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# **Essentials of Marketing Research: Exercises**

Paurav Shukla



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# Marketing Research

Exercises

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# Introduction to marketing research: Scientific research approach and Problem definition

Multiple choice and True or false

- 1. The process of marketing involves all of the following EXCEPT:
  - a) Product
  - b) Production
  - c) Pricing
  - d) Distribution
  - e) Promotion
- 2. Problem identification research is undertaken to:
  - a. Help identify problems that are not apparent on the surface and yet exist or may exist in the future.
  - b. Develop clear, concise marketing segments.
  - c. Help solve specific research problems.
  - d. Establish a procedure for development of a primary research plan.
- 3. Which of the issues listed below would be addressed using problem-solving research?
  - a. the need to understand market potential
  - b. the need to understand current cultural trends
  - c. the need to understand changes in consumer behavior
  - d. the need to determine where to locate retail outlets
- 4. Every marketing research project is unique in its own sense.
  - a. True
  - b. False
- 5. Marketing managers require the information from marketing research for various reasons. Which of the following is/are the reason(s) for the requirement of that information?
  - a. More and more companies are facing international competition.
  - b. Consumers have become very demanding and are asking for newer products and services all the time.
  - c. Managers are becoming distant from consumers due to layers in organizational hierarchy.
  - d. All of the above.

- 6. In contrast to marketing researchers, management decision-makers are more focused on:
  - a. scientific and technical analysis of emerging phenomenon
  - b. market performance
  - c. proactive research
  - d. long-term strategic investigation of marketplace
- 7. A research project can involve both problem identification and problem-solving research.
  - a. True
  - b. False
- 8. To convert a management dilemma into a research question what should a manager and researcher focus on:
  - a. The decision making environment
  - b. Alternative courses of action
  - c. Objectives of the decision makers
  - d. Consequences of alternative actions
  - e. None of the above
  - f. All of the above
- 9. Conducting marketing research guarantees success.
  - a. True
  - b. False
- 10. Marketing research can assist in the decision making process
  - a. True
  - b. False

- 1. Explain problem identification and problem-solving research in details. Are these two types of researches related?
- 2. What are the limitations of marketing research?
- 3. Explain in details the process of marketing research.
- 4. When converting management dilemma into research questions, what issues should be considered and why?

# Solutions to chapter 1 questions

Multiple choice and True or false

- 1. b
- 2. a
- 3. d
- 4. True
- 5. d
- 6. b
- 7. a
- 8. f
- 9. b
- 10. a

# **Essay questions**

1. Explain problem identification and problem-solving research in details. Are these two types of researches related?

### **Answer**

Problem identification research is undertaken to identify problems that are perhaps not apparent on the surface and yet exist or are likely to exist in the future. On the other hand, problem-solving research is undertaken to arrive at a solution to an existing problem.

Problem identification research and problem-solving research compliment each other because once a problem or opportunity has been identified, problem-solving research can be undertaken. Similarly, once a problem solving research has been carried out, a research might new problems emerging out of the results and may require problem identification research. A given marketing research project may combine both types of research. The example of green tea in the UK elaborated on these two aspects in the book chapter.

2. What are the limitations of marketing research?

# Answer

There are two major limitations of marketing research.

a. It cannot provide decision directly. Marketing research can assist in decision making process as a decision support tool but cannot be used as a decision making tool.

b. It cannot guarantee success. Marketing research is carried out mostly on a sample of respondents who at times may not represent the population at large. Marketing research if conducted in the right manner may assist in better decision making however it cannot guarantee success.

3. Explain in details the process of marketing research.

# Answer

Most marketing research involves obtaining information from marketplace directly or indirectly and therefore the common ground is in the realm of method and technique. The scientific marketing research process can therefore be defined in five stages. (1) Problem or opportunity identification; (2) Exploratory research; (3) Hypothesis development; (4) Conclusive research and; (5) Result. Many researchers also break down this process into further components such as explained in the phase-wise marketing research process section of the book chapter.

4. When converting management dilemma into research questions, what issues should be considered and why?

### Answer

A manager when faced with a dilemma is surrounded by various elements of decision making namely: (1) The decision making environment; (2) Objectives of decision maker; (3) Alternative courses of action and (4) Consequences of alternative actions. If the research question is developed without keeping the above four elements in mind there are all chances that there would a bias in the early stage of the research which will carry itself further in the total process and may lead to wrong conclusion.

