about specific research, it may also answer some specific research questions. However, because secondary data was collected for another purpose, it may not adequately address the new research question. In today's world of rapidly growing information technologies, secondary data are available from numerous sources. A researcher should explore the existing data before starting the research process, since there are datasets for many different types of information currently available. There are abundant data available in literature, company records, government publications, trade associations, and through the Internet.

Primary data is that which is collected by the researcher to address the current research question. Types of primary data include subject demographics, lifestyle characteristics, attitudes, knowledge, intentions, motivations, and behavior. Demographic data includes statistics regarding populations, such as age, sex, income, level of education, and so forth. Lifestyle characteristics describe a respondent's activities, interests, and opinions. Attitudes refer to views and opinions about things, events, or ideas. Knowledge is the degree to which respondents are aware of these things, events, or ideas. Intentions generally refer to a respondent's planned future behavior. Motivations describe the reasons behind a respondent's behavior. Behavior is related to what respondents do.

Primary data can be collected in the field or the laboratory through communication and observation. Communication generally requires the direct questioning of respondents via a paper-and-pencil survey (i.e., questionnaire) or telephone survey. Observation involves the direct recording of respondent behavior. Surveys are probably the most common design in business research. For instance, if one is interested in determining the success of (Total Quality

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Management) TQM, a survey can be designed that encompasses questions regarding elements of success, strengths, weaknesses, and other questions dealing with TQM. Then the survey can be sent to companies that have been successful in implementing TQM. The survey results could shed light on many aspects of TQM.

By far the most widely used method for collecting data is through secondary data collection, commonly called secondary research. This process involves collecting data from either the originator or a distributor of primary research (see Primary Research discussion below). In other words, accessing information already gathered.

In most cases this means finding information from third-party sources such as marketing research reports, company websites, magazine articles, and other sources. But in actuality any information previously gathered, whether from sources external to the marketer or from internal sources, such as accessing material from previous market research carried out by the marketer's organization, old sales reports, accounting records and many others, falls under the heading of secondary research.

The Nature of Secondary Sources of Information

Secondary data is data which has been collected by individuals or agencies for purposes other than those of our particular research study. For example, if a government department has conducted a survey of, say, family food expenditures, then a food manufacturer might use this data in the organisation's evaluations of the total potential market for a new product. Similarly, statistics prepared by a ministry on agricultural production will prove useful to a whole host of people and organisations, including those marketing agricultural supplies.

No marketing research study should be undertaken without a prior search of secondary sources (also termed desk research). There are several grounds for making such a bold statement.

- Secondary data may be available which is entirely appropriate and wholly adequate to draw conclusions and answer the question or solve the problem. Sometimes primary data collection simply is not necessary.
- It is far cheaper to collect secondary data than to obtain primary data. For the same level of research budget a thorough examination of secondary sources can yield a great deal more information than can be had through a primary data collection exercise.
- The time involved in searching secondary sources is much less than that needed to complete primary data collection.
- Secondary sources of information can yield more accurate data than that obtained through primary research. This is not always true but where a government or international agency has undertaken a large scale survey,

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or even a census, this is likely to yield far more accurate results than custom designed and executed surveys when these are based on relatively small sample sizes.

- It should not be forgotten that secondary data can play a substantial role in the exploratory phase of the research when the task at hand is to define the research problem and to generate hypotheses. The assembly and analysis of secondary data almost invariably improves the researcher's understanding of the marketing problem, the various lines of inquiry that could or should be followed and the alternative courses of action which might be pursued.
- Secondary sources help define the population. Secondary data can be extremely useful both in defining the population and in structuring the sample to be taken. For instance, government statistics on a country's agriculture will help decide how to stratify a sample and, once sample estimates have been calculated, these can be used to project those estimates to the population.

THE PROBLEMS OF SECONDARY SOURCES

Whilst the benefits of secondary sources are considerable, their shortcomings have to be acknowledged. There is a need to evaluate the quality of both the source of the data and the data itself. The main problems may be categorised as follows:

Definitions

The researcher has to be careful, when making use of secondary data, of the definitions used by those responsible for its preparation. Suppose, for example, researchers are interested in rural communities and their average family size. If published statistics are consulted then a check must be done on how terms such as "family size" have been defined. They may refer only to the nucleus family or include the extended family. Even apparently simple terms such as 'farm size' need careful handling. Such figures may refer to any one of the following: the land an individual owns, the land an individual owns plus any additional land he/she rents, the land an individual owns minus any land he/she rents out, all of his land or only that part of it which he actually cultivates. It should be noted that definitions may change over time and where this is not recognised erroneous conclusions may be drawn. Geographical areas may have their boundaries redefined, units of measurement and grades may change and imported goods can be reclassified from time to time for purposes of levying customs and excise duties.

Measurement error

When a researcher conducts fieldwork she/he is possibly able to estimate inaccuracies in measurement through the standard deviation and standard error,

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but these are sometimes not published in secondary sources. The only solution is to try to speak to the individuals involved in the collection of the data to obtain some guidance on the level of accuracy of the data. The problem is sometimes not so much 'error' but differences in levels of accuracy required by decision makers. When the research has to do with large investments in, say, food manufacturing, management will want to set very tight margins of error in making market demand estimates. In other cases, having a high level of accuracy is not so critical. For instance, if a food manufacturer is merely assessing the prospects for one more flavour for a snack food already produced by the company then there is no need for highly accurate estimates in order to make the investment decision.

Source bias

Researchers have to be aware of vested interests when they consult secondary sources. Those responsible for their compilation may have reasons for wishing to present a more optimistic or pessimistic set of results for their organisation. It is not unknown, for example, for officials responsible for estimating food shortages to exaggerate figures before sending aid requests to potential donors. Similarly, and with equal frequency, commercial organisations have been known to inflate estimates of their market shares.

Reliability

The reliability of published statistics may vary over time. It is not uncommon, for example, for the systems of collecting data to have changed over time but without any indication of this to the reader of published statistics. Geographical or administrative boundaries may be changed by government, or the basis for stratifying a sample may have altered. Other aspects of research methodology that affect the reliability of secondary data is the sample size, response rate, questionnaire design and modes of analysis.

Time scale

Most censuses take place at 10 year intervals, so data from this and other published sources may be out-of-date at the time the researcher wants to make use of the statistics.The time period during which secondary data was first compiled may have a substantial effect upon the nature of the data. For instance, the significant increase in the price obtained for Ugandan coffee in the mid-90's could be interpreted as evidence of the effectiveness of the rehabilitation programme that set out to restore coffee estates which had fallen into a state of disrepair. However, more knowledgeable coffee market experts would interpret the rise in Ugandan coffee prices in the context of large scale destruction of the Brazilian coffee crop, due to heavy frosts, in 1994, Brazil being the largest coffee producer in the world.

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Whenever possible, marketing researchers ought to use multiple sources of secondary data. In this way, these different sources can be cross-checked as confirmation of one another. Where differences occur an explanation for these must be found or the data should be set aside.

Figure 3.1 presents a flowchart depicting the decision path that should be followed when using secondary data. As can be seen, the flowchart divides into two phases. The early stages of the flowchart relate to the relevance of the data to the research objectives. The later stages of the flowchart are concerned with questions about the accuracy of secondary data.

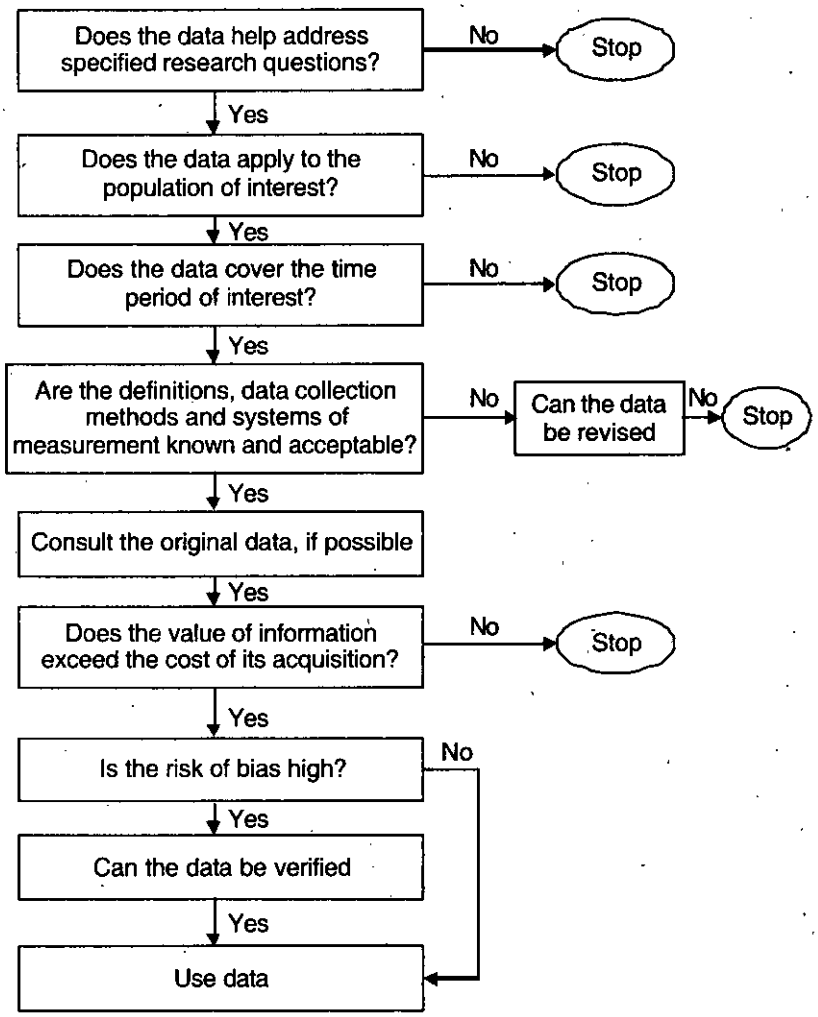

Fig. 3.1. Evaluating secondary data

Sources of Information

Secondary sources of information may be divided into two categories: internal sources and external sources.

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Internal Sources of Secondary Information

Sales data : All organisations collect information in the course of their everyday operations. Orders are received and delivered, costs are recorded, sales personnel submit visit reports, invoices are sent out, returned goods are recorded and so on. Much of this information is of potential use in marketing research but a surprising amount of it is actually used. Organisations frequently overlook this valuable resource by not beginning their search of secondary sources with an internal audit of sales invoices, orders, inquiries about products not stocked, returns from customers and sales force customer calling sheets. For example, consider how much information can be obtained from sales orders and invoices:

- Sales by territory
- Sales by customer type
- Prices and discounts
- Average size of order by customer, customer type, geographical area
- Average sales by sales person and
- Sales by pack size and pack type, etc.

This type of data is useful for identifying an organisation's most profitable product and customers. It can also serve to track trends within the enterprise's existing customer group.

Financial data: An organisation has a great deal of data within its files on the cost of producing, storing, transporting and marketing each of its products and product lines. Such data has many uses in marketing research including allowing measurement of the efficiency of marketing operations. It can also be used to estimate the costs attached to new products under consideration, of particular utilisation (in production, storage and transportation) at which an organisation's unit costs begin to fall.

Transport data: Companies that keep good records relating to their transport operations are well placed to establish which are the most profitable routes, and loads, as well as the most cost effective routing patterns. Good data on transport operations enables the enterprise to perform trade-off analysis and thereby establish whether it makes economic sense to own or hire vehicles, or the point at which a balance of the two gives the best financial outcome.

Storage data: The rate of stockturn, stockhandling costs, assessing the efficiency of certain marketing operations and the efficiency of the marketing system as a whole. More sophisticated accounting systems assign costs to the cubic space occupied by individual products and the time period over which the product occupies the space. These systems can be further refined so that the profitability per unit, and rate of sale, are added. In this way, the direct product profitability can be calculated.

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External Sources of Secondary Information

The marketing researcher who seriously seeks after useful secondary data is more often surprised by its abundance than by its scarcity. Too often, the researcher has secretly (sometimes subconsciously) concluded from the outset that his/her topic of study is so unique or specialised that a research of secondary sources is futile. Consequently, only a specified search is made with no real expectation of sources. Cursory researches become a self-fulfilling prophecy. *Dillon et. al* give the following advice:

> "You should never begin a half-hearted search with the assumption that what is being sought is so unique that no one else has ever bothered to collect it and publish it. On the contrary, assume there are scrolling secondary data that should help provide definition and scope for the primary research effort."

The same authors support their advice by citing the large numbers of organisations that provide marketing information including national and local government agencies, quasi-government agencies, trade associations, universities, research institutes, financial institutions, specialist suppliers of secondary marketing data and professional marketing research enterprises. Dillon et al further advise that searches of printed sources of secondary data begin with referral texts such as directories, indexes, handbooks and guides. These sorts of publications rarely provide the data in which the researcher is interested but serve in helping him/her locate potentially useful data sources.

The main sources of external secondary sources are (1) government (federal, state and local) (2) trade associations (3) commercial services (4) national and international institutions.

Government statistics

These may include all or some of the following:

- Population censuses,
- Social surveys, family expenditure surveys,
- Import/export statistics,
- Production statistics,
- Agricultural statistics.

Trade associations

Trade associations differ widely in the extent of their data collection and information dissemination activities. However, it is worth checking with them to determine what they do publish. At the very least one would normally expect that they would produce a trade directory and, perhaps, a yearbook.

Commercial services

Published market research reports and other publications are available from a wide range of organisations which charge for their information. Typically,

marketing people are interested in media statistics and consumer information which has been obtained from large scale consumer or farmer panels. The commercial organisation funds the collection of the data, which is wide ranging in its content, and hopes to make its money from selling this data to interested parties.

National and international institutions

Bank economic reviews, university research reports, journals and articles are all useful sources to contact. International agencies such as World Bank, IMF, IFAD, UNDP, ITC, FAO and ILO produce a plethora of secondary data which can prove extremely useful to the marketing researcher.

THE INFORMATION SUPER-HIGHWAY

Advances in computers and telecommunications technology have combined to allow people around the world to exchange information quickly and inexpensively. The computers of organisations, governments and even individuals can be linked to transmit and receive information through an international network of telephone lines, fibre optic cables and satellites. This international network is commonly known as the Internet.

SECONDARY RESEARCH - ADVANTAGES

- *Ease of Access* - In years past accessing good secondary data required marketers to visit libraries or wait until a report was shipped by mail. When online access initially became an option marketers needed training to learn different rules and procedures for each data source. However, the Internet has changed how secondary research is accessed by offering convenience (e.g., online access from many locations) and generally standardized usage methods for all data sources.
- *Low Cost to Acquire* - Researchers are often attracted to secondary data because getting this information is much less expensive than if the researchers had to carry out the research themselves.
- *May Help Clarify Research Question* – Secondary research is often used prior to larger scale primary research to help clarify what is to be learned. For instance, a researcher doing competitor analysis, but who is not familiar with competitors in a market, could access secondary sources to locate a list of potential competitors.
- *May Answer Research Question* - As noted, secondary data collection is often used to help set the stage for primary research. In the course of doing so researchers may find that the exact information they were looking for is available via secondary sources thus eliminating the need and expense to carrying out their own primary research.

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- ***May Show Difficulties in Conducting Primary Research*** – The originators of secondary research often provide details on how the information was collected. This may include discussion of difficulties encountered. For instance, the secondary research may be a research report written by a large market research company. These types of reports often include a section discussing the procedures used to collect the data and within this may disclose problems in obtaining the data, such as a high percentage of people declining to take part in the research. After reading this the marketer may decide the potential information that may be obtained is not worth the potential difficulties in conducting the research.

SECONDARY RESEARCH - DISADVANTAGES

- ***Quality of Researcher*** – As we will discuss, research conducted using primary methods are largely controlled by the marketer. However, this is not the case when it comes to data collected by others. Consequently, the quality of secondary research should be scrutinized closely since the origins of the information may be questionable. Organizations relying on secondary data as an important component in their decision-making (e.g., market research studies) must take extra steps to evaluate the validity and reliability of the information by critically evaluating how the information was gathered, analyzed and presented.
- ***Not Specific to Researcher's Needs*** – Secondary data is often not presented in a form that exactly meets the marketer's needs. For example, a marketer obtains an expensive research report that looks at how different age groups feel about certain products within the marketer's industry. Unfortunately, the marketer may be disappointed to discover that the way the research divides age groups (*e.g.*, under 13, 14-18, 19-25, etc.) does not match how the marketer's company designates its age groups (*e.g.*, under 16, 17-21, 22-30, etc). Because of this difference the results may not be useful.
- ***Inefficient Spending for Information*** – Since the research received may not be specific to the marketer's needs, an argument can be made that research spending is inefficient. That is, the marketer may not receive a satisfactory amount of information for what is spent.
- ***Incomplete Information*** – Many times a researcher finds that research that appears promising is in fact a "teaser" released by the research supplier. This often occurs when a small portion of a study is disclosed, often for free, but the full report, which is often expensive, is needed to gain the full value of the study.
- ***Not Timely*** – Caution must be exercised in relying on secondary data that may have been collected well in the past. Out-of-date information may

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offer little value especially for companies competing in fast changing markets.