# 2. Exploratory research design

Multiple choice and True or false

- 1. Which of these count as data?
  - a. The number of males and females in a group
  - b. The number of employees in an organization
  - c. A tape recorded interview
  - d. A poster for a brand of coffee
  - e. All of these
- 2. When the research objective of a study is to gain background information and to clarify the research problems to create hypotheses, it is generally referred to as:
  - a. Exploratory research design
  - b. Descriptive research design
  - c. Causal research design
  - d. Experimental research design
  - e. All of the above





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- 3. Which of the following is TRUE?
  - a. Secondary data are more accurate than primary data.
  - b. The researcher should attempt to gather secondary data before initiating a search for primary data.
  - c. Primary data are gathered by the researcher and secondary data by other researchers.
  - d. If a researcher obtains secondary data from the party who collected them, he or she is using a secondary source of secondary data.
  - e. They are all false.
- 4. A quantitative research study aims to achieve all of the following, EXCEPT:
  - a. test various types of hypotheses
  - b. make accurate predictions about relationships between market factors and behaviour
  - c. generate sustainable competitive advantages for an organization
  - d. gain meaningful insights into the relationships between variables
  - e. validate the existing relationships between variables
- 5. Qualitative research techniques perform better for which of the following issue in comparison to quantitative research techniques?
  - a. Developing generalizable findings
  - b. Gathering rich data
  - c. Distinguishing small differences
  - d. High reliability
  - e. High validity
- 6. The optimal number of participants for a focus group is:
  - a. 1-2 members
  - b. 3-7 members
  - c. 8-12 members
  - d. 12-20 members
  - e. 20-50 members
- 7. For which of the following projects would secondary data collection likely be sufficient in arriving at a conclusion?
  - a. A bank wants to determine how the bank's customers feel about the new service they have introduced.
  - b. A fast-food franchisee wants to determine the market potential for a new type of specialty food in a certain area.
  - c. A department store chain wants to know whether consumers will spend more money if a coffee shop was introduced.

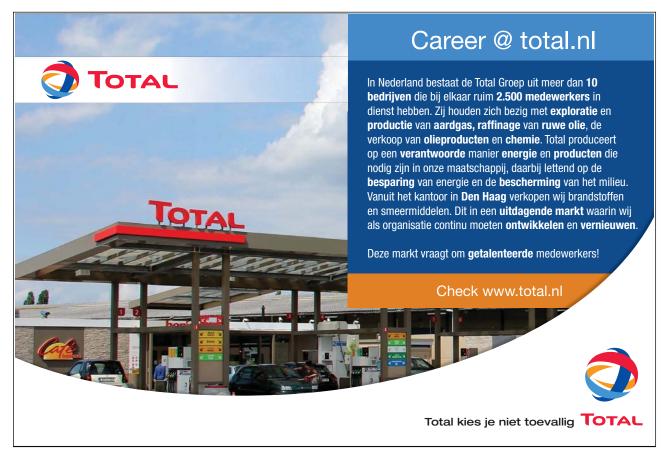
- d. A pet food manufacturer wants to determine whether dogs will prefer a new type of dog food.
- e. None of the above.
- 8. The basic rule for data collection process is:
  - a. Always start by consulting the governmental statistics website
  - b. Begin with primary data, then supplement if needed with secondary data.
  - c. Begin with secondary data, then proceed if necessary to collect primary data.
  - d. Always investigate external sources of secondary data first.
  - e. Design a field experiment to collect primary data.
- 9. Which of the following are advantages of individual depth interviews?
  - a. They allow deeper and candid discussion.
  - b. They eliminate the negatives that group influences have in a focus group.
  - c. None of the above
  - d. Both of the above (a and b)
- 10. Which of the following is not a project technique:
  - a. In-depth interview
  - b. Pictorial construction
  - c. Word association tests
  - d. Sentence completion tests
  - e. Role plays

- 1. Compare and contrast the exploratory, descriptive, and causal research designs.
- 2. What is the major difference between qualitative and quantitative research techniques? Why is qualitative research techniques termed as exploratory research by many?
- 3. Describe the various types of exploratory research designs.
- 4. What are the advantages of using projective techniques in comparison to focus groups and in-depth interviews?

# Solutions to chapter 2 questions

Multiple choice and True or false

- 1. e
- 2. a
- 3. b
- 4. c
- 5. b
- 6. c
- 7. b
- 8 c
- 9. d
- 10. a



1. Compare and contrast the exploratory, descriptive, and causal research designs.

# Answer

The objective of exploratory design is to discover ideas and insights; of descriptive design is to describe market characteristics; of causal design to determine cause and effect or functions.

The characteristics of exploratory design include flexibility, versatility, and that it is often used as the front end of total research design. The characteristics of descriptive design include its preplanned and structured design and that it is marked by the prior formulation of specific hypotheses. The characteristics of causal design include the fact that mediating variables must be controlled for and that one or more independent variables are manipulated.

Methods using exploratory design include expert surveys, pilot surveys, secondary data (which is analyzed qualitatively), and qualitative research. Methods using descriptive design include secondary data (which is analyzed quantitatively), surveys, panels, and observational and other data. Methods using causal design include experiments.

2. What is the major difference between qualitative and quantitative research techniques? Why is qualitative research techniques termed as exploratory research by many?

# Answer

One of the major aims of qualitative research is to gain preliminary insights into decision problems and opportunities. This technique of data collection focuses on collection of data from a relatively small number of respondents by asking questions and observing behaviour. In qualitative research most questions are open-ended in nature. Advantages of qualitative methods include: economic and timely data collection; rich data; accuracy of recording market behaviour; and preliminary insights. On the other hand, disadvantages of qualitative methods include: lack of generalizability, reliability and validity.

Quantitative research methods, seek to quantify the data and typically apply some statistical analysis. They put heavy emphasize on using formalised standard questions and predetermined response options in questionnaires or surveys administered to large number of respondents. Today, quantitative research is commonly associated with surveys and experiments and is still considered the mainstay of the research industry for collecting marketing data.

In recent years, qualitative research has come to refer to selected research methods used in exploratory research designs. Quantitative research techniques on the other hand are more directly related to descriptive and causal designs than the exploratory design. Therefore, many people use the term qualitative and exploratory interchangeably however a researcher should avoid doing the same.

3. Describe the various types of exploratory research designs.

### Answer

Exploratory research design involves many qualitative data collection techniques such as in-depth interviews, focus groups and projective techniques. In-depth interviews are one-to-one interviews with respondents while focus group involves a group of 6 – 12 respondents in a congenial setting. Focus groups is one of the most popular qualitative research techniques. Projective techniques involve various psychological testing such as pictorial construction, word association tests, sentence completion tests and role plays. They are used in understanding the hidden associations in a consumer's mind. The qualitative data collection techniques provide a lot of rich information but at the same time is hard to interpret and involves limitation with regard to generalizability, reliability and validity.

4. What are the advantages of using projective techniques in comparison to focus groups and in-depth interviews?

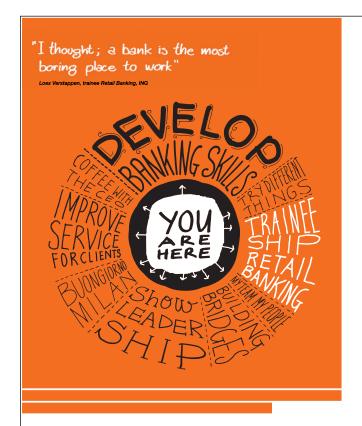
# Answer

Projective techniques have a major advantage over focus groups and depth interviews that they may elicit responses that subjects would be unwilling or unable to give if they knew the purpose of the study. At times, in direct questioning, the respondent may intentionally or unintentionally misunderstand, misinterpret, or mislead the researcher. In these cases, projective techniques can increase the validity of responses by disguising the purpose. This is particularly true when the issues to be addressed are personal, sensitive, or subject to strong social norms.

# 3. Conclusive research design

Multiple choice and True or false

- 1. Which of the following methods can be used in administering survey instruments?
  - a. Personal interview
  - b. Mall intercept
  - c. Internet
  - d. Mail interview
  - e. All of the above
  - f. None of the above
- 2. All of the following are advantages of surveys, EXCEPT:
  - a. Surveys can tap into factors that are not directly observable
  - b. One can accommodate large sample sizes at relatively modest costs
  - c. Administration of surveys is relatively easy
  - d. One can make extensive use of probing questions using a survey
  - e. Survey data can be used with advanced statistical analysis
- 3. Most conclusive research designs involve qualitative research techniques.
  - a. True
  - b. False



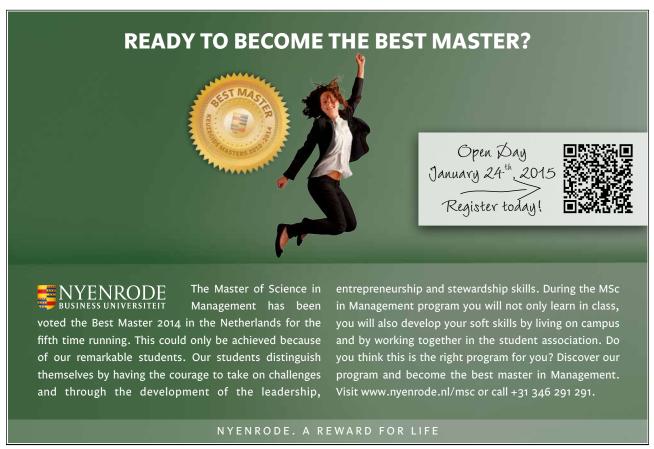
# Where do you want to go?