- *Not Proprietary Information* – In most cases secondary research is not undertaken specifically for one company. Instead it is made available to many either for free or for a fee. Consequently, there is rarely an "information advantage" gained by those who obtain the research.

3.4 THE PROCESS OF DATA COLLECTION AND ANALYSIS

The next set of decisions concerns the method(s) of data gathering to be employed. The main methods of data collection are secondary data searches, observation, the survey, experimentation and consumer panels. Each of these topics is dealt with later on, so they are simply noted here.

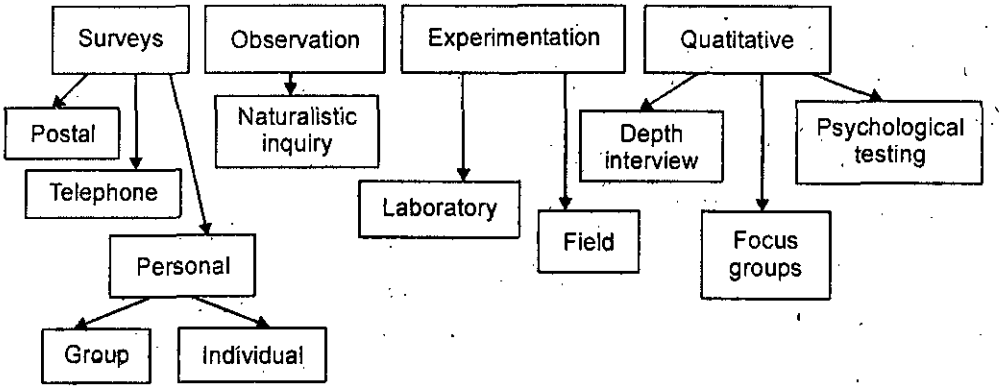

Fig. 3.2. Data collection methods

Development of An Analysis Plan

Those new to marketing research often intuitively believe that decisions about the techniques of analysis to be used can be left until after the data has been collected. Such an approach is ill-advised. Before interviews are conducted the following checklist should be applied:

- Is it known how each and every question is to be analysed? (*e.g.*, which univariate or bivariate descriptive statistics, tests of association, parametric or nonparametric hypotheses tests, or multivariate methods are to be used?)
- Does the researcher have a sufficiently sound grasp of these techniques to apply them with confidence and to explain them to the decision-maker who commissioned the study?
- Does the researcher have the means to perform these calculations? (*e.g.*, access to a computer which has an analysis program which he/she is

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familiar with? Or, if the calculations have to be performed manually, is there sufficient time to complete them and then to check them?)

- If a computer program is to be used at the data analysis stage, have the questions been properly coded?
- Have the questions been scaled correctly for the chosen statistical technique? (*e.g.*, a t-test cannot be used on data which is only ranked)

There is little point in spending time and money on collecting data which subsequently is not or cannot be analysed. Therefore consideration has to be given to issues such as these before the fieldwork is undertaken.

Data Collection

At this stage the researcher is ready to go into the field and collect data. The various issues relating to data collection constitute the main body of the text and therefore, are not dwelt upon here.

Analysis of Data

The word 'analysis' has two component parts, the prefix 'ana' meaning 'above' and the Greek root 'lysis' meaning 'to break up or dissolve'. Thus data analysis can be described as:

> "...a process of resolving data into its constituent components, to reveal its characteristic elements and structure."

Where the data is quantitative there are three determinants of the appropriate statistical tools for the purposes of analysis. These are the number of samples to be compared, whether the samples being compared are independent of one another and the level of data measurement.

Suppose a fruit juice processor wishes to test the acceptability of a new drink based on a novel combination of tropical fruit juices. There are several alternative research designs which might be employed, each involving different numbers of samples.

Test A	Comparing sales in a test market and the market share of the product it is targeted to replace.	Number of samples = 1
Test B	Comparing the responses of a sample of regular drinkers of fruit juices to those of a sample of non-fruit juice drinkers to a trial formulation.	Number of samples = 2
Test C	Comparing the responses of samples of heavy, moderate and infrequent fruit juice drinkers to a trial formulation.	Number of samples = 3

The next consideration is whether the samples being compared are dependent (*i.e.*, related) or independent of one another (*i.e.*, unrelated). Samples are said to be dependent, or related, when the measurement taken from one

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sample in no way affects the measurement taken from another sample. Take for example the outline of test B above. The measurement of the responses of fruit juice drinkers to the trial formulation in no way affects or influences the responses of the sample of non-fruit juice drinkers. Therefore, the samples are independent of one another. Suppose however a sample were given two formulations of fruit juice to taste. That is, the same individuals are asked first to taste formulation *X* and then to taste formulation *Y*. The researcher would have two sets of sample results, *i.e.,* responses to product *X* and responses to product *Y*. In this case, the samples would be considered dependent or related to one another. This is because the individual will make a comparison of the two products and his/her response to one formulation is likely to affect his/her reaction or evaluation of the other product.

The third factor to be considered is the levels of measurement of the data being used. Data can be nominal, ordinal, interval or ratio scaled. Table 3.1 summarises the mathematical properties of each of these levels of measurement.

Once the marketing researcher knows how many samples are to be compared, whether these samples are related or unrelated to one another and the level of measurement then the selection of the appropriate statistical test is easily made. To illustrate the importance of understanding these connections consider the following simple, but common, question in marketing research. In many instances the age of respondents will be of interest. This question might be asked in either of the two following ways:

Please indicate to which of the following age categories you belong

(a)

15-21 years ___

22 - 30 years ___

Over 30 years ___

(b)

How old are you? ___ Years

Table 3.1 Levels of measurement

Measurement scale	*Measurement Level*	*Examples*	*Mathematical properties*
Nominal	Frequency counts	Producing grading categories	Confined to a small number of tests using the mode and frequency
Ordinal	Ranking of items	Placing brands of cooking oil in order of preference	Wide range of nonparametric tests which test for order

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Interval	Relative differences of magnitude between items	Scoring products on a 10 point scale of like/dislike	Wide range of parametric tests
Ratio	Absolute differences of magnitude	Stating how much better one product is than another in absolute terms.	All arithmetic operations

Choosing format *(a)* would give rise to nominal (or categorical) data and format *(b)* would yield ratio scaled data. These are at opposite ends of the hierarchy of levels of measurement. If by accident or design format *(a)* were chosen then the analyst would have only a very small set of statistical tests that could be applied and these are not very powerful in the sense that they are limited to showing association between variables and could not be used to establish cause-and-effect. Format *(b)*, on the other hand, since it gives the analyst ratio data, allows all statistical tests to be used including the more powerful parametric tests whereby cause-and-effect can be established, where it exists. Thus a simple change in the wording of a question can have a fundamental effect upon the nature of the data generated.

The individual responsible for commissioning the research may be unfamiliar with the technicalities of statistical tests but he/she should at least be aware that the number of samples, their dependence or independence and the levels of measurement does affect how the data can be analysed. Those who submit marketing research proposals involving quantitative data should demonstrate an awareness of the factors that determine the mode of analysis and a capability to undertake such analysis.

Marketing researchers have to plan ahead for the analysis stage. It often happens that data processing begins whilst the data gathering is still underway. Whether the data is to be analysed manually or through the use of a computer program, data can be coded, cleaned (*i.e.*, errors removed) and the proposed analytical tests tried out to ensure that they are effective before all of the data has been collected.

Another important aspect relates to logistics planning. This includes ensuring that once the task of preparing the data for analysis has begun there is a steady and uninterrupted flow of completed data forms or questionnaires back from the field interviewers to the data processors. Otherwise the whole exercise becomes increasingly inefficient. A second logistical issue concerns any plan to build up a picture of the pattern of responses as the data comes flowing in. This may require careful planning of the sequencing of fieldwork. For instance, suppose that research was being undertaken within a particular agricultural region with a view to establishing the size, number and type of milling enterprises which had established themselves in rural areas following market liberalisation. It may be

that the West of the district under study mainly wheat is grown whilst in the East it is maize which is the major crop. It would make sense to coordinate the fieldwork with data analysis so that the interim picture was of either wheat or maize milling since the two are likely to differ in terms of the type of mill used (*e.g.*, hammer versus plate mills) as well as screen sizes and end use (*e.g.*, the proportions prepared for animal versus human food).

Once the data is edited it is ready for coding, which is determining how survey responses will be transformed into numerical data. The first step in coding is the development of a codebook. The codebook formalizes the coding process by listing answers and their accompanying codes. After the data is coded and entered into a data spreadsheet, statistical analyses can be performed to create useful information for the researchers. If there are hypotheses to be tested, the researcher is in a position to use the gathered data to test the hypotheses. Data analysis could be as simple as reporting descriptive statistics such as averages, measures of variability, and percentages, or if needed, advance statistical techniques could be applied.

3.5 HYPOTHESIS TESTING

Social science research, and by extension business research, uses a number of different approaches to study a variety of issues. This research may be a very informal, simple process or it may be a formal, somewhat sophisticated process. Regardless of the type of process, all research begins with a generalized idea in the form of a research question or a hypothesis. A research question usually is posed in the beginning of a research effort or in a specific area of study that has had little formal research. A research question may take the form of a basic question about some issue or phenomena or a question about the relationship between two or more variables. For example, a research question might be: "Do flexible work hours improve employee productivity?" Another question might be: "How do flexible hours influence employees' work?"

A hypothesis differs from a research question; it is more specific and makes a prediction. It is a tentative statement about the relationship between two or more variables. The major difference between a research question and a hypothesis is that a hypothesis predicts an experimental outcome. For example, a hypothesis might state: "There is a positive relationship between the availability of flexible work hours and employee productivity."

Hypotheses provide the following benefits:

1. They determine the focus and direction for a research effort.
2. Their development forces the researcher to clearly state the purpose of the research activity.
3. They determine what variables will not be considered in a study, as well as those that will be considered.

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4. They require the researcher to have an operational definition of the variables of interest.

The worth of a hypothesis often depends on the researcher's skills. Since the hypothesis is the basis of a research study, it is necessary for the hypothesis be developed with a great deal of thought and contemplation. There are basic criteria to consider when developing a hypothesis, in order to ensure that it meets the needs of the study and the researcher. A good hypothesis should:

1. Have logical consistency. Based on the current research literature and knowledge base, does this hypothesis make sense?
2. Be in step with the current literature and/or provide a good basis for any differences. Though it does not have to support the current body of literature, it is necessary to provide a good rationale for stepping away from the mainstream.
3. Be testable. If one cannot design the means to conduct the research, the hypothesis means nothing.
4. Be stated in clear and simple terms in order to reduce confusion.

Hypothesis Testing Process

Hypothesis testing is a systematic method used to evaluate data and aid the decision-making process. Following is a typical series of steps involved in hypothesis testing:

1. State the hypotheses of interest
2. Determine the appropriate test statistic
3. Specify the level of statistical significance
4. Determine the decision rule for rejecting or not rejecting the null hypothesis
5. Collect the data and perform the needed calculations
6. Decide to reject or not reject the null hypothesis

Each step in the process will be discussed in detail, and an example will follow the discussion of the steps.

Stating the Hypothesis

A research study includes at least two hypotheses—the null hypothesis and the alternative hypothesis. The hypothesis being tested is referred to as the null hypothesis and it is designated as H It also is referred to as the hypothesis of no difference and should include a statement of equality (=, $\geq$ or £). The alternative hypothesis presents the alternative to the null and includes a statement of inequality ($\neq$). The null hypothesis and the alternative hypothesis are complementary.

The null hypothesis is the statement that is believed to be correct throughout the analysis, and it is the null hypothesis upon which the analysis is based. For

example, the null hypothesis might state that the average age of entering college freshmen is 21 years.

H_0 *The average age of entering college freshman = 21 years*

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If the data one collects and analyzes indicates that the average age of entering college freshmen is greater than or less than 21 years, the null hypothesis is rejected. In this case the alternative hypothesis could be stated in the following three ways: (1) the average age of entering college freshman is not 21 years (the average age of entering college freshmen ≠21); (2) the average age of entering college freshman is less than 21 years (the average age of entering college freshmen < 21); or (3) the average age of entering college freshman is greater than 21 years (the average age of entering college freshmen > 21 years).

The choice of which alternative hypothesis to use is generally determined by the study's objective. The preceding second and third examples of alternative hypotheses involve the use of a "one-tailed" statistical test. This is referred to as "one-tailed" because a direction (greater than [>] or less than [<]) is implied in the statement. The first example represents a "two-tailed" test. There is inequality expressed (age ≠21 years), but the inequality does not imply direction. One-tailed tests are used more often in management and marketing research because there usually is a need to imply a specific direction in the outcome. For example, it is more likely that a researcher would want to know if Product A performed better than Product B (Product A performance > Product B performance), or vice versa (Product A performance < Product B performance), rather than whether Product A performed differently than Product B (Product A performance ≠ Product B performance). Additionally, more useful information is gained by knowing that employees who work from 7:00 a.m. to 4:00 p.m. are more productive than those who work from 3:00 p.m. to 12:00 a.m. (early shift employee production > late shift employee production), rather than simply knowing that these employees have different levels of productivity (early shift employee production ≠ late shift employee production).

Both the alternative and the null hypotheses must be determined and stated prior to the collection of data. Before the alternative and null hypotheses can be formulated it is necessary to decide on the desired or expected conclusion of the research. Generally, the desired conclusion of the study is stated in the alternative hypothesis. This is true as long as the null hypothesis can include a statement of equality. For example, suppose that a researcher is interested in exploring the effects of amount of study time on tests scores.

The researcher believes that students who study longer perform better on tests. Specifically, the research suggests that students who spend four hours studying for an exam will get a better score than those who study two hours. In this case the hypotheses might be:

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H_0 The average test scores of students who study 4 hours for the test = the average test scores of those who study 2 hours.

H_1 The average test score of students who study 4 hours for the test < the average test scores of those who study 2 hours.

As a result of the statistical analysis, the null hypothesis can be rejected or not rejected. As a principle of rigorous scientific method, this subtle but important point means that the null hypothesis cannot be accepted. If the null is rejected, the alternative hypothesis can be accepted; however, if the null is not rejected, we can't conclude that the null hypothesis is true. The rationale is that evidence that supports a hypothesis is not conclusive, but evidence that negates a hypothesis is ample to discredit a hypothesis. The analysis of study time and test scores provides an example.

If the results of one study indicate that the test scores of students who study 4 hours are significantly better than the test scores of students who study two hours, the null hypothesis can be rejected because the researcher has found one case when the null is not true. However, if the results of the study indicate that the test scores of those who study 4 hours are not significantly better than those who study 2 hours, the null hypothesis cannot be rejected. One also cannot conclude that the null hypothesis is accepted because these results are only one set of score comparisons. Just because the null hypothesis is true in one situation does not mean it is always true.

3.6 QUESTIONNAIRE CONSTRUCTION

The design of a questionnaire will depend on whether the researcher wishes to collect exploratory information (*i.e.*, qualitative information for the purposes of better understanding or the generation of hypotheses on a subject) or quantitative information (to test specific hypotheses that have previously been generated).

Exploratory questionnaires: If the data to be collected is qualitative or is not to be statistically evaluated, it may be that no formal questionnaire is needed. For example, in interviewing the female head of the household to find out how decisions are made within the family when purchasing breakfast foodstuffs, a formal questionnaire may restrict the discussion and prevent a full exploration of the woman's views and processes. Instead one might prepare a brief guide, listing perhaps ten major open-ended questions, with appropriate probes/prompts listed under each.

Formal standardised questionnaires: If the researcher is looking to test and quantify hypotheses and the data is to be analysed statistically, a formal standardised questionnaire is designed. Such questionnaires are generally characterised by:

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- prescribed wording and order of questions, to ensure that each respondent receives the same stimuli,
- prescribed definitions or explanations for each question, to ensure interviewers handle questions consistently and can answer respondents' requests for clarification if they occur,
- prescribed response format, to enable rapid completion of the questionnaire during the interviewing process.