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- 4. What does CATI stand for in marketing research?
  - a. Computer anonymized telephone interaction
  - b. Computing & analysing technical information
  - c. Computer associated telephone interaction
  - d. Computer assisted telephone interviewing
  - e. None of the above
- 5. Which of the following is NOT an advantage of a self-administered survey?
  - a. Cost per survey
  - b. Respondent control
  - c. Interviewer-respondent bias
  - d. Flexibility
  - e. Anonymity in responses
- 6. What observation method is the most flexible?
  - a. Personal observation
  - b. Mechanical observation
  - c. Audit
  - d. All of the above
- 7. The survey method involves a structured questionnaire administered to a sample of a population and designed to elicit specific information from respondents.
  - a. True
  - b. False
- 8. Descriptive designs involve mostly experimentation.
  - a. True
  - b. False
- 9. Cross-sectional designs and longitudinal designs are at times compared with a photograph and a movie respectively.
  - a. True
  - b. False
- 10. Method of observation depends on:
  - a. Directness of approach
  - b. Respondent's awareness of being observed
  - c. The rigour of information and structure
  - d. Observation recording method
  - e. All of the above

- 1. What different types of personal interviewing methods are used in marketing research?
- 2. Discuss the difference between cross-sectional and longitudinal research designs.
- 3. Discuss causal designs and experimentation.
- 4. Write a brief note on survey methods.



# Solutions to chapter 3 questions

Multiple choice and True or false

- 1. e
- 2. b
- 3. b
- 4. d
- 5. d
- 6. a
- 7. a
- 8. b
- 9. a
- 10. e

# **Essay questions**

1. What different types of personal interviewing methods are used in marketing research?

## Answer

Personal interviewing methods used in marketing research are broadly classified into in-home interviews, executive interviews, mall-intercept interviews and purchase-intercept interviews. In-home interviews are conducted in respondent's home with a structured question and answer exchange between interviewer and the respondent. As the respondent is in the comfort of their home the likelihood of them answering the questions is higher in comparison. In case of executive interview, the exchange happens in the office of the business executive. These types of interviews are conducted to gather industry related or market related information. Mall-intercept interviews, as the name suggests, are face-to-face personal interviews which take place in a shopping mall. Mall shoppers are stopped and asked for feedback or certain issues. In case of purchase-intercept interviews respondents are stopped and asked for feedback on the product bought.

2. Discuss the difference between cross-sectional and longitudinal research designs.

# Answer

The cross-sectional design is the most common and most familiar way of conducting marketing research. It involves collection of information from any given sample of population elements only once. The objective of cross-sectional design many times is to establish categories such that classification in one category implies classification in one or more other categories.

A longitudinal design is much more reliable than a cross-sectional design for monitoring changes over time, because it relies less on consumers' mental capabilities and more frequently monitors events as close to their time of occurrence as feasible. The primary objective of longitudinal design is to monitor change over a period of time. It involves a fixed sample of population elements that is measured repeatedly. The sample remains the same over a period of time, thus providing a series of pictures which, when viewed together, portray a detailed illustration of the situation and changes that are taking place over a period of time.

The major difference between cohort analysis and longitudinal design thus is the sample. While longitudinal design adheres to a single sample, it changes every time the research is conducted in cohort analysis. In simple terms, the same people are studied over time and same variables are measured.

3. Discuss causal designs and experimentation.

## Answer

Causal research is most appropriate when the research objectives include the need to understand the reasons why certain market phenomena happen as they do. To measure this however, the data must be gathered under controlled conditions – that is, holding constant, or neutralizing the effect of, all variables other than the causation variable (in the case above packaging change). After neutralizing the effects of other variables researchers manipulate the causation variable and measure the change in the effect variable (in the case above supermarket sales). Manipulation of the presumed causal variable and control of other relevant variables are distinct features of causal design.

Experimentation as a technique is generally used when conducting causal research. There are two kinds of experimentation techniques available to researchers namely (a) laboratory experiment and (b) field experiment. A laboratory experiment is one in which a researcher creates a situation with the desired conditions and then manipulates some while controlling other variables. The researcher is consequently able to observe and measure the effect of the manipulation of the independent variables on the dependent variable or variables in a situation in which the impact of other relevant factors is minimized. A field experiment on the other hand is a research study in a realistic or natural situation, although it too, involves the manipulation of one or more independent variables under as carefully controlled conditions as the situation will permit.