Given the same task and the same hypotheses, six different people will probably come up with six different questionnaires that differ widely in their choice of questions, line of questioning, use of open-ended questions and length. There are no hard-and-fast rules about how to design a questionnaire, but there are a number of points that can be borne in mind:

1. A well-designed questionnaire should meet the research objectives. This may seem obvious, but many research surveys omit important aspects due to inadequate preparatory work, and do not adequately probe particular issues due to poor understanding. To a certain degree some of this is inevitable. Every survey is bound to leave some questions unanswered and provide a need for further research but the objective of good questionnaire design is to 'minimise' these problems.
2. It should obtain the most complete and accurate information possible. The questionnaire designer needs to ensure that respondents fully understand the questions and are not likely to refuse to answer, lie to the interviewer or try to conceal their attitudes. A good questionnaire is organised and worded to encourage respondents to provide accurate, unbiased and complete information.
3. A well-designed questionnaire should make it easy for respondents to give the necessary information and for the interviewer to record the answer, and it should be arranged so that sound analysis and interpretation are possible.
4. It would keep the interview brief and to the point and be so arranged that the respondent(s) remain interested throughout the interview.

Each of these points will be further discussed throughout the following sections. Figure 3.3 shows how questionnaire design fits into the overall process of research design that was described in unit I. It emphasises that writing of the questionnaire proper should not begin before an exploratory research phase has been completed.

Even after the exploratory phase, two key steps remain to be completed before the task of designing the questionnaire should commence. The first of these is to articulate the questions that research is intended to address. The second step is to determine the hypotheses around which the questionnaire is to be designed.

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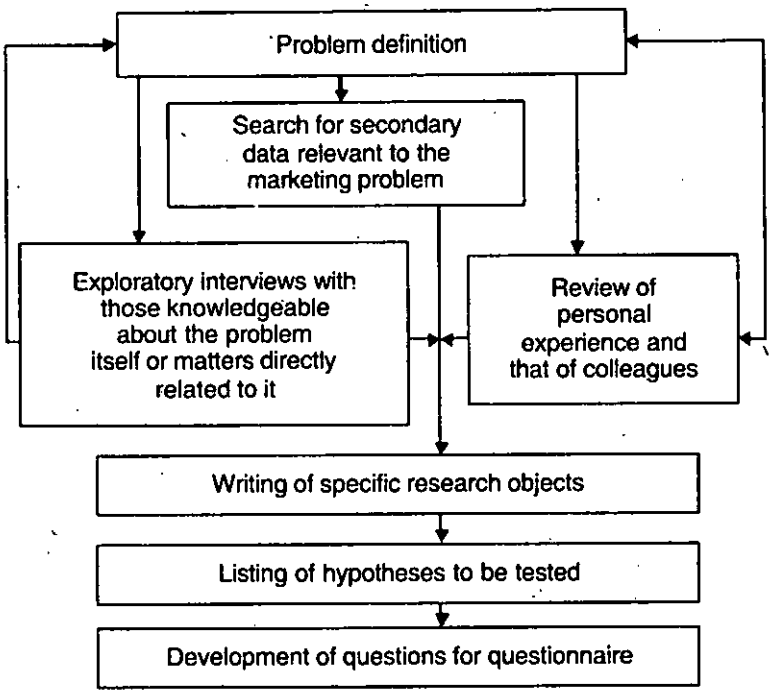

Fig. 3.3. The steps preceding questionnaire design

It is possible for the piloting exercise to be used to make necessary adjustments to administrative aspects of the study. This would include, for example, an assessment of the length of time an interview actually takes, in comparison to the planned length of the interview; or, in the same way, the time needed to complete questionnaires. Moreover, checks can be made on the appropriateness of the timing of the study in relation to contemporary events such as avoiding farm visits during busy harvesting periods.

Preliminary Decisions in Questionnaire Design

There are nine steps involved in the development of a questionnaire:

1. Decide the information required.
2. Define the target respondents.
3. Choose the method(s) of reaching your target respondents.
4. Decide on question content.
5. Develop the question wording.
6. Put questions into a meaningful order and format.
7. Check the length of the questionnaire.
8. Pre-test the questionnaire.
9. Develop the final survey form.

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Deciding on the Information Required

It should be noted that one does not start by writing questions. The first step is to decide 'what are the things one needs to know from the respondent in order to meet the survey's objectives?' These, as has been indicated in the previous units, should appear in the research brief and the research proposal.

One may already have an idea about the kind of information to be collected, but additional help can be obtained from secondary data, previous rapid rural appraisals and exploratory research. In respect of secondary data, the researcher should be aware of what work has been done on the same or similar problems in the past, what factors have not yet been examined, and how the present survey questionnaire can build on what has already been discovered. Further, a small number of preliminary informal interviews with target respondents will give a glimpse of reality that may help clarify ideas about what information is required.

Define the Target Respondents

At the outset, the researcher must define the population about which he/she wishes to generalise from the sample data to be collected. For example, in marketing research, researchers often have to decide whether they should cover only existing users of the generic product type or whether to also include non-users. Secondly, researchers have to draw up a sampling frame. Thirdly, in designing the questionnaire we must take into account factors such as the age, education, etc. of the target respondents.

Choose the Method(s) of Reaching Target Respondents

It may seem strange to be suggesting that the method of reaching the intended respondents should constitute part of the questionnaire design process. However, a moment's reflection is sufficient to conclude that the method of contact will influence not only the questions the researcher is able to ask but the phrasing of those questions. The main methods available in survey research are:

- personal interviews,
- group or focus interviews,
- mailed questionnaires,
- telephone interviews.

Within this region the first two mentioned are used much more extensively than the second pair. However, each has its advantages and disadvantages. A general rule is that the more sensitive or personal the information, the more personal the form of data collection should be.

Decide on Question Content

Researchers must always be prepared to ask, "Is this question really needed?" The temptation to include questions without critically evaluating their contribution

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towards the achievement of the research objectives, as they are specified in the research proposal, is surprisingly strong. No question should be included unless the data it gives rise to is directly of use in testing one or more of the hypotheses established during the research design.

There are only two occasions when seemingly "redundant" questions might be included:

- Opening questions that are easy to answer and which are not perceived as being "threatening", and/or are perceived as being interesting, can greatly assist in gaining the respondent's involvement in the survey and help to establish a rapport.

  This, however, should not be an approach that should be overly used. It is almost always the case that questions which are of use in testing hypotheses can also serve the same functions.
- "Dummy" questions can disguise the purpose of the survey and/or the sponsorship of a study. For example, if a manufacturer wanted to find out whether its distributors were giving the consumers or end-users of its products a reasonable level of service, the researcher would want to disguise the fact that the distributors' service level was being investigated. If he/she did not, then rumours would abound that there was something wrong with the distributor.

Develop the Question Wording

Survey questions can be classified into three forms, i.e., closed, open-ended and open response-option questions. So far only the first of these, *i.e.*, closed questions has been discussed. This type of questioning has a number of important advantages;

- It provides the respondent with an easy method of indicating his answer - he does not have to think about how to articulate his answer.
- It 'prompts' the respondent so that the respondent has to rely less on memory in answering a question.
- Responses can be easily classified, making analysis very straightforward.
- It permits the respondent to specify the answer categories most suitable for their purposes.

Disadvantages are also Present when Using Such Questions

- They do not allow the respondent the opportunity to give a different response to those suggested.
- They 'suggest' answers that respondents may not have considered before.

With open-ended questions the respondent is asked to give a reply to a question in his/her own words. No answers are suggested.

Example: "What do you like most about this implement?"

Open-ended questions have a number of advantages when utilised in a questionnaire:

- They allow the respondent to answer in his own words, with no influence by any specific alternatives suggested by the interviewer.
- They often reveal the issues which are most important to the respondent, and this may reveal findings which were not originally anticipated when the survey was initiated.
- Respondents can 'qualify' their answers or emphasise the strength of their opinions.

However, open-ended questions also have inherent problems which means they must be treated with considerable caution. For example:

- Respondents may find it difficult to 'articulate' their responses i.e., to properly and fully explain their attitudes or motivations.
- Respondents may not give a full answer simply because they may forget to mention important points. Some respondents need prompting or reminding of the types of answer they could give.
- Data collected is in the form of verbatim comments - it has to be coded and reduced to manageable categories. This can be time consuming for analysis and there are numerous opportunities for error in recording and interpreting the answers given on the part of interviewers.
- Respondents will tend to answer open questions in different 'dimensions'. For example, the question: "When did you purchase your tractor?", could elicit one of several responses, *viz:*

"A short while ago".

"Last year".

"When I sold my last tractor".

"When I bought the farm".

Such responses need to be probed further unless the researcher is to be confronted with responses that cannot be aggregated or compared.

It has been suggested that the open response-option questions largely eliminate the disadvantages of both the afore-mentioned types of question. An open response-option is a form of question which is both open-ended and includes specific response-options as well. For example,

What features of this implement do you like?

- Performance
- Quality
- Price
- Weight

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Others mentioned—

The advantages of this type of question are twofold:

- The researcher can avoid the potential problems of poor memory or poor articulation by then subsequently being able to prompt the respondent into considering particular response options.
- Recording during interview is relatively straightforward.

The one disadvantage of this form of question is that it requires the researcher to have a good prior knowledge of the subject in order to generate realistic/likely response options before printing the questionnaire. However, if this understanding is achieved the data collection and analysis process can be significantly eased.

Clearly there are going to be situations in which a questionnaire will need to incorporate all three forms of question, because some forms are more appropriate for seeking particular forms of response. In instances where it is felt the respondent needs assistance to articulate answers or provide answers on a preferred dimension determined by the researcher, then closed questions should be used. Open-ended questions should be used where there are likely to be a very large number of possible different responses (e.g., farm size), where one is seeking a response described in the respondent's own words, and when one is unsure about the possible answer options. The mixed type of question would be advantageous in most instances where most potential response-options are known; where unprompted and prompted responses are valuable, and where the survey needs to allow for unanticipated responses.

There are a series of questions that should be posed as the researchers develop the survey questions themselves:

"Is this question sufficient to generate the required information?"

For example, asking the question "Which product do you prefer?" in a taste panel exercise will reveal nothing about the attribute(s) the product was judged upon. Nor will this question reveal the degree of preference. In such cases a series of questions would be more appropriate.

"Can the respondent answer the question correctly?"

- An inability to answer a question arises from three sources:
- Having never been exposed to the answer, *e.g.*, "How much does your husband earn?"
- Forgetting, *e.g.*, What price did you pay when you last bought maize meal?"
- An inability to articulate the answer: *e.g.*, "What improvements would you want to see in food preparation equipment?"

"Are there any external events that might bias response to the question?"

For example, judging the popularity of beef products shortly after a foot and mouth epidemic is likely to have an effect on the responses.

"Do the words have the same meaning to all respondents?"

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For example, "How many members are there in your family?"

There is room for ambiguity in such a question since it is open to interpretation as to whether one is speaking of the immediate or extended family.

"Are any of the words or phrases loaded or leading in any way?"

For example," What did you dislike about the product you have just tried?"

The respondent is not given the opportunity to indicate that there was nothing he/she disliked about the product. A less biased approach would have been to ask a preliminary question along the lines of, "Did you dislike any aspect of the product you have just tried?", and allow him/her to answer yes or no.

"Are there any implied alternatives within the question?"

The presence or absence of an explicitly stated alternative can have dramatic effects on responses. For example, consider the following two forms of a question asked of a 'Pasta-in-a-Jar' concept test:

1. " Would you buy pasta-in-a-jar if it were locally available?"
2. "If pasta-in-a-jar and the cellophane pack you currently use were both available locally, would you:
   - Buy only the cellophane packed pasta?
   - Buy only the pasta-in-a-jar product?
   - Buy both products?"

The explicit alternatives provide a context for interpreting the true reactions to the new product idea. If the first version of the question is used, the researcher is almost certain to obtain a larger number of positive responses than if the second form is applied.

"Will the question be understood by the type of individual to be interviewed?"

It is good practice to keep questions as simple as possible. Researchers must be sensitive to the fact that some of the people he/she will be interviewing do not have a high level of education. Sometimes he/she will have no idea how well or badly educated the respondents are until he/she gets into the field. In the same way, researchers should strive to avoid long questions. The fewer words in a question the better. Respondents' memories are limited and absorbing the meaning of long sentences can be difficult: in listening to something they may not have much interest in, the respondents' minds are likely to wander, they may hear certain words but not others, or they may remember some parts of what is said but not all.

"Is there any ambiguity in my questions?"

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The careless design of questions can result in the inclusion of two items in one question. For example: "Do you like the speed and reliability of your tractor?"

The respondent is given the opportunity to answer only 'yes' or 'no', whereas he might like the speed, but not the reliability, or vice versa. Thus it is difficult for the respondent to answer and equally difficult for the researcher to interpret the response.

The use of ambiguous words should also be avoided. For example: "Do you regularly service your tractor?"

The respondents' understanding and interpretation of the term 'regularly' will differ. Some may consider that regularly means once a week, others may think once a year is regular. The inclusion of such words again present interpretation difficulties for the researcher.

"Are any words or phrases vague?"

Questions such as 'What is your income?' are vague and one is likely to get many different responses with different dimensions. Respondents may interpret the question in different terms, for example:

- hourly pay?
- weekly pay?
- yearly pay?
- income before tax?
- income after tax?
- income in kind as well as cash?
- income for self or family?
- all income or just farm income?

The researcher needs to specify the 'term' within which the respondent is to answer.

"Are any questions too personal or of a potentially embarrassing nature?"

The researcher must be clearly aware of the various customs, morals and traditions in the community being studied. In many communities there can be a great reluctance to discuss certain questions with interviewers/strangers. Although the degree to which certain topics are taboo varies from area to area, such subjects as level of education, income and religious issues may be embarrassing and respondents may refuse to answer.

"Do questions rely on feats of memory?"

The respondent should be asked only for such data as he is likely to be able to clearly remember. One has to bear in mind that not everyone has a good memory, so questions such as 'Four years ago was there a shortage of labour?' should be avoided.

Putting Questions into a Meaningful Order and Format

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Opening questions: Opening questions should be easy to answer and not in any way threatening to THE respondents. The first question is crucial because it is the respondent's first exposure to the interview and sets the tone for the nature of the task to be performed. If they find the first question difficult to understand, or beyond their knowledge and experience, or embarrassing in some way, they are likely to break off immediately. If, on the other hand, they find the opening question easy and pleasant to answer, they are encouraged to continue.

Question flow: Questions should flow in some kind of psychological order, so that one leads easily and naturally to the next. Questions on one subject, or one particular aspect of a subject, should be grouped together. Respondents may feel it disconcerting to keep shifting from one topic to another, or to be asked to return to some subject they thought they gave their opinions about earlier.

Question variety: Respondents become bored quickly and restless when asked similar questions for half an hour or so. It usually improves response, therefore, to vary the respondent's task from time to time. An open-ended question here and there (even if it is not analysed) may provide much-needed relief from a long series of questions in which respondents have been forced to limit their replies to pre-coded categories. Questions involving showing cards/pictures to respondents can help vary the pace and increase interest.

Closing Questions

It is natural for a respondent to become increasingly indifferent to the questionnaire as it nears the end. Because of impatience or fatigue, he may give careless answers to the later questions.

Those questions, therefore, that are of special importance should, if possible, be included in the earlier part of the questionnaire. Potentially sensitive questions should be left to the end, to avoid respondents cutting off the interview before important information is collected.

In developing the questionnaire the researcher should pay particular attention to the presentation and layout of the interview form itself. The interviewer's task needs to be made as straight-forward as possible.

- Questions should be clearly worded and response options clearly identified.
- Prescribed definitions and explanations should be provided. This ensures that the questions are handled consistently by all interviewers and that during the interview process the interviewer can answer/clarify respondents' queries.

Ample writing space should be allowed to record open-ended answers, and to cater for differences in handwriting between interviewers.

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PHYSICAL APPEARANCE OF THE QUESTIONNAIRE

The physical appearance of a questionnaire can have a significant effect upon both the quantity and quality of marketing data obtained. The quantity of data is a function of the response rate. Ill-designed questionnaires can give an impression of complexity, medium and too big a time commitment. Data quality can also be affected by the physical appearance of the questionnaire with unnecessarily confusing layouts making it more difficult for interviewers, or respondents in the case of self-completion questionnaires, to complete this task accurately. Attention to just a few basic details can have a disproportionately advantageous impact on the data obtained through a questionnaire.

Use of booklets

The use of booklets, in the place of loose or stapled sheets of paper, make it easier for interviewer or respondent to progress through the document. Moreover, fewer pages tend to get lost.

Simple, clear formats

The clarity of questionnaire presentation can also help to improve the ease with which interviewers or respondents are able to complete a questionnaire.