Data collected through experimentation can provide much stronger evidence of cause and effect than can data collected through descriptive research. While experimentation is a robust technique to find causation and assist manager in decision making there are several limitation associated with it. These limitation mostly concern with the time involved in experimentation, costs and administration difficulties.

4. Write a brief note on survey methods.

## Answer

Survey methods tend to be the mainstay of marketing research in general. They tend to involve a structured questionnaire given to respondents and designed to elicit specific information. Respondents are asked variety of questions regarding their feelings, motivations, behaviour, attitudes, intentions, emotions, demographics and such other variables. The questions are asked via direct face to face contact, post, telephone or internet. The responses are recorded in a structured, precise manner.





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The survey method is popular for various reasons. One of the major reasons is that data collection is a function of correctly designing and administering the survey instrument (i.e. a questionnaire). This means unlike exploratory design based techniques survey methods rely less on communication, moderation and interpretation skills of the researcher. Survey research allows the researcher to create information for precisely answering who, what, how, where and when questions relating to the marketplace. Furthermore, survey methods have ability to accommodate large sample size and therefore increase generalizability of results. In case of survey methods researcher can easily distinguish small differences. Furthermore, researcher can easily adopt robust advance statistical methods on collected data for gaining results. Such advantages make survey methods quite popular.

While survey methods provide several advantages, there are several limitations also. These limitations stem mostly from instrument development, respondent errors and response bias. Developing accurate survey instruments is a difficult task and at times is time consuming. Furthermore, due to instrument measurement being structured in nature, in-depth and detailed data structures as gathered in exploratory research cannot be collected. One of the major problems with survey methods is to determine whether the respondents are responding truthfully or not. There is little cross-checking and flexibility available in comparison to exploratory designs. There is also a possibility of misinterpretations of data results and employment of inappropriate statistical analysis procedure.

# 4. Sampling

Multiple choice and True or false

1.	In what of the	following	situations	sampling p	lavs an	important role:

- a. In identifying, developing, and understanding new marketing concepts that need to be investigated
- b. In designing questionnaires
- c. In reducing the time and money it will take to conduct a survey
- d. In developing scale measurements used to collect primary data
- e. All of the above

2.	We use	sampling	many tir	mes during	our dail	v lives.
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- a. True
- b. False

	3.	The studies	which cover	all the	members of		are called	'census	,
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- a. Elements
- b. Population
- c. Sample
- d. Sampling frame
- e. All of the above

4	Α	is a r	epresentation	of the	elements	of the	target	non	ulation
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- a. Population
- b. Sampling frame
- c. Sample
- d. Element
- e. All of the above
- 5. Non-sampling errors represent any type of bias that is attributable to mistakes in either drawing a sample or demining the sample size.
  - a. True
  - b. False
- 6. Which of the following is a not a probability sampling technique
  - a. Systematic random sampling
  - b. Cluster sampling
  - c. Quota sampling
  - d. Stratified sampling
- 7. In which sampling technique a random number table is employed.
  - a. Snowball sampling
  - b. Simple random sampling
  - c. Systematic random sampling
  - d. Convenience sampling

- 8. In which technique selection of sample is left entirely to the researcher.
  - a. Convenience sampling
  - b. Simple random sampling
  - c. Stratified sampling
  - d. Cluster sampling
- 9. Which nonprobability sampling technique is called as the most refined nonprobability technique?
  - a. Convenience sampling
  - b. Simple random sampling
  - c. Judgement sampling
  - d. Quota sampling
  - e. Snowball sampling
- 10. In which of the sampling techniques each sampling unit has a known, nonzero chance of selection.
  - a. Probability sampling technique
  - b. Nonprobability sampling technique

- 1. When determining the sample size what qualitative and quantitative issues should be taken into consideration by researcher?
- 2. Provide a brief note highlighting major differences between probability and non-probability sampling techniques?
- 3. Discuss stratified sampling in details.
- 4. Explain quota sampling and its advantages as well as disadvantages.

# Solutions to chapter 4 questions

Multiple choice and True or false

- 1. e
- 2. a
- 3. b
- 4. b
- 5. b
- 6. c
- 7. b
- 8. a
- 9. d
- 10. a



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1. When determining the sample size what qualitative and quantitative issues should be taken into consideration by researcher?

## **Answer**

The qualitative issues considered may include factors such as:

- (a) Nature of research and expected outcome
- (b) Importance of the decision to organization
- (c) Number of variables being studied
- (d) Sample size in similar studies
- (e) Nature of analysis
- (f) Resource constraints

Various quantitative measures are also considered when determining sample size such as:

- (a) Variability of the population characteristics (greater the variability, larger the sample required)
- (b) Level of confidence desired (higher the confidence desired, larger the sample required);
- (c) Degree of precision desired in estimating population characteristics (more precise the study, larger the sample required).
- 2. Provide a brief note highlighting major differences between probability and non-probability sampling techniques?