Creative use of space and typeface

In their anxiety to reduce the number of pages of a questionnaire these is a tendency to put too much information on a page. This is counter-productive since it gives the questionnaire the appearance of being complicated. Questionnaires that make use of blank space appear easier to use, enjoy higher response rates and contain fewer errors when completed.

Use of colour coding

Colour coding can help in the administration of questionnaires. It is often the case that several types of respondents are included within a single survey (*e.g.*, wholesalers and retailers). Printing the questionnaires on two different colours of paper can make the handling easier.

Interviewer instructions

Interviewer instructions should be placed alongside the questions to which they pertain. Instructions on where the interviewers should probe for more information or how replies should be recorded are placed after the question.

In general it is best for a questionnaire to be as short as possible. A long questionnaire leads to a long interview and this is open to the dangers of boredom on the part of the respondent (and poorly considered, hurried answers), interruptions by third parties and greater costs in terms of interviewing time and resources. In a rural situation an interview should not last longer then 30-45 minutes.

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PILOTING THE QUESTIONNAIRES

Even after the researcher has proceeded along the lines suggested, the draft questionnaire is a product evolved by one or two minds only. Until it has actually been used in interviews and with respondents, it is impossible to say whether it is going to achieve the desired results. For this reason it is necessary to pre-test the questionnaire before it is used in a full-scale survey, to identify any mistakes that need correcting.

The purpose of pretesting the questionnaire is to determine:

- whether the questions as they are worded will achieve the desired results;
- whether the questions have been placed in the best order;
- whether the questions are understood by all classes of respondent;
- whether additional or specifying questions are needed or whether some questions should be eliminated;
- whether the instructions to interviewers are adequate.

Usually a small number of respondents are selected for the pre-test. The respondents selected for the pilot survey should be broadly representative of the type of respondent to be interviewed in the main survey.

If the questionnaire has been subjected to a thorough pilot test, the final form of the questions and questionnaire will have evolved into its final form. All that remains to be done is the mechanical process of laying out and setting up the questionnaire in its final form. This will involve grouping and sequencing questions into an appropriate order, numbering questions, and inserting interviewer instructions.

3.7 LEVEL OF MEASUREMENT AND RATING

Most texts on marketing research explain the four levels of measurement: nominal, ordinal, interval and ratio and so the treatment given to them here will be brief. However, it is an important topic since the type of scale used in taking measurements directly impinges on the statistical techniques which can legitimately be used in the analysis.

NOMINAL SCALES

This, the crudest of measurement scales, classifies individuals, companies, products, brands or other entities into categories where no order is implied. Indeed it is often referred to as a categorical scale. It is a system of classification and does not place the entity along a continuum.

It involves a simply count of the frequency of the cases assigned to the various categories, and if desired numbers can be nominally assigned to label each category as in the example below:

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Table 3.2 An example of a nominal scale

Which of the following food items do you tend to buy at least once per month? (Please tick)		
Okra	Palm Oil	Milled Rice
Peppers	Prawns	Pasteurised milk

The numbers have no arithmetic properties and act only as labels. The only measure of average which can be used is the mode because this is simply a set of frequency counts. Hypothesis tests can be carried out on data collected in the nominal form. The most likely would be the Chi-square test. However, it should be noted that the Chi-square is a test to determine whether two or more variables are associated and the strength of that relationship. It can tell nothing about the form of that relationship, where it exists, i.e. it is not capable of establishing cause and effect.

Ordinal Scales

Ordinal scales involve the ranking of individuals, attitudes or items along the continuum of the characteristic being scaled. For example, if a researcher asked farmers to rank 5 brands of pesticide in order of preference he/she might obtain responses like those in table 3.3 below.

Table 3.3 An example of an ordinal scale used to determine farmers' preferences among 5 brands of pesticide.

Order of preference	*Brand*
1	Rambo
2	R.I.P.
3	Killalot
4	D.O.A.
5	Bugdeath

From such a table the researcher knows the order of preference but nothing about how much more one brand is preferred to another, that is there is no information about the interval between any two brands. All of the information a nominal scale would have given is available from an ordinal scale. In addition, positional statistics such as the median, quartile and percentile can be determined.

It is possible to test for order correlation with ranked data. The two main methods are Spearman's Ranked Correlation Coefficient and Kendall's Coefficient of Concordance. Using either procedure one can, for example, ascertain the degree to which two or more survey respondents agree in their ranking of a set of items. Consider again the ranking of pesticides example in table 3.3. The researcher might wish to measure similarities and differences in the rankings of pesticide brands according to whether the respondents' farm enterprises were classified as

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"arable" or "mixed" (a combination of crops and livestock). The resultant coefficient takes a value in the range 0 to 1. A zero would mean that there was no agreement between the two groups, and 1 would indicate total agreement. It is more likely that an answer somewhere between these two extremes would be found.

The only other permissible hypothesis testing procedures are the runs test and sign test. The runs test (also known as the Wald-Wolfowitz). Test is used to determine whether a sequence of binomial data - meaning it can take only one of two possible values *e.g.*, African/non-African, yes/no, male/female - is random or contains systematic 'runs' of one or other value. Sign tests are employed when the objective is to determine whether there is a significant difference between matched pairs of data. The sign test tells the analyst if the number of positive differences in ranking is approximately equal to the number of negative rankings, in which case the distribution of rankings is random, *i.e.*, apparent differences are not significant. The test takes into account only the direction of differences and ignores their magnitude and hence it is compatible with ordinal data.

Interval Scales

It is only with an interval scaled data that researchers can justify the use of the arithmetic mean as the measure of average. The interval or cardinal scale has equal units of measurement, thus making it possible to interpret not only the order of scale scores but also the distance between them. However, it must be recognised that the zero point on an interval scale is arbitrary and is not a true zero. This of course has implications for the type of data manipulation and analysis we can carry out on data collected in this form. It is possible to add or subtract a constant to all of the scale values without affecting the form of the scale but one cannot multiply or divide the values. It can be said that two respondents with scale positions 1 and 2 are as far apart as two respondents with scale positions 4 and 5, but not that a person with score 10 feels twice as strongly as one with score 5. Temperature is interval scaled, being measured either in Centigrade or Fahrenheit. We cannot speak of 50°F being twice as hot as 25°F since the corresponding temperatures on the centigrade scale, 10°C and -3.9°C, are not in the ratio 2:1.

Most of the common statistical methods of analysis require only interval scales in order that they might be used. These are not recounted here because they are so common and can be found in virtually all basic texts on statistics.

Ratio Scales

The highest level of measurement is a ratio scale. This has the properties of an interval scale together with a fixed origin or zero point. Examples of variables which are ratio scaled include weights, lengths and times. Ratio scales permit the researcher to compare both differences in scores and the relative magnitude of

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scores. For instance the difference between 5 and 10 minutes is the same as that between 10 and 15 minutes, and 10 minutes is twice as long as 5 minutes.

Given that sociological and management research seldom aspires beyond the interval level of measurement, it is not proposed that particular attention be given to this level of analysis. Suffice it to say that virtually all statistical operations can be performed on ratio scales.

Measurement Scales

The various types of scales used in marketing research fall into two broad categories: comparative and non comparative. In comparative scaling, the respondent is asked to compare one brand or product against another. With noncomparative scaling respondents need only evaluate a single product or brand. Their evaluation is independent of the other product and/or brands which the marketing researcher is studying.

Noncomparative scaling is frequently referred to as monadic scaling and this is the more widely used type of scale in commercial marketing research studies.

Comparative Scales

Paired comparison: It is sometimes the case that marketing researchers wish to find out which are the most important factors in determining the demand for a product. Conversely they may wish to know which are the most important factors acting to prevent the widespread adoption of a product. Take, for example, the very poor farmer response to the first design of an animal-drawn mould board plough. A combination of exploratory research and shrewd observation suggested that the following factors played a role in the shaping of the attitudes of those farmers who feel negatively towards the design:

- Does not ridge,
- Does not work for inter-cropping,
- Far too expensive,
- New technology too risky,
- Too difficult to carry.

Suppose the organisation responsible wants to know which factors is foremost in the farmer's mind. It may well be the case that if those factors that are most important to the farmer than the others, being of a relatively minor nature, will cease to prevent widespread adoption.

The alternatives are to abandon the product's re-development or to completely re-design it which is not only expensive and time-consuming, but may well be subject to a new set of objections.

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The process of rank ordering the objections from most to least important is best approached through the questioning technique known as 'paired comparison'. Each of the objections is paired by the researcher so that with 5 factors, as in this example, there are 10 pairs-

i.e., $$\frac{n(n-1)}{2}, \frac{5(5-1)}{2} = 10 \text{ pairs}$$

In 'paired comparisons' every factor has to be paired with every other factor in turn. However, only one pair is ever put to the farmer at any one time.

The question might be put as follows:

Which of the following was the more important in making you decide not to buy the plough?

- The plough was too expensive
- It proved too difficult to transport

In most cases the question, and the alternatives, would be put to the farmer verbally. He/she then indicates which of the two was the more important and the researcher ticks the box on his questionnaire. The question is repeated with a second set of factors and the appropriate box ticked again. This process continues until all possible combinations are exhausted, in this case 10 pairs. It is good practice to mix the pairs of factors so that there is no systematic bias. The researcher should try to ensure that any particular factor is sometimes the first of the pair to be mentioned and sometimes the second. The researcher would never, for example, take the first factor (on this occasion 'Does not ridge') and systematically compare it to each of the others in succession. That is likely to cause systematic bias.

Below labels have been given to the factors so that the worked example will be easier to understand. The letters A - E have been allocated as follows:

A = Does not ridge

B = Far too expensive

C = New technology too risky

D = Does not work for inter-cropping

E = Too difficult to carry.

The data is then arranged into a matrix. Assume that 200 farmers have been interviewed and their responses are arranged in the grid below. Further assume that the matrix is so arranged that we read from top to side. This means, for example, that 164 out of 200 farmers said the fact that the plough was too expensive was a greater deterrent than the fact that it was not capable of ridging. Similarly, 174 farmers said that the plough's inability to inter-crop was more important than the inability to ridge when deciding not to buy the plough.

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Table 3.4 A preference matrix

	A	B	C	D	E
A	100	164	120	174	180
B	36	100	160	176	166
C	80	40	100	168	124
D	26	24	32	100	102
E	20	34	76	98	100

If the grid is carefully read, it can be seen that the rank order of the factors is -

Most important *E - Too difficult to carry*

D - Does not inter crop

C - New technology/high risk

B - Too expensive

Least important *A - Does not ridge.*

It can be seen that it is more important for designers to concentrate on improving transportability and, if possible, to give it an inter-cropping capability rather than focusing on its ridging capabilities (remember that the example is entirely hypothetical).

One major advantage to this type of questioning is that whilst it is possible to obtain a measure of the order of importance of five or more factors from the respondent, he is never asked to think about more than two factors at any one time. This is especially useful when dealing with illiterate farmers. Having said that, the researcher has to be careful not to present too many pairs of factors to the farmer during the interview. If he does, he will find that the farmer will quickly get tired and/or bored. It is as well to remember the formula of n(n - 1)/2. For ten factors, brands or product attributes this would give 45 pairs. Clearly the farmer should not be asked to subject himself to having the same question put to him 45 times. For practical purposes, six factors is possibly the limit, giving 15 pairs.

It should be clear from the procedures described in these notes that the paired comparison scale gives ordinal data.

Dollar Metric Comparisons: This type of scale is an extension of the paired comparison method in that it requires respondents to indicate both their preference and how much they are willing to pay for their preference. This scaling technique gives the marketing researcher an interval - scaled measurement.

The Unity-sum-gain technique: A common problem with launching new products is one of reaching a decision as to what options, and how many options one offers. Whilst a company may be anxious to meet the needs of as many market segments as possible, it has to ensure that the segment is large enough to enable him to make a profit. It is always easier to add products to the product line but

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much more difficult to decide which models should be deleted. One technique for evaluating the options which are likely to prove successful is the unity-sum-gain approach.

The procedure is to begin with a list of features which might possibly be offered as 'options' on the product, and alongside each you list its retail cost. A third column is constructed and this forms an index of the relative prices of each of the items.

The unity-sum-gain technique is useful for determining which product features are more important to farmers. The design of the final market version of the product can then reflect the farmers' needs and preferences. Practitioners treat data gathered by this method as ordinal.

Noncomparative Scales

Continuous rating scales: The respondents are asked to give a rating by placing a mark at the appropriate position on a continuous line. The scale can be written on card and shown to the respondent during the interview. Two versions of a continuous rating scale are depicted in figure 3.4.

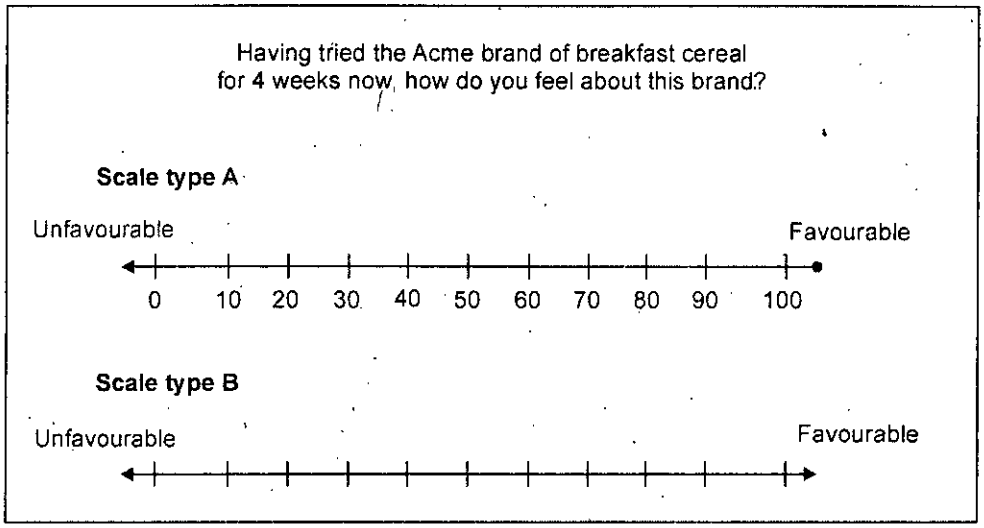

Fig. 3.4. Continuous rating scales

When version B is used, the respondent's score is determined either by dividing the line into as many categories as desired and assigning the respondent a score based on the category into which his/her mark falls, or by measuring the distance, in millimetres or inches, from either end of the scale.

Whichever of these forms of the continuous scale is used, the results are normally analysed as interval scaled.

Line marking scale: The line marked scale is typically used to measure perceived similarity differences between products, brands or other objects. Technically, such a scale is a form of what is termed a semantic differential scale since each end of

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the scale is labelled with a word/phrase (or semantic) that is opposite in meaning to the other. Figure 3.5 provides an illustrative example of such a scale.

Consider the products below which can be used when frying food. In the case of each pair, indicate how similar or different they are in the flavour which they impart to the food.

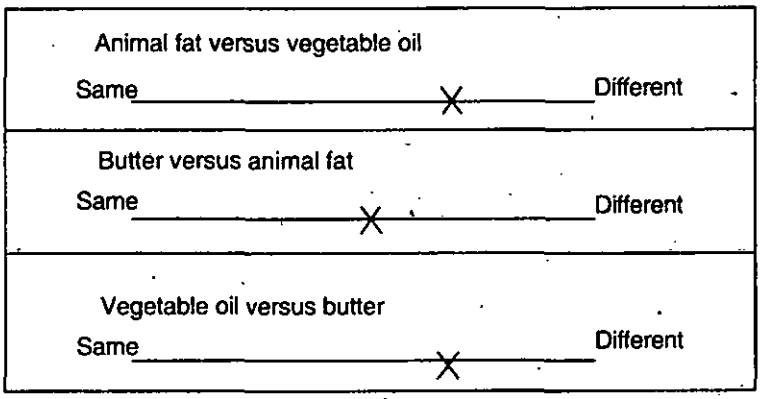

Fig. 3.5. An example of a line marking scale

For some types of respondent, the line scale is an easier format because they do not find discrete numbers (*e.g., 5, 4, 3, 2, 1*) best reflect their attitudes/ feelings. The line marking scale is a continuous scale.

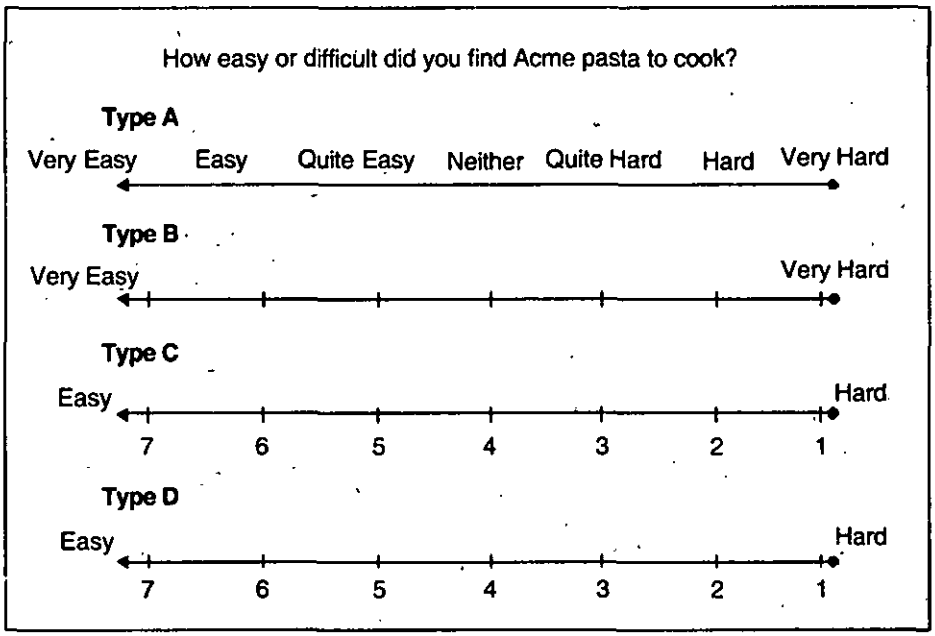

Fig. 3.6. Itemised rating scales

Itemised rating scales: With an itemised scale, respondents are provided with a scale having numbers and/or brief descriptions associated with each category

and are asked to select one of the limited number of categories, ordered in terms of scale position, that best describes the product, brand, company or product attribute being studied. Examples of the itemised rating scale are illustrated in figure 3.6.

Itemised rating scales can take a variety of innovative forms as demonstrated by the two illustrated in figure 3.7, which are graphic.

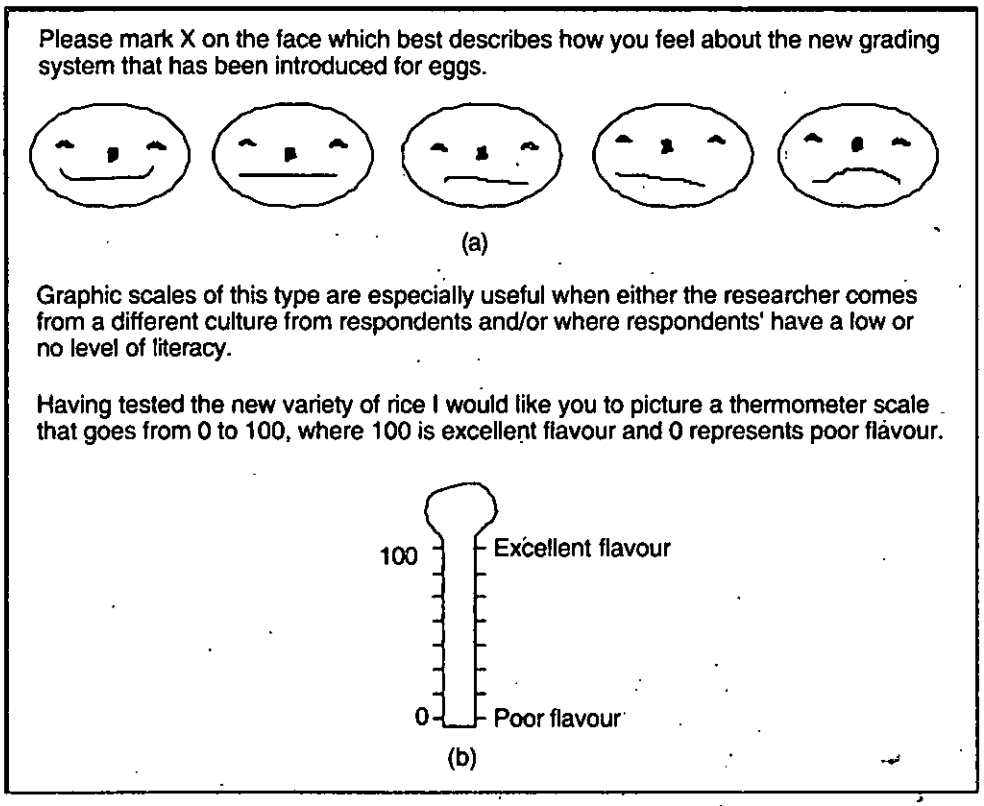

Fig. 3.7. Graphic itemised scales

Whichever form of itemised scale is applied, researchers usually treat the data as interval level.

Semantic scales: This type of scale makes extensive use of words rather than numbers. Respondents describe their feelings about the products or brands on scales with semantic labels.

When bipolar adjectives are used at the end points of the scales, these are termed semantic differential scales. The semantic scale and the semantic differential scale are illustrated in figure 3.8.

Likert scales: A Likert scale is what is termed a summated instrument scale. This means that the items making up a Liken scale are summed to produce a total score. In fact, a Likert scale is a composite of itemised scales. Typically, each scale item will have 5 categories, with scale values ranging from -2 to +2 with 0 as neutral response. This explanation may be clearer from the example in table 3.5.

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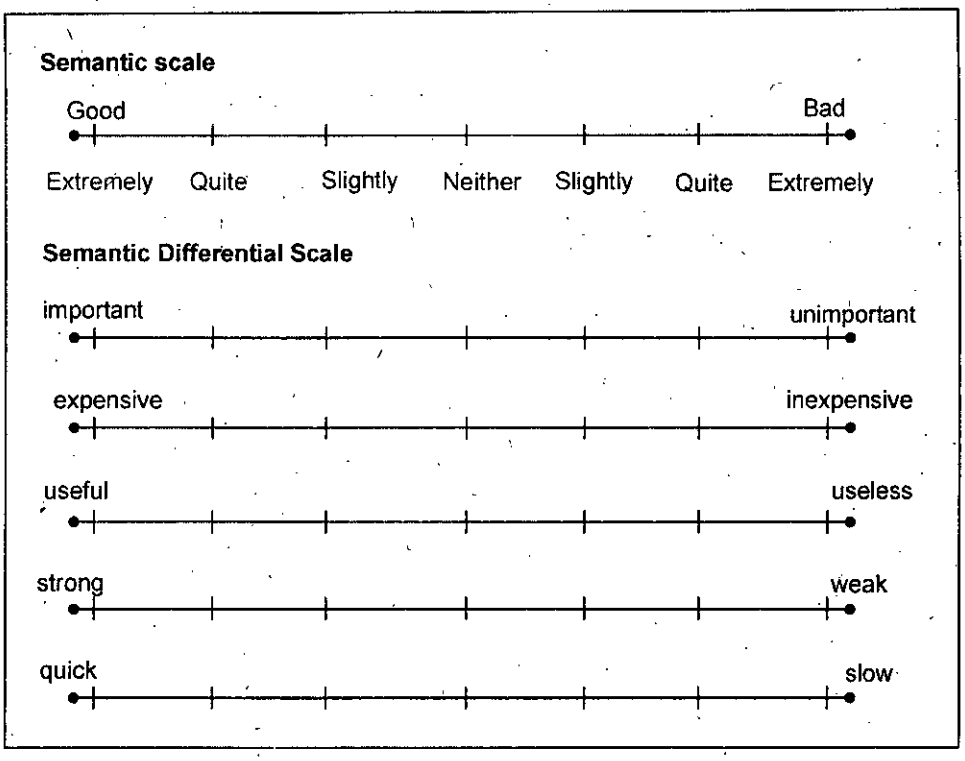

Fig. 3.8. Semantic and semantic differential scales

Table 3.5 The Likert scale

	Strongly Agree	*Agree*	*Neither*	*Disagree*	*Strongly Disagree*
If the price of raw materials fell firms would reduce the price of their food products.	1	2	3	4	5
Without government regulation the firms would exploit the consumer.	1	2	3	4	5
Most food companies are so concerned about making profits they do not care about quality.	1	2	3	4	5
The food industry spends a great deal	1	2	3	4	5

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of money making sure that its manufacturing is hygienic.					
Food companies should charge the same price for their products throughout the country	1	2	3	4	5

Likert scales are treated as yielding Interval data by the majority of marketing researchers.

The scales which have been described in this chapter are among the most commonly used in marketing research. Whilst there are a great many more forms which scales can take, if students are familiar with those described in this chapter they will be well equipped to deal with most types of survey problem.

3.8 SUMMARY

- Data collection is the process of gathering the specific information used to answer the research questions. There are a number of issues associated with data collection, including the use of primary or secondary data, survey design, sampling, survey administration, and increasing response rates.
- Secondary data is data which has been collected by individuals or agencies for purposes other than those of our particular research study.
- The word 'analysis' has two component parts, the prefix 'ana' meaning 'above' and the Greek root 'lysis' meaning 'to break up or dissolve'.
- A hypothesis differs from a research question; it is more specific and makes a prediction. It is a tentative statement about the relationship between two or more variables. The major difference between a research question and a hypothesis is that a hypothesis predicts an experimental outcome.
- Most texts on marketing research explain the four levels of measurement: nominal, ordinal, interval and ratio.

3.9 REVIEW QUESTIONS

1. Distinguish between primary and secondary data.
2. Discuss the problems of secondary data sources.
3. What are the benefits of hypothesis testing in a research?
4. How is the questionnaire of a research designed?
5. Explain the levels of measurements.

3.10 FURTHER READINGS

NOTES

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UNIT– IV

SURVEY AND SAMPLING

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STRUCTURE

4.1 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- explain the method of administration of survey;
- discuss the classification of samples;
- know the sampling problems and procedures.

4.2 INTRODUCTION

Marketing researchers usually draw conclusions about large groups of consumers by studying a relatively small sample of the total consumer population. A sample is a segment of the population selected to represent the population as a whole. Ideally, the sample should be representative so that the researcher can make accurate estimates of the thoughts and behaviors of the larger population. If the sample is not representative, it may lead the company to draw the wrong conclusions and misuse its resources.

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The marketing researcher must design a sampling plan, which calls for three decisions:

1. ***Sampling unit*** — determining who is to be surveyed. The marketing researcher must define the target population that will be sampled. If a company wants feedback on a new basketball shoe, it would be wise to target active players and even professional players.
2. ***Sample size*** — determining the number of people to be surveyed. Large samples give more reliable results than small samples. Samples of less than 1 percent of a population can often provide good reliability, given a credible sampling procedure. Most commercial samples consist of between several hundred and several thousand respondents.
3. ***Sampling procedure*** — determining how the respondents should be chosen. To obtain a representative sample, a probability (random) sampling of the population should be drawn. This is a means of determining who is reached by the survey to ensure they are indeed a valid cross-section of the sampling unit. Choosing passersby on a street corner, for example, would not produce a random sample, whereas allowing a computer to pick names randomly from a relevant calling list probably would (depending on how the list was compiled). Probability sampling allows the calculation of confidence limits for sampling error.

4.3 SURVEY DESIGN AND ADMINISTRATION

Survey design is of major importance, because is a survey is poorly designed, it will not provide the researchers with the data that addresses the research question. Survey questions, called items, must be properly chosen to in order to elicit appropriate respondent answers. The steps involved include determining the information that will be sought, the type of questionnaire, the method of administration, the content of individual questions, the form of response to each question, the wording of each question, the sequence of questions, the physical characteristics of the questionnaire, and, finally, pre-testing the questionnaire.

Some items for certain areas of interest already exist. For instance, there are existing surveys that measure employees' satisfaction with pay and benefits. If survey items do not already exist in the published literature, the researchers must create their own items, based on their review of the existing literature and their own expertise. Often, a focus group of experts can also help to create items. For example, if a company wants to assess its employees' attitudes towards an intended change in work rules, the researcher may lead a focus group of several experienced company managers to capture all of the relevant ideas that need to be addressed by the survey. Before the survey instrument is sent out, it must be tested for reliability and validity. Reliability refers to how consistently the instrument measures, and validity refers to whether the instrument is measuring.

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One concern when designing a survey is how to word the items. One of the most popular ways to measure attitudes on a survey is by using the Likert scale. This method presents a series of statements to respondents for which they are asked to indicate the degree to which they agree with the statements. An example of a statement might be "The sales people are helpful." Respondents are asked to indicate the degree to which they agree with the statements by checking either SA (strongly agree), A (agree), N (neither agree nor disagree), D (disagree), or SD (strongly disagree). Respondents' answers would then be scored where SA = 5, A = 4, N = 3, D = 2, and SD = 1. A total score would be computed by average or summing scores on related items.

Survey Administration

After the survey has been designed and its reliability and validity assessed, the company must decide the administration method that it will use. Each administration method has its own advantages and disadvantages in terms of cost, information control, sampling control, and administrative control. Information control refers to the possible variation in responses to questions. Sampling control is the ability to select cooperative respondents. Administrative control refers to factors affecting the efficiency of the survey, including timing, quality control, and standardization.

Personal interviews are generally the most expensive means of data collection. In a company, this would mean having researchers meet with employees one-on-one to ask them the survey questions and record their responses. One of the main advantages of the personal interview is the ability to ask any type of question, including an open-ended question, and to adapt to the respondent's answers. However, in addition to being expensive and time consuming, this method is not anonymous, and therefore respondents may be reluctant to answer questions that they feel are sensitive or invasive.

The mail questionnaire is usually the least expensive method of data collection. Besides cost savings, another advantage of the mail questionnaire is its wide distribution potential. However, mail questionnaires cannot control the speed of responses, and the researcher cannot explain ambiguous questions. Mail questionnaires are probably best utilized when asking personal or sensitive questions, particularly if the survey can be made anonymous. Questionnaires can be circulated using various methods, such as post, electronic mail, and fax.

The telephone interview is associated with relatively low cost and higher response rates, and is one of the fastest methods of data collection. While there are methods to address the problem, unlisted numbers make it more difficult to obtain representative samples. Establishing rapport is also more difficult in telephone interviewing than in the personal interview.

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One survey administration method that is growing in popularity is the Internet survey, in which respondents answer items on a survey that is located on a web site. Newer, specialized software products are making it easier to conduct online surveys, even for those people with little to no computer programming skills. Studies indicate that Internet research can result in faster responses, lower costs, higher response rates, and better flexibility. Additionally, this method aids in data administration, since survey responses can be directly inserted into a data spreadsheet by the web survey software.

Increasing Response Rates

One of the main concerns of survey research is the response rate, or the number of people who are asked to complete a survey who actually do. Nonresponse error is a source of bias because of the failure to get answers from some of the sample. "Not-at-homes" plague the telephone survey and uncooperative respondents affect telephone, mail, Internet, and personal interview surveys. While research results are mixed regarding effective means for increasing response rates, the following represent some ideas for increasing response rates:

- give respondents advance notice of the survey
- guarantee confidentiality or anonymity
- provide monetary incentives
- provide a postage-paid return envelope for mail surveys
- personalize outgoing envelopes

4.4 CONCEPT OF SAMPLING

When administering a questionnaire there are two options as to who should complete the survey. Option one is to give the questionnaire to everyone in the targeted population. This is called a census. However, a census is usually not practical or cost effective. For instance, you may not be able to survey every one of your customers from last year to determine levels of customer satisfaction with your products. Consequently, in order to save time and money, only a sample or subset of the target population receives the questionnaire.

When selecting individuals for a sample, either a probability approach or a nonprobability approach can be used. Probability samples are those where each element of the population has a known probability of being selected. A random sample, for example, is the case where each element has the same probability of being selected. There are some specific types of nonprobability samples: convenience samples, judgment samples, and quota samples. Convenience samples are chosen at the convenience of the researcher. For example, a researcher might distribute a survey to all customers who enter one retail store in a one-week period to determine their level of customer satisfaction with the company's products. This sample is rather easy to select, but it may not represent the full

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range of customers who have used that product. In a judgment sample, individuals are selected by the researcher because they are believed to represent the population under study. Quota samples attempt to make the sample representative of the population under study where quotas are set for specific groups of people, which are generally selected on the basis of demographic characteristics.

The chief advantage of a probability sample over a nonprobability sample is the ability to assess the reliability and the amount of sampling error in the results. For example, if the goal were to estimate the annual household income for a given county, probability sampling would allow an accuracy assessment of the estimate. This could not be accomplished with a nonprobability sample.

4.5 TYPES OF SAMPLING

The early part of the section outlines the probabilistic sampling methods. These include simple random sampling, systematic sampling, stratified sampling and cluster sampling. Thereafter, the principal non-probability method, quota sampling, is explained and its strengths and weaknesses outlined. The statistical aspects of sampling are then explored in the succesive section. A number of illustrative calculations are presented.