# Answer

Probability sampling is more robust in comparison as in this technique each sampling unit has a known, nonzero chance of getting selected in the final sample.

Nonprobability techniques on the other hand, do not use chance selection procedure. Rather, they rely on the personal judgement of the researcher. The results obtained by using probability sampling can be generalized to the target population within a specified margin of error through the use of statistical methods. Put simply, probability sampling allows researchers to judge the reliability and validity of the findings in comparison to the defined target population. In case of nonprobability sampling, the selection of each sampling unit is unknown and therefore, the potential error between the sample and target population cannot be computed. Thus, generalizability of findings generated through nonprobability sampling is limited. While probability sampling techniques are robust in comparison one of the major disadvantages of such techniques is the difficulty in obtaining a complete, current and accurate listing of target population elements.

# 3. Discuss stratified sampling in details.

# Answer

Stratified sampling is a probability sampling technique which is distinguished by the two-step procedure it involves. In the first step the population is divided into mutually exclusive and collectively exhaustive sub-populations, which are called strata. In the second step, a simple random sample of elements is chosen independently from each group or strata. This technique is used when there is considerable diversity among the population elements. The major aim of this technique is to reduce cost without lose in precision. There are two types of stratified random sampling; (a) proportionate stratified sampling and (b) disproportionate stratified sampling. In proportionate stratified sampling, the sample size from each stratum is dependent on that stratum's size relative to the defined target population. Therefore, the larger strata are sampled more heavily using this method as they make up a larger percentage of the target population. On the other hand, in disproportionate stratified sampling, the sample selected from each stratum is independent of that stratum's proportion of the total defined target population. There are several advantages of stratified sampling including the assurance of representativeness, comparison between strata and understanding of each stratum as well as its unique characteristics. One of the major difficulty however, is to identify the correct stratifying variable.

4. Explain quota sampling and its advantages as well as disadvantages.

# **Answer**

Quota sampling restricts the selection of the sample by controlling the number of respondents by one or more criterion. The restriction generally involves quotas regarding respondents' demographic characteristics (e.g. age, race, income), specific attitudes (e.g. satisfaction level, quality consciousness), or specific behaviours (e.g. frequency of purchase, usage patterns). These quotas are assigned in a way that there remains similarity between quotas and populations with respect to the characteristics of interest. Quota sampling is also viewed as a two-stage restricted judgement sampling. In the first stage restricted categories are built as discussed above and in the second stage respondents are selected on the basis of convenience of judgement of the researcher. This procedure is used quite frequently in marketing research as it is easier to manage in comparison to stratified random or cluster sampling. Quota sampling is often called as the most refined form of nonprobability sampling. It also reduces or eliminates selection bias on the part of field workers which is strongly present in convenience sampling. However, being a nonprobability method it has disadvantages in terms of representativeness and generalizability of findings to a larger population.

# 5. Measurement and scaling

Multiple choice and True or false

- 1. Most people use measurement in their daily lives.
  - a. True
  - b. False
- 2. The idea of assigning numbers can be helpful in:
  - a. allowing statistical testing
  - b. facilitating easier communication
  - c. Both a and b
  - d. None
- 3. The appropriateness of the raw data being collected depends directly on the scaling technique used by the researcher.
  - a. True
  - b. False



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- 4. Which of the following scale has assignment property?
  - a. Nominal
  - b. Ordinal
  - c. Interval
  - d. Ratio
  - e. All of the above
  - f. None of the above
- 5. The interval scale possesses all of the below properties, except:
  - a. Assignment
  - b. Order
  - c. Distance
  - d. Origin
  - e. All of the above
  - f. None of the above
- 6. The origin property refers to a numbering system where zero is the displayed or referenced starting point in the set of possible responses.
  - a. True
  - b. False
- 7. Which among the following is not comparative scaling technique?
  - a. Paired comparison
  - b. Rank order
  - c. Constant sum scale
  - d. Q-sort
  - e. Stapel scale
- 8. Which among the following is not a noncomparative scaling technique?
  - a. Likert
  - b. Stapel
  - c. Semantic differential
  - d. Rank order
  - e. None of the above
- 9. Respondent characteristics such as intelligence, education does not have any affect the test score.
  - a. True
  - b. False
- 10. Validity refers to scale consistency over a period of time.
  - a. True
  - b. False

- 1. Write a brief note on fundamental properties of measurement.
- 2. Discuss construct validity and the types of construct validity.
- 3. Write a brief note about comparative and non-comparative scaling.
- 4. What are the various measures for reliability assessment of a scale?