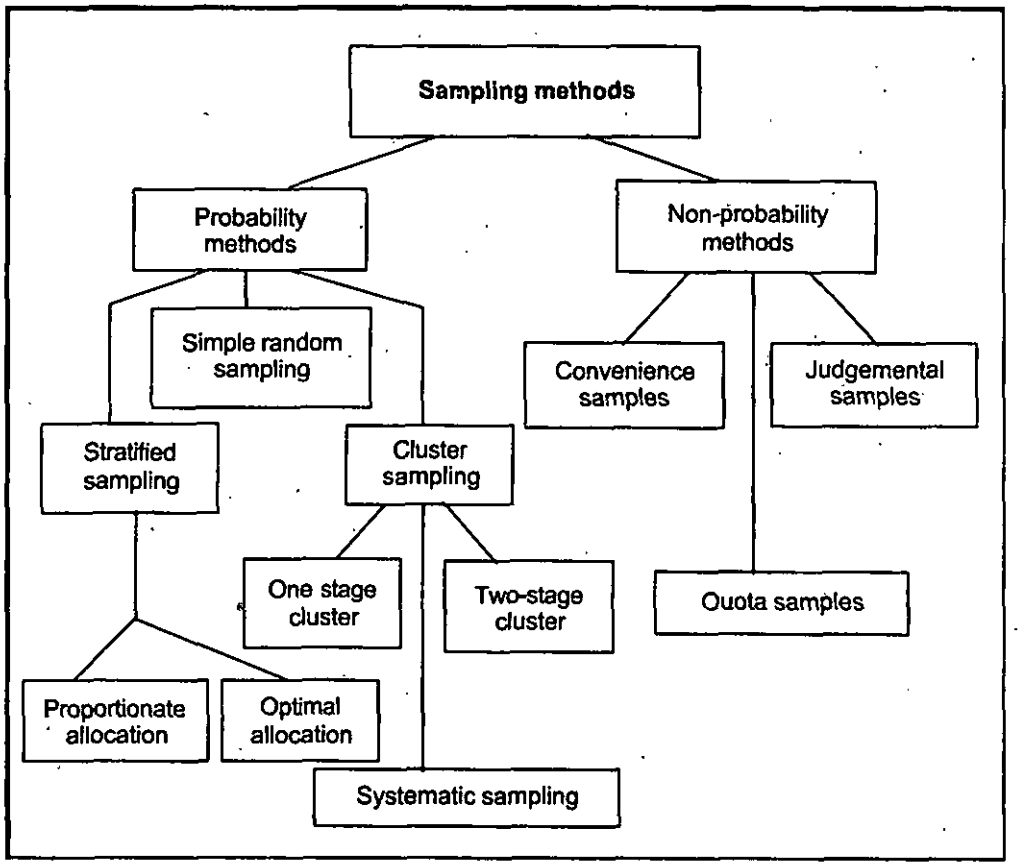

Fig. 4.1. Methods of sampling

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Two major principles underlie all sample design. The first is the desire to avoid bias in the selection procedure; the second is to achieve the maximum precision for a given outlay of resources. Bias in the selection can arise:

- if the selection of the sample is done by some non-random method *i.e.*, selection is consciously or unconsciously influenced by human choice;
- if the sampling frame (*i.e.*, list, index, population record) does not adequately cover the target population;
- if some sections of the population are impossible to find or refuse to co-operate.

These cause selection or sample bias and can only be avoided if a random method is used. Other designs, to be described shortly, can retain the essential element of randomness but manage to increase precision by incorporating various restrictions and refinements. Figure 4.1 gives an overview of the sampling methods that are either explained within this chapter or are explored in the exercises which accompany this textbook.

It can be seen that there is a dichotomy - probability and non probability sampling methods. The text which follows explains these methods in some detail, and highlights the advantages and disadvantages of each method.

Random Sampling

Random, or probability sampling, gives each member of the target population a known and equal probability of selection. The two basic procedures are:

1 the lottery method, *e.g.*, picking numbers out of a hat or bag,

2 the use of a table of random numbers.

Systematic Sampling

Systematic sampling is a modification of random sampling. To arrive at a systematic sample we simply calculate the desired sampling fraction, e.g. if there are 100 distributors of a particular product in which we are interested and our budget allows us to sample say 20 of them then we divide 100 by 20 and get the sampling fraction 5.

Thereafter we go through our sampling frame selecting every 5th distributor. In the purest sense this does not give rise to a true random sample since some systematic arrangement is used in listing and not every distributor has a chance of being selected once the sampling fraction is calculated. However, because there is no conscious control of precisely which distributors are selected, all but the most pedantic of practitioners would treat a systematic sample as though it were a true random sample.

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Table 4.1. Systematic sampling as applied to a survey of retailers

Systematic sampling						
Population = 100 Food Stores						
Sample desired = 20 Food Stores						
a. Draw a random number 1-5.						
b. Sample every Xth store.						
Sample	***Numbered Stores***					
1	1,	6,	11,	16,	21...	96
2	2	7,	12	17,	22...	97
3	3,	8,	13	18,	23...	98
4	4,	9,	14	19,	24...	99
5	5,	10,	15,	20,	25...	100

STRATIFIED SAMPLES

Stratification increases precision without increasing sample size. Stratification does not imply any departure from the principles of randomness it merely denotes that before any selection takes place, the population is divided into a number of strata, then random samples taken within each stratum. It is only possible to do this if the distribution of the population with respect to a particular factor is known, and if it is also known to which stratum each member of the population belongs. Examples of characteristics which could be used in marketing to stratify a population include: income, age, sex, race, geographical region, possession of a particular commodity.

Stratification can occur after selection of individuals, *e.g.*, if one wanted to stratify a sample of individuals in a town by age, one could easily get figures of the age distribution, but if there is no general population list showing the age distribution, prior stratification would not be possible. What might have to be done in this case at the analysis stage is to correct proportional representation. Weighting can easily destroy the assumptions one is able to make when interpreting data gathered from a random sample and so stratification prior to selection is advisable. Random stratified sampling is more precise and more convenient than simple random sampling.

When stratified sampling designs are to be employed, there are 3 key questions which have to be immediately addressed:

1 The bases of stratification, *i.e.*, what characteristics should be used to subdivide the universe/population into strata?

2 The number of strata, *i.e.*, how many strata should be constructed and what stratum boundaries should be used?

3 Sample sizes within strata, *i.e.*, how many observations should be taken in each stratum?

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Bases of Stratification

Intuitively, it seems clear that the best basis would be the frequency distribution of the principal variable being studied. For example, in a study of coffee consumption we may believe that behavioural patterns will vary according to whether a particular respondent drinks a lot of coffee, only a moderate amount of coffee or drinks coffee very occasionally. Thus we may consider that to stratify according to "heavy users", "moderate users" and "light users" would provide an optimum stratification. However, two difficulties may arise in attempting to proceed in this way. First, there is usually interest in many variables, not just one, and stratification on the basis of one may not provide the best stratification for the others. Secondly, even if one survey variable is of primary importance, current data on its frequency is unlikely to be available. However, the latter complaint can be attended to since it is possible to stratify after the data has been completed and before the analysis is undertaken. The only approach is to create strata on the basis of variables, for which information is, or can be made available, that are believed to be highly correlated with the principal survey characteristics of interest, e.g. age, socio-economic group, sex, farm size, firm size, etc.

In general, it is desirable to make up strata in such a way that the sampling units within strata are as similar as possible. In this way a relatively limited sample within each stratum will provide a generally precise estimate of the mean of that stratum. Similarly it is important to maximise differences in stratum means for the key survey variables of interest. This is desirable since stratification has the effect of removing differences between stratum means from the sampling error.

Total variance within a population has two types of natural variation: between-strata variance and within-strata variance. Stratification removes the second type of variance from the calculation of the standard error. Suppose, for example, we stratified students in a particular university by subject speciality - marketing, engineering, chemistry, computer science, mathematics, history, geography etc. and questioned them about the distinctions between training and education. The theory goes that without stratification we would expect variation in the views expressed by students from say within the marketing speciality and between the views of marketing students, as a whole, and engineering students as a whole. Stratification ensures that variation between strata does not enter into the standard error by taking account of this source in drawing the sample.

Number of Strata

The next question is that of the number of strata and the construction of stratum boundaries. As regards number of strata, as many as possible should be used. If each stratum could be made as homogeneous as possible, its mean could be estimated with high reliability and, in turn, the population mean could be

estimated with high precision. However, some practical problems limit the desirability of a large number of strata:

1. No stratification scheme will completely "explain" the variability among a set of observations. Past a certain point, the "residual" or "unexplained" variation will dominate, and little improvement will be effected by creating more strata.
2. Depending on the costs of stratification, a point may be reached quickly where creation of additional strata is economically unproductive.

If a single overall estimate is to be made (*e.g.*, the average per capita consumption of coffee) we would normally use no more than about 6 strata. If estimates are required for population subgroups (e.g. by region and/or age group), then more strata may be justified.

Sample Sizes within Strata

Proportional allocation: Once strata have been established, the question becomes, "How big a sample must be drawn from each?" Consider a situation where a survey of a two-stratum population is to be carried out:

Stratum	*Number of Items in Stratum*
A	10,000
B	90,000

If the budget is fixed at Rs. 3000 and we know the cost per observation is Rs. 6 in each stratum, so the available total sample size is 500. The most common approach would be to sample the same proportion of items in each stratum. This is termed proportional allocation. In this example, the overall sampling fraction is:

$$\frac{\text{Sample size}}{\text{Population size}} = \frac{500}{10000} = 0.5$$

Thus, this method of allocation would result in:

Stratum A (10,000 × 0.5%) = 50

Stratum B (90,000 × 0.5%) = 450

The major practical advantage of proportional allocation is that it leads to estimates which are computationally simple. Where proportional sampling has been employed we do not need to weight the means of the individual stratum when calculating the overall mean. So:

$$\bar{X}_{sr} = W_1\bar{X}_1 + W_2\bar{X}_2 + W_3\bar{X}_3 + \ldots + W_k\bar{X}_k$$

Optimum allocation: Proportional allocation is advisable when all we know of the strata is their sizes. In situations where the standard deviations of the strata are known it may be advantageous to make a disproportionate allocation.

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Suppose that, once again, we had stratum A and stratum B, but we know that the individuals assigned to stratum A were more varied with respect to their opinions than those assigned to stratum B. Optimum allocation minimises the standard error of the estimated mean by ensuring that more respondents are assigned to the stratum within which there is greatest variation.

Quota Sampling

Quota sampling is a method of stratified sampling in which the selection within strata is non-random. Selection is normally left to the discretion of the interviewer and it is this characteristic which destroys any pretensions towards randomness.

Quota vs. Random Sampling

The advantages and disadvantages of quota versus probability samples has been a subject of controversy for many years. Some practitioners hold the quota sample method to be so unreliable and prone to bias as to be almost worthless. Others think that although it is clearly less sound theoretically than probability sampling, it can be used safely in certain circumstances. Still others believe that with adequate safeguards quota sampling can be made highly reliable and that the extra cost of probability sampling is not worthwhile.

Generally, statisticians criticise the method for its theoretical weakness while market researchers defend it for its cheapness and administrative convenience.

Main Arguments Against: Quota Sampling

1. *It is not possible to estimate sampling errors with quota sampling* because of the absence of randomness.

   Some people argue that sampling errors are so small compared with all the other errors and biases that enter into a survey that not being able to estimate is no great disadvantage. One does not have the security, though, of being able to measure and control these errors.
2. The interviewer may fail to secure a representative sample of respondents in quota sampling. For example, are those in the over 65 age group spread over all the age range or clustered around 65 and 66?
3. Social class controls leave a lot to the interviewer's judgement.
4. Strict control of fieldwork is more difficult, i.e. did interviewers place respondents in groups where cases are needed rather than in those to which they belong.

Main Arguments for: Quota Sampling

1. Quota sampling is less costly. A quota interview on average costs only half or a third as much as a random interview, but we must remember that precision is lost.

2. It is easy administratively. The labour of random selection is avoided, and so are the headaches of non-contact and callbacks.
3. If fieldwork has to be done quickly, perhaps to reduce memory errors, quota sampling may be the only possibility, *e.g.*, to obtain immediate public reaction to some event.
4. Quota sampling is independent of the existence of sampling frames.

Cluster and Multistage Sampling

Cluster sampling: The process of sampling complete groups or units is called cluster sampling, situations where there is any sub-sampling within the clusters chosen at the first stage are covered by the term multistage sampling. For example, suppose that a survey is to be done in a large town and that the unit of inquiry (i.e. the unit from which data are to be gathered) is the individual household. Suppose further that the town contains 20,000 households, all of them listed on convenient records, and that a sample of 200 households is to be selected. One approach would be to pick the 200 by some random method. However, this would spread the sample over the whole town, with consequent high fieldwork costs and much inconvenience. (All the more so if the survey were to be conducted in rural areas, especially in developing countries where rural areas are sparsely populated and access difficult). One might decide therefore to concentrate the sample in a few parts of the town and it may be assumed for simplicity that the town is divided into 400 areas with 50 households in each. A simple course would be to select say 4 areas at random (*i.e.*, 1 in 100) and include all the households within these areas in our sample. The overall probability of selection is unchanged, but by selecting clusters of households, one has materially simplified and made cheaper the fieldwork.

A large number of small clusters is better, all other things being equal, than a small number of large clusters. Whether single stage cluster sampling proves to be as statistically efficient as a simple random sampling depends upon the degree of homogeneity within clusters. If respondents within clusters are homogeneous with respect to such things as income, socio-economic class etc., they do not fully represent the population and will, therefore, provide larger standard errors. On the other hand, the lower cost of cluster sampling often outweighs the disadvantages of statistical inefficiency. In short, cluster sampling tends to offer greater reliability for a given cost rather than greater reliability for a given sample size.

Multistage sampling: The population is regarded as being composed of a number of first stage or primary sampling units (PSU's) each of them being made up of a number of second stage units in each selected PSU and so the procedure continues down to the final sampling unit, with the sampling ideally being random at each stage.

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The necessity of multistage sampling is easily established. PSU's for national surveys are often administrative districts, urban districts or parliamentary constituencies. Within the selected PSU one may go direct to the final sampling units, such as individuals, households or addresses, in which case we have a two-stage sample. It would be more usual to introduce intermediate sampling stages, i.e. administrative districts are sub-divided into wards, then polling districts.

Area Sampling

Area sampling is basically multistage sampling in which maps, rather than lists or registers, serve as the sampling frame. This is the main method of sampling in developing countries where adequate population lists are rare. The area to be covered is divided into a number of smaller sub-areas from which a sample is selected at random within these areas; either a complete enumeration is taken or a further sub-sample.

A grid, such as that shown above, is drawn and superimposed on a map of the area of concern. Sampling points are selected on the basis of numbers drawn at random that equate to the numbered columns and rows of the grid.

If the area is large, it can be subdivided into sub-areas and a grid overlayed on these. Figure 4.2 depicts the procedures involved. Then, each square in the grid is allocated numbers to define grid lines. Using random numbers, sampling points are chosen within each square. Figure 4.2 gives an impression of the pattern of sampling which emerges.

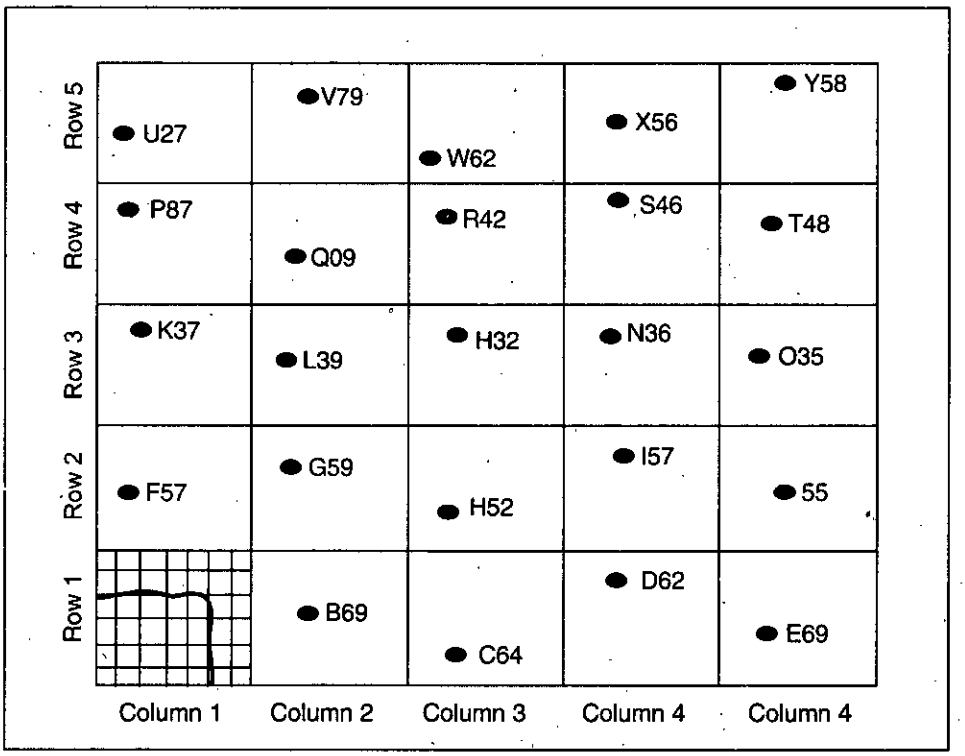

Fig. 4.2 Multistage aerial sampling

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Suppose that a survey of agricultural machinery/implement ownership is to be made in a sample of rural households and that no comprehensive list of such dwellings is available to serve as a sampling frame. If there is an accurate map of the area we can superimpose vertical and horizontal lines on it, number these and use them as a reference grid. Using random numbers points can be placed on the map and data collected from households either on or nearest to those points. A variation is to divide the area into "parcels" of land. These "parcels" (the equivalent of city blocks) can be formed using natural boundaries e.g. hills or mountains, canals, rivers, railways, roads, etc. If sufficient information is known about an area then it is permissible to construct the "parcels" on the basis of agro-ecosystems.