# Solutions to chapter 5 questions

Multiple choice and True or false

- 1. a
- 2. c
- 3. a
- 4. e
- 5. d
- 6. a
- 7. e
- 8. d
- o. u
- 9. b
- 10. b

# **Essay questions**

1. Write a brief note on fundamental properties of measurement.

## Answer

There are four primary fundamental properties of measurement: assignment, order, distance and origin. The assignment property is also referred as description or category property. It refers to the researcher's employment of unique descriptors, or labels to identify each object within a set. The second measurement scale property, order property, refers to the relative magnitude between the descriptors. The distance property refers to a measurement scheme where exact difference between each of the descriptors is expressed in absolute. The origin property is a measurement scheme wherein exists a unique starting point in a set of scale points. For the most part, the origin property refers to a numbering system where zero is the displayed or referenced starting point in the set of possible responses. Each scaling property builds on the previous one. For example, a scale which includes order property will have assignment property built in. Similarly, a scale which possesses distance property will have assignment and order property both. An origin property based scale will have all assignment, origin and distance properties included in itself.

2. Discuss construct validity and the types of construct validity.

## **Answer**

Construct validity addresses the question of what construct or characteristic the scale is, in fact, measuring. When assessing construct validity, the researcher attempts to answer theoretical questions about why the scale works and what deductions can be made concerning the underlying theory. Thus, construct validity requires a sound theory of the nature of the construct being measured and how it relates to other constructs. Construct validity is the most sophisticated and difficult type of validity to establish. Construct validity includes convergent, discriminant, and nomological validity.

Convergent validity is the extent to which the scale correlates positively with other measures of the same construct. It is not necessary that all these measures be obtained by using conventional scaling techniques. Discriminant validity is the extent to which a measure does not correlate with other constructs from which it is supposed to differ. It involves demonstrating a lack of correlation among differing constructs. Nomological validity is the extent to which the scale correlates in theoretically predicted ways with measures of different but related constructs. A theoretical model is formulated that leads to further deductions, tests, and inferences. Gradually, a nomological net is built in which several constructs are systematically interrelated.

3. Write a brief note about comparative and non-comparative scaling.

# Answer

The scaling techniques regularly employed in marketing research can be classified into two basic strands: (a) comparative scaling and (b) non-comparative scaling. As the name suggests comparative scaling involves direct comparison of stimulus objects with one another. For example, managers are generally interested in knowing consumer preference regarding their brand in comparison to a competitor's brand. A researcher can then ask question such as what of the two brands consumer prefers and this would provide the manager a clear idea of what consumer preferences are. There are several techniques which are used in building comparative scale such as paired comparison, rank order, constant sum scale, and q-sort.

While comparative scaling is used for comparison between stimuli, on the other hand, non-comparative scaling involves each stimulus object being scaled independently of the other objects in the stimulus set. The resulting data in non-comparative scale are assumed to be interval or ratio scaled. For example, instead of direct comparison between brands researcher may ask the respondent to rate each brand separately on a scale of 1-10 and can evaluate each brand as well as compare the brands also. Non-comparative scaling techniques involve continuous rating scales as well as itemised rating scales. The itemised rating scales are further sub-divided into likert scale, semantic differential scale and stapel scale.

4. What are the various measures for reliability assessment of a scale?

### Answer

Reliability in research relates to consistency of results over a period of time. A scale is called reliable if it produces consistent results when repeated measurements are made. As the name suggests, in test-retest reliability measurement, same respondents are administered identical sets of scale items at two different times (usually 2-4weeks). The degree of similarity between the measurements (measured through correlation between both measurements) determines the reliability. The higher the correlation between the two measurements, the higher the scale reliability. In measuring alternative forms reliability, two equivalent forms of the scale are constructed and then the same respondents are measured at two different times. Internal consistency reliability is used to assess the reliability of a summated scale where several items are summated to form a total score. In simple words, each item in the scale must measure part of what the scale is developed to measure. Various techniques such as 'split-half reliability' or 'coefficient alpha' (also known as Cronbach's alpha) are used to measure internal consistency reliability. In split-half reliability the scale is broken in two halves and the resulting half scores are correlated. High correlation between the two halves shows higher internal consistency. In case of coefficient alpha the average of all possible split-half coefficients is calculated. The value beyond 0.7 suggests acceptable internal reliability.