Alternatively, if the survey is of urban households then clusters of dwellings such as blocks bounded by streets can be identified. This can serve as a convenient sampling frame. The town area is then divided into blocks and these blocks are numbered and a random sample of them is selected. The boundaries of the blocks must be well defined, easily identifiable by field workers and every dwelling must be clearly located in only one block. Streets, railway lines and rivers make good boundaries.

4.6 SAMPLING PROCEDURE AND ERRORS

Research is conducted in order to determine the acceptability (or otherwise) of hypotheses. Having set up a hypothesis, we collect data which should yield direct information on the acceptability of that hypothesis. This empirical data requires to be organised in such a fashion as to make it meaningful. To this end, we organise it into frequency distributions and calculate averages or percentages. But often, these statistics on their own mean very little. The data we collect often requires to be compared and when comparisons have to be made, we must take into account the fact that our data is collected from a sample of the population and is subject to sampling and other errors. The remainder of this paper is concerned with the statistical testing of sample data. One assumption which is made is that the survey results are based on random probability samples.

The Null Hypothesis

The first step in evaluating sample results is to set up a null hypothesis (Ho). The null hypothesis is a hypothesis of no differences. We formulate it for the express purpose of rejecting it. It is formulated before we collect the data (a priori). For example, we may wish to know whether a particular promotional campaign has succeeded in increasing awareness amongst housewives of a certain brand of biscuit. Before the campaign we have a certain measure of awareness, say x%. After the campaign we obtain another measure of the awareness, say y%. The null hypothesis in this case would be that "there is no difference between the proportions aware of the brand, before and after the campaign",

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Since we are dealing with sample results, we would expect some differences; and we must try and establish whether these differences are real (*i.e.*, statistically significant) or whether they are due to random error or chance.

If the null hypothesis is rejected, then the alternative hypothesis may be accepted. The alternative hypothesis (H1) is a statement relating to the researchers' original hypothesis. Thus, in the above example, the alternative hypothesis could either be:

a. H1: There is a difference between the proportions of housewives aware of the brand, before and after the campaign,

or

b. H1: There is an increase in the proportion of housewives aware of the brand, after the promotional campaign.

Note that these are clearly two different and distinct hypotheses. Case *(a)* does not indicate the direction of change and requires a TWO-TAILED test. Case *(b)*, on the other hand, indicates the predicted direction of the difference and a one-tailed test is called for. The situation when a one-tailed test is used are:

(a) comparing an experimental product with a currently marketed ones

(b) comparing a cheaper product which will be marketed only if it is not inferior to a current product.

Parametric Tests and Non-Parametric Tests

The next step is that of choosing the appropriate statistical test. There are basically two types of statistical test, parametric and non-parametric. Parametric tests are those which make assumptions about the nature of the population from which the scores were drawn (*i.e.*, population values are "parameters", *e.g.*, means and standard deviations). If we assume, for example, that the distribution of the sample means is normal, then we require to use a parametric test. Non-parametric tests do not require this type of assumption and relate mainly to that branch of statistics known as "order statistics". We discard actual numerical values and focus on the way in which things are ranked or classed. Thereafter, the choice between alternative types of test is determined by 3 factors: (1) whether we are working with dependent or independent samples, (2) whether we have more or less than two levels of the independent variable, and (3) the mathematical properties of the scale which we have used, *i.e.*, ratio, interval, ordinal or nominal. (These issues are covered extensively in the data analysis course notes).

We will reject Ho, our null hypothesis, if a statistical test yields a value whose associated probability of occurrence is equal to or less than some small probability, known as the critical region (or level). Common values of this critical level are 0.05 and 0.01. Referring back to our example, if we had found that the observed difference between the percentage of housewives aware of the brand from pre-to-post-campaign could have arisen with probability 0.01 and if we

had set our significance level in advance at 0.05, then we would accept the Ho. If, on the other hand, we found the probability of this difference occurring was 0.02 then we would reject the null hypothesis and accept our alternative hypothesis.

Type I Errors and Type II Errors

The choice of significance level affects the ratio of correct and incorrect conclusions which will be drawn. Given a significance level there are four alternatives to consider:

Table 4.2 Type I and type II errors

Correct Conclusion	Incorrect Conclusion
Accept a correct hypothesis	Reject an incorrect hypothesis
Reject a correct hypothesis	Accept an incorrect hypothesis

Consider the following example. In a straightforward test of two products, we may decide to market product A if, and only if, 60% of the population prefer the product. Clearly we can set a sample size, so as to reject the null hypothesis of A = B = 50% at, say, a 5% significance level. If we get a sample which yields 62% (and there will be 5 chances in a 100 that we get a figure greater than 60%) and the null hypothesis is in fact true, then we make what is known as a Type I error.

If however, the real population is A = 62%, then we shall accept the null hypothesis A = 50% on nearly half the occasions as shown in the diagram overleaf. In this situation we shall be saying "do not market A" when in fact there is a market for A. This is the type II error. We can of course increase the chance of making a type I error which will automatically decrease the chance of making a type II error.

Obviously some sort of compromise is required. This depends on the relative importance of the two types of error. If it is more important to avoid rejecting a true hypothesis (type I error) a high confidence coefficient (low value of x) will be used. If it is more important to avoid accepting a false hypothesis, a low confidence coefficient may be used. An analogy with the legal profession may help to clarify the matter. Under our system of law, a man is presumed innocent of murder until proved otherwise. Now, if a jury convicts a man when he is, in fact, innocent, a type I error will have been made: the jury has rejected the null hypothesis of innocence although it is actually true. If the jury absolves the man, when he is, in fact, guilty, a type II error will have been made: the jury has accepted the null hypothesis of innocence when the man is really guilty. Most people will agree that in this case, a type I error, convicting an innocent man, is the more serious.

In practice, of course, researchers rarely base their decisions on a single significance test. Significance tests may be applied to the answers to every question in a survey but the results will be only convincing, if consistent patterns emerge. For example, we may conduct a product test to find out consumers preferences.

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We do not usually base our conclusions on the results of one particular question, but we ask several, make statistical tests on the key questions and look for consistent significances. We must remember that when one makes a series of tests, some of the correct hypotheses will be rejected by chance. For example, if 20 questions were asked in our "before" and "after" survey and we test each question at the 5% level, then one of the differences is likely to give significant results, even if there is no real difference in the population.

No mention is made in these notes of considerations of costs of incorrect decisions. Statistical significance is not always the only criterion for basing action. Economic considerations of alternative actions is often just as important.

These, therefore, are the basic steps in the statistical testing procedure. The majority of tests are likely to be parametric tests where researchers assume some underlying distribution like the normal or binomial distribution. Researchers will obtain a result, say a difference between two means, calculate the standard error of the difference and then ask "How far away from the zero difference hypothesis is the difference we have found from our samples?"

To enable researchers to answer this question, they convert their actual difference into "standard errors" by dividing it by its standard deviation, then refer to a chart to ascertain the probability of such a difference occurring.

4.7 SUMMARY

- Marketing researchers usually draw conclusions about large groups of consumers by studying a relatively small sample of the total consumer population. A sample is a segment of the population selected to represent the population as a whole.
- The steps involved in survey design include determining the information that will be sought, the type of questionnaire, the method of administration, the content of individual questions, the form of response to each question, the wording of each question, the sequence of questions, the physical characteristics of the questionnaire, and, finally, pre-testing the questionnaire.
- When administering a questionnaire there are two options as to who should complete the survey. Option one is to give the questionnaire to everyone in the targeted population. This is called a census.
- Random, or probability sampling, gives each member of the target population a known and equal probability of selection.
- Systematic sampling is a modification of random sampling. To arrive at a systematic sample we simply calculate the desired sampling fraction.
- Quota sampling is a method of stratified sampling in which the selection within strata is non-random.

4.8 REVIEW QUESTIONS

1. How is survey administered? Discuss.
2. What do you understand by sampling?
3. Distinguish between random and systematic sampling.
4. What is quota sampling?
5. What are the features of area sampling?

NOTES

4.9 FURTHER READINGS

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NOTES

UNIT– V

CONSUMER RESEARCH

STRUCTURE

5.1 LEARNING OBJECTIVES

After going through this unit, students will be able to:

- state the concept of consumer research;
- explain the motivational research techniques;
- discuss the method of focus group interviews;
- know the concepts of depth interviews and projective techniques.

5.2 INTRODUCTION

Consumer behavior is defined as the acquisition, consumption and disposal of products, services, and ideas by decision making units. The primary goal of consumer research is to produce knowledge about consumer behavior. Increasingly, consumer researchers have suggested that automatic or non-conscious processes may operate on consumer behavior. Indirect measures of consumer attitudes were developed to measure attitudes that would not be necessarily detected by explicit measures.

These measures do not reference objects in a respondent's personal history, but instead focus a respondent's attention on participating in some task that can

indirectly reveal an inaccessible attitude. One such indirect measure and the focus of this unit is the motivational and projective technique.

5.3 MOTIVATIONAL RESEARCH TECHNIQUES

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Motivational research is a type of marketing research that attempts to explain why consumers behave as they do. Motivational research seeks to discover and comprehend what consumers do not fully understand about themselves. Implicitly, motivational research assumes the existence of underlying or unconscious motives that influence consumer behavior. Motivational research attempts to identify forces and influences that consumers may not be aware of (*e.g.*, cultural factors, sociological forces). Typically, these unconscious motives (or beyond-awareness reasons) are intertwined with and complicated by conscious motives, cultural biases, economic variables, and fashion trends (broadly defined). Motivational research attempts to sift through all of these influences and factors to unravel the mystery of consumer behavior as it relates to a specific product or service, so that the marketer better understands the target audience and how to influence that audience.

Motivational research is most valuable when powerful underlying motives are suspected of exerting influence upon consumer behavior. Products and services that relate, or might relate, to attraction of the opposite sex, to personal adornment, to status or self-esteem, to power, to death, to fears, or to social taboos are all likely candidates for motivational research. For example, why do women tend to increase their expenditures on clothing and personal adornment products as they approach the age of 50 to 55? The reasons relate to the loss of youth's beauty and the loss of fertility, and to related fears of losing their husbands' love. It is also a time of life when discretionary incomes are rising (the children are leaving the nest).

Other motives are at work as well (women are complicated creatures), but a standard marketing research survey would never reveal these motives, because most women are not really aware of why their interest in expensive adornments increases at this particular point in their lives.

Even benign, or low-involvement, product categories can often benefit from the insights provided by motivational research. Typically, in low-involvement product categories, perception variables and cultural influences are most important. Our culture is a system of rules and "regulations" that simplify and optimize our existence. Cultural rules govern how we squeeze a tube of toothpaste, how we open packages, how we use a bath towel, who does what work, etc. Most of us are relatively unaware of these cultural rules. Understanding how these cultural rules influence a particular product can be extremely valuable information for the marketer.

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THE MAJOR TECHNIQUES

The three major motivational research techniques are observation, focus groups, and depth interviews. Observation can be a fruitful method of deriving hypotheses about human motives. Anthropologists have pioneered the development of this technique. All of us are familiar with anthropologists living with the "natives" to understand their behavior. This same systematic observation can produce equally insightful results about consumer behavior. Observation can be accomplished in-person or sometimes through the convenience of video. Usually, personal observation is simply too expensive, and most consumers don't want an anthropologist living in their household for a month or two.

It is easier to observe consumers in buying situations than in their homes, and here the observation can be in-person or by video cameras. Generally, video cameras are less intrusive than an in-person observer. Finding a representative set of cooperative stores, however, is not an easy task, and the installation and maintenance of video cameras is not without its difficulties. In-store observers can be used as well, so long as they have some "cover" that makes their presence less obvious. But, observation by video or human eye cannot answer every question. Generally, observation must be supplemented by focus groups or depth interviews to fully understand why consumers are doing what they do.

THE FOCUS GROUP

The focus group in the hands of a skilled moderator can be a valuable motivational research technique. To reach its full motivational potential, the group interview must be largely nondirective in style, and the group must achieve spontaneous interaction. It is the mutual reinforcement within the group (the group excitement and spontaneity) that produces the revelations and behaviors that reveal underlying motives. A focus group discussion dominated by the moderator will rarely produce any motivational insights. A focus group actively led by the moderator with much direct questioning of respondents will seldom yield motivational understanding. But the focus group is a legitimate motivational technique.

THE DEPTH INTERVIEW

The heart and soul of motivational research is the depth interview, a lengthy (one to two hours), one-on-one, personal interview, conducted directly by the motivational researcher. Much of the power of the depth interview is dependent upon the insight, sensitivity, and skill of the motivational researcher. The interviewing task cannot be delegated to traditional marketing research interviewers—who have no training in motivational techniques.

During the personal interview, the motivational researcher strives to create an empathic relationship with each respondent, a feeling of rapport, mutual trust,

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and understanding. The researcher creates a climate in which the respondent feels free to express his feelings and his thoughts, without fear of embarrassment or rejection. The researcher conveys a feeling that the respondent and his opinions are important and worthwhile, no matter what those opinions are. The motivational researcher is accepting, nonthreatening, and supportive. The emotional empathy between motivational researcher and respondent is the single most important determinant of an effective interview.

The motivational researcher relies heavily upon nondirective interviewing techniques. Her goal is to get the respondent to talk, and keep talking. The researcher tends to introduce general topics, rather than ask direct questions. She probes by raising her eyebrows, by a questioning look upon her face, by paraphrasing what the respondent has said, or by reflecting the respondent's own words back to the respondent in a questioning tone. Nondirective techniques are the least threatening (and the least biasing) to the respondent.

Projective techniques can play an important role in motivational research. Sometimes a respondent can see in others what he cannot see—or will not admit—about himself. The motivational researcher often asks the respondent to tell a story, play a role, draw a picture, complete a sentence, or associate words with a stimulus. Photographs, product samples, packages, and advertisements can also be used as stimuli to evoke additional feelings, imagery, and comment.

During the interview, the researcher watches for clues that might indicate that a "sensitive nerve" has been touched. Long pauses by the respondent, slips of the tongue, fidgeting, variations in voice pitch, strong emotions, facial expressions, eye movements, avoidance of a question, fixation on an issue, and body language are some of the clues the motivational researcher keys on. These "sensitive" topics and issues are then the focus of additional inquiry and exploration later in the interview.

Each interview is tape-recorded and transcribed. A typical motivational study, consisting of 30 to 50 depth interviews, yields 1,000 to 2,000 pages of typed verbatim dialogue. During the interview, the motivational researcher makes notes about the respondent's behavior, mannerisms, physical appearance, personality characteristics, and nonverbal communication. These notes become a road map to help the researcher understand and interpret the verbatim transcript of the interview.

The Analysis

The motivational researcher reads and rereads the hundreds of pages of verbatim respondent dialogue. As she reads, the researcher looks for systematic patterns of response. She identifies logical inconsistencies or apparent contradictions. She compares direct responses against projective responses. She notes the consistent use of unusual words or phrases. She studies the explicit

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content of the interview and contemplates its meaning in relation to the implicit content. She searches for what is not said as diligently as she does for what is said. Like a detective, she sifts through the clues and the evidence to deduce the forces and motives influencing consumer behavior. No one clue or piece of evidence is treated as being very important. It is the convergence of evidence and facts that leads to significant conclusions. In the scientific tradition, empiricism and logic must come together and make sense.

The analysis begins at the cultural level. Cultural values and influences are the ocean in which we all swim and, of which, most of us are completely unaware. What we eat, the way we eat, how we dress, what we think and feel, and the language we speak are dimensions of our culture. These taken-for-granted cultural dimensions are the basic building blocks that begin the motivational researcher's analysis. The culture is the context that must be understood before the behavior of individuals within the context can be understood. Every product has cultural values and rules that influence its perception and its usage.

Once the cultural context is reasonably well understood, the next analytic step is the exploration of the unique motivations that relate to the product category. What psychological needs does the product fulfill? Does the product have any social overtones or anthropological significance? Does the product relate to one's status aspirations, to competitive drives, to feelings of self-esteem, to security needs? Are masochistic motives involved? Does the product have deep symbolic significance? And so on. Some of these motives must be inferred since respondents are often unaware of why they do what they do. But the analysis is not complete.

The last major dimension that must be understood is the business environment, including competitive forces, brand perceptions and images, relative market shares, the role of advertising in the category, and trends in the marketplace. Only part of this business environment knowledge can come from the respondent, of course, but understanding the business context is crucial to the interpretation of consumer motives in a way that will lead to useful results. Understanding the consumer's motives is worthless unless somehow that knowledge can be translated into actionable marketing and advertising recommendations.

Sometimes a motivational study is followed by quantitative surveys to confirm the motivational hypotheses as well as to measure the relative extent of those motives in the general population. But many times motivational studies cannot be proved or disproved by survey research, especially when completely unconscious motives are involved. In these cases, the final evaluation of the hypothesized motives is by the testing of concepts (or advertising alternatives) that address the different motives, or by other types of contrived experiments.

One final note is relevant to the successful conduct of motivational research. It is critically important that the motivational researcher not be overly theoretical.

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An eclectic, wide ranging, and open-minded philosophical perspective is best. The researcher should not formulate any "cast in stone" hypotheses before she conducts the motivational study. Strongly held hypotheses, or rigid adherence to theory, will doom a motivational study to failure. Too often we see what we set out to see, or find that for which we search, whether it exists or not. An objective, open, unfettered mind is the motivational researcher's greatest asset.

5.4 PROJECTIVE RESEARCH TECHNIQUES

Projective techniques "provide verbal or visual stimuli which, through their indirection and concealed intent, encourage respondents to reveal their unconscious feelings and attitudes without being aware that they are doing so". Projective techniques are often referred to as disguised-unstructured techniques. They are termed disguised tasks because the subjects are aware they are participating in a study yet unaware of what the researcher is interested in measuring; they are considered unstructured tasks because their response alternatives are not limited or determined by the researcher.

Projective techniques were originally developed by clinical psychologists, psychiatrists, and other personnel trained in personality assessment to gain some understanding into the underlying problems of the patient. From a clinical and psychoanalytic perspective, the concept of projection is interpreted as a defense mechanism whereby the ego protects and defends itself from anxiety by externalizing thoughts and feelings, directly ascribing them to other individuals, inanimate objects, and environments.

Drivers of Consumer Behavior

Marketers strive to understand attitudes, motivators and behaviors that drive brand or product selection and loyalty. Obviously, some consumers make purchase decisions solely based on a balance of price or product feature at the time of purchase, especially when it comes to commodity products.

But brand selection and loyalty is also based on intangible values that go beyond product functional attributes.

Intangible Benefits

Consumers construct a perception of a brand and of the values it represents. And they will select brands that fit their own value system because of the emotional benefits that brand ownership can provide them, such as a sense of accomplishment or because it helps them attain ideals.

For example, Bang & Olufsen audio-visual consumer products may not be the most user-friendly, or even of higher sound quality than some less expensive brands, but their ownership provides some consumers with a sense of sophistication with which they want to be associated. In this sense, perceived

benefits of image outweigh the negatives lack of usability can create. Unless the lack of usability is also perceived as a benefit by providing a sense of exclusivity ("I can master the impenetrable user interface").

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Surface-level Information

In an attempt to understand the core values that facet these emotional relationships with brands and products, companies will often conduct focus groups or depth interviews in which they invite consumers to discuss their attitudes openly.

But what focus group or depth interview participants say cannot always be taken at face value. Consumers do not always speak their true minds for various reasons; fear of being judged, desire to please the interviewer or difficulty in understanding their own thought processes.

In many Asian cultures for example, where people tend to refrain from voicing out their opinions directly, direct questioning will often result in surface-level agreeable answers.

Even in the most honest and open setting, it can be difficult to get to the bottom of things; people are often not even aware of the true reasons behind their own behavior. While they might attempt to give a rational explanation for a certain behavior or can voice out conscious thoughts at the moment they arise, people in general are not good at analyzing their own thought processes. In fact, most of our thought processes occur without our conscious knowledge that they do.

And it is those unconscious processes that ultimately drive the consumer behavior.

Beneath the Surface

To understand consumers' true thoughts and deep-rooted motivations, it is sometimes necessary to explore beneath the surface and tap into consumers' unspoken values. One way to access such a level of insights is through the use of investigative methods called projective techniques.

Projective techniques are methods used by psychologists to uncover deep-rooted thoughts that may not arise as a result of direct questioning. In short, they consist in getting respondents to speak about something indirectly by "projecting" their thoughts on something else. This allows bypassing resistance to direct questioning that may make participants uncomfortable, or to tap into underlying thought processes that are not immediately available to respondents.

Types of projective techniques could be broadly categorized in the following categories: association, construction, completion, arrangement or selection, and expression. Following are examples of traditional techniques:

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- ***Thematic Apperception Test (TAT):*** Respondents are shown pictures of ambiguous social setting (a man and a woman sitting together in a coffee shop, the man looking away), and are asked to make a story about what is happening. They can also be probed on specific aspects of the picture (why are there 3 glasses, why is this one empty, etc.).
- ***Sentence Completion:*** Respondents presented with various incomplete sentences and asked to complete them. "If only this product was..."
- ***Role-playing:*** Participants are asked to play the role of someone else.
- ***Word association:*** Participants are asked to give the first word that comes to mind immediately after being shown or told a word.

Market Research Applications

While their use in clinical and forensics settings remains controversial, mostly because of predictability reasons, projective techniques can be well suited for market research. Instead of being used for personality assessment, they can be used in attitudinal, behavioral or exploratory studies. They have different implications and usually look at one specific aspect of brand or product relationship. And the stimuli used, instead of being entirely ambiguous, is usually controlled and directly related to the product or brand.

Generally more focused, projective techniques in market research settings also leave less space for open-ended erroneous interpretation.

However, methods need to be carefully chosen, and adapted from their clinical applications. For example, it would be difficult to find any market research application of the popular personality assessment Rorschach Inkblot Test, in which participants are shown symmetrical inkblots and asked to say what each represents.

Following are examples of applications of projective techniques in market research settings.

Getting Honest Opinions

Projective techniques are particularly useful at circumventing conscious resistance to direct questioning. They can be used to get participants' true opinion on a topic by getting them to comment about something indirectly, thus relieving inhibitions.

For example, in one study we asked participants to imagine that a specific brand was a person, and later to describe that person's personality traits. Results uncovered emotional responses very different from opinions voiced out earlier at the surface level and raised the need to seriously consider readjusting the brand image.

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HELP FORMULATING THOUGHTS

Projective techniques can also be used to uncover connotations that people would normally have difficulty to articulate. In another study, we used a modified word association technique through which people were asked to distribute a number of cards holding different words (qualities, emotions and neutral words) between two different potential brand names. The exercise helped us uncover deep-rooted perceived brand attributes associated with different names.

CONCEPT TESTING

Projective techniques can be particularly useful for concept testing, which is a process used to evaluate product ideas or advertising prototypes prior to their introduction in the marketplace. They can overcome the shortcomings other market research methods have in identifying underlying evaluation criteria on which consumer preferences of one concept over another are based.

ADVANTAGES OF PROJECTIVE TECHNIQUES

There are several advantages to using projective techniques, including the amount, richness, and accuracy of the information that is collected. Projective techniques, when used properly, enable the researcher to access presumably unreachable beliefs, attitudes, values, motivations, personality, cognitions, and behaviors. The nature of projective techniques is that the true purpose of the instrument is well disguised and, in most instances, the subjects are not aware of the purpose of the exercise. However, even if they are aware of the general nature of projective techniques most respondents are uncertain as to which responses are significant to the researcher or the extent of the significance. It is the sum of the responses to the projective stimuli, especially the theme that binds them together, that is of primary interest to the researcher in interpreting the data.

One specific advantage of using projective techniques in consumer behavior and marketing research is their utility in generating, supplementing, and verifying hypotheses. For example, researchers can use projective techniques to broaden hypotheses about consumers' purchase behaviors and the ways that they are influenced in their decision-making. These preliminary studies provide relevant information for hypothesis testing that can be verified though various methodologies such as experimentation, panel studies, and surveys.

A second advantage is that there are relatively minor cognitive demands placed on respondents when using projective techniques. For researchers, this is a substantial advantage over other measures where respondents are required to read, comprehend, and respond to the instructions. Most projective techniques are largely nonreading and nonwriting exercises; therefore, the data are not dependent on having a highly educated population. By using projective techniques, researchers have a wider scope of potential respondents compared

to self-reporting or rating procedures. Data are not limited by cognitive ability, and the use of projective techniques enable researchers to measure the beliefs, attitudes, behavior, motivation, and personality of a subset of the population that is often neglected, but nonetheless important, in consumer research.

Disadvantages of Projective Techniques

The primary disadvantage of employing projective techniques is the complexity of the data; interpretation requires a sophisticated skill set. To effectively employ projective techniques, the researcher must be adept at decoding the data culled from the projective stimuli. Subjects' responses have little meaning without a methodical analysis by researchers trained in these techniques. Further, there can be considerable costs to employ a skilled research staff able to interpret the responses.

A second disadvantage of using projective techniques is that it may be difficult for some respondents to fully immerse themselves in the exercise. Some respondents may not feel comfortable participating in role-playing or imaginative exercises. While some respondents may enjoy these tasks, others may participate reluctantly or even outright refuse.

Another potential disadvantage of projective techniques is the reliability of the instruments. Reliability refers to the general consistency of the instrument. Test retest reliability refers to the stability with which a technique yields information over time. In certain situations, subjects' responses should remain similar and highly correlated from when they are first tested to when they are later re-tested. However, in other instances, the researcher might expect responses to be affected by situational factors. Test-retest reliability is contingent upon the goals of the projective research and is a consideration when using projective techniques. There is much debate about whether repeated administrations of projective techniques should correlate or differ. A second form of reliability is coder or interrater reliability. Interrater reliability refers to the extent to which two (or more) interpreters code the data in the same manner. If equally competent researchers interpret the data in a different manner, then doubts are cast about interrater reliability. Interpreting subjects' responses to the projective stimuli requires a high level of subjectivity on the part of the researchers, and they may disagree about the underlying meanings of responses. Thus, interrater reliability is one of the major issues of using projective techniques and is often the target of criticism.

5.5 WRITING THE RESEARCH REPORT

The results of marketing research must be effectively communicated to management. Presenting the results of a marketing research study to management generally involves a formal written report as well as an oral presentation. The

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report and presentation are extremely important. First, because the results of marketing research are often intangible (after the study has been completed and a decision is made there is very little physical evidence of the resources, such as time and effort, that went into the project), the written report is usually the only documentation of the project. Second, the written report and the oral presentation are typically the only aspect of the study that marketing executives are exposed to, and consequently the overall evaluation of the research project rests on how well this information is communicated. Third, since the written research report and oral presentation are typically the responsibility of the marketing research supplier, the communication effectiveness and usefulness of the information provided plays a crucial role in determining whether that particular supplier will be used in the future.

Every person has a different style of writing. There is not really one right style for a report, but there are some basic principles for writing a research report clearly.

Preparing a research report involves other activities besides writing; in fact, writing is actually the last step in the preparation process. Before writing can take place, the results of the research project must be fully understood and thought must be given to what the report will say. Thus, preparing a research report involves three steps: understanding, organising and writing. The general guidelines that should be followed for any report or research paper are as follows:

Consider the audience: The information resulting from the study is ultimately of importance to marketing managers, who will use the results to make decisions. Thus, the report has to be understood by them; the report should not be too technical and not too much jargon should be used. This is a particular difficulty when reporting the results of statistical analysis where there is a high probability that few, if any, of the target audience have a grasp of statistical concepts. Hence, for example, there is a need to translate such terms as standard deviation, significance level, confidence interval etc. into everyday language. This is sometimes not an easy task but it may be the case that researchers who find it impossible do not themselves have a sufficiently good grasp of the statistical methods they have been using.

Qualitative research also presents difficulties. The behavioural sciences have their own vocabulary, much of which is not encountered in everyday speech. Examples include: cognitive dissonance, evoked set, perception, needs versus wants, self-actualisation. It should be noted that these are extreme examples; many words, phrases and concepts used a very precise way by behavioural scientists are also present in everyday speech but often in a less precise or different way. This also presents opportunities for misunderstandings.

Be concise, but precise: On the one hand, a written report should be complete in the sense that it stands by itself and that no additional clarification is

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needed. On the other hand, the report must be concise and must focus on the critical elements of the project and must exclude unimportant issues. There is a great temptation, on the part of inexperienced researchers, to seek to convey all that they did in order to obtain information and to complete the research. This is done almost as if the researcher is afraid that the audience will not other wise appreciate the time, effort and intellectual difficulties involved. What the researcher has to come to realise is that he/she will be judged by the contribution towards solving the marketing problem and not by the elegance or effort involved in the research methodology.

Understand the results and drawing conclusions: The managers who read the report are expecting to see interpretive conclusions in the report. The researcher must therefore understand the results and be able to interpret these. Simply reiterating facts will not do, and the researcher must ask him/herself all the time "So what?"; what are the implications. If the researcher is comparing the client's product with that of a competitor, for example, and reports that 60 percent of respondents preferred brand A to brand B, then this is a description of the results and not an interpretation of them. Such a statement does not answer the 'So what?' question.

The following outline is the suggested format for writing the research report:

- Title page
- Summary of findings
- Table of contents
- List of tables
- List of figures

Introduction

- Background to the research problem
- Objectives
- Hypotheses

Methodology-Data collection

- Sample and sampling method
- Statistical or qualitative methods used for data analysis
- Sample description

Findings

- Results, interpretation and conclusions.

The summary of findings is perhaps the most important component of the written report, since many of the management team who are to receive a copy of the report will only read this section. The summary of findings is usually put right after the title page, or is bound separately and presented together with the report.

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The introduction should describe the background of the study and the details of the research problem. Following that, automatically the broad aim of the research can be specified, which is then translated into a number of specific objectives. Furthermore, the hypotheses that are to be tested in the research are stated in this section.

In the methodology chapter the sampling methods and procedures are described, as well as the different statistical methods that are used for data analysis. Finally, the sample is described, giving the overall statistics, usually consisting of frequency counts for the various sample characteristics..

Once the sample has been described, the main findings are to be presented in such a way that all objectives of the study are achieved and the hypotheses are tested. As mentioned before, it is essential that the main findings are well interpreted and conclusions are drawn wherever possible.

Data Presentation

Easy-to-understand tables and graphics will greatly enhance the readability of the written research report. As a general rule, all tables and figures should contain:

1. Identification number corresponding to the list of tables and the list of figures
2. A title that conveys the content of the table or figure, also corresponding to the list of tables and the list of figures, and
3. Appropriate column labels and row labels for tables, and figure legends defining specific elements in the figure.

There are a number of ways to produce tables and figures. When typing a report on a typewriter or word-processor, it is sometimes easiest to type a table out by hand.

5.6 SUMMARY

- Consumer behavior is defined as the acquisition, consumption and disposal of products, services, and ideas by decision making units. The primary goal of consumer research is to produce knowledge about consumer behavior.
- Motivational research is a type of marketing research that attempts to explain why consumers behave as they do. Motivational research seeks to discover and comprehend what consumers do not fully understand about themselves.
- The three major motivational research techniques are observation, focus groups, and depth interviews.

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- Projective techniques "provide verbal or visual stimuli which, through their indirection and concealed intent, encourage respondents to reveal their unconscious feelings and attitudes without being aware that they are doing so".
- The results of marketing research must be effectively communicated to management. Presenting the results of a marketing research study to management generally involves a formal written report as well as an oral presentation.

5.7 REVIEW QUESTIONS

1. Why is consumer research important? Discuss.
2. What are the major techniques of motivational research?
3. How is projective research conducted?
4. What are the advantages of projective research?
5. Discuss the report writing process of marketing research.

5.8 FURTHER READINGS

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