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# 6. Questionnaire design

Multiple choice and True or false

- 1. A questionnaire is a formalized set of questions involving one or more measurement scales designed to collect specified secondary data.
  - a. True
  - b. False
- 2. The first step in developing a questionnaire is to specify the information needed in researchable format.
  - a. True
  - b. False
- 3. In which of the following interviewing methods most complex question scales can be used easily?
  - a. Personal interviews
  - b. Telephone interviews
  - c. Mail interviews
  - d. Online interviews
- 4. Unstructured questions are also called as:
  - a. Close ended
  - b. Open ended
  - c. Both
  - d. None
- 5. Open ended questions are mostly used in:
  - a. Exploratory research
  - b. Conclusive research
  - c. Both
  - d. None
- 6. What should be avoided when developing a questionnaire?
  - a. Complex words
  - b. Ambiguous words
  - c. Leading questions
  - d. Generalizations
  - e. All of the above
  - f. None of the above

- 7. Double barrelled questions should be avoided in questionnaire development.
  - a. True
  - b. False
- 8. The forward and opening questions are highly important in gaining respondents' trust and making them feel comfortable with the study.
  - a. True
  - b. False
- 9. Most socioeconomic and demographic questions are defined as:
  - a. Identification information
  - b. Specific information
  - c. Classification information
  - d. All of the above
- 10. A questionnaire should not be used in the field survey without being adequately pilot tested.
  - a. True
  - b. False

- 1. When selecting the use of a neutral alternative in dichotomous questions what considerations should be kept in mind?
- 2. Describe the importance of pilot testing in questionnaire building.
- 3. What are the steps involved in questionnaire building?
- 4. Describe the use of forward, generic and specific information questions in questionnaire development.

# Solutions to chapter 6 questions

Multiple choice and True or false

- 1. b
- 2. a
- 3. a
- 4. b
- 5. a
- 6. e
- 7. a
- 8. a
- 9. c
- 10. a



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1. When selecting the use of a neutral alternative in dichotomous questions what considerations should be kept in mind?

### **Answer**

If a neutral alternative is not included, respondents are forced to choose between "yes" and "no" even if they feel indifferent. On the other hand, if a neutral alternative is included, respondents can avoid taking a position on the issue, thereby biasing the results. The following guidelines are offered. If a substantial proportion of the respondents can be expected to be neutral, include a neutral alternative. If the proportion of neutral respondents is expected to be small, avoid the neutral alternative.

2. Describe the importance of pilot testing in questionnaire building.

### Answer

Once the preliminary questionnaire has been developed a researcher should test the questionnaire on a small sample of respondents to identify and eliminate potential problems. This sampling process is called pilot testing. It is advised that, a questionnaire should not be used in the field survey without being adequately pilot tested. A pilot test provides testing of all aspects of a questionnaire including, content, wording, order, form and layout. The sample respondents selected for the pilot test must be similar to those who will be included in the actual survey in terms of their background characteristics, familiarity with the topic and attitudes and behaviours of interest. An initial personal interview based pilot test is recommended for all types of surveys because the researcher can observe respondents' attitudes and reactions towards each question. Once the necessary changes have been made using the initial personal interview based pilot test, another pilot test could be conducted for mail, telephone or internet based survey. Most researchers recommend a pilot test sample between 15 and 30 respondents. If the study is very large involving multiple stages, a larger pilot test sample may be required. Finally, the response obtained from the pilot test sample should be coded and analysed. These responses can provide a check on the adequacy of the data obtained in answering the issue at hand.

3. What are the steps involved in questionnaire building?

# Answer

While there is a debate with regard to questionnaire building process, there is consensus among the research community that the designing process involves some established rules of logic, objectivity and systematic procedures. The generic process of questionnaire building involves following steps.

- (a) Specification of the information needed in researchable format
- (b) Selection of interview method
- (c) Determination of question composition

- (d) Determination of individual question content
- (e) Developing question order, form and layout
- (f) Pilot testing the questionnaire
- 4. Describe the use of forward, generic and specific information questions in questionnaire development.

#### Answer

The questionnaire can be divided in three main parts generally: forward and opening questions; generic information questions; specific information questions.

The forward and opening questions are highly important in gaining respondents' trust and making them feel comfortable with the study. It also improves the response rate among the respondent if they find it worthwhile and interesting. Questions pertaining to opinion can give a good start to most questionnaires as everyone likes to give some opinion about issues at hand. At times, when it is necessary to qualify a respondent (i.e. determine if they are part of the defined target population), opening questions can act as qualification questions.

Generic information questions are divided into two main areas: classification information questions and identification information questions. Most socioeconomic and demographic questions (age, gender, income group, family size and so on) provide classification information. On the other hand, respondent name, address, and other contact information provide identification information. It is advisable to collect classification information before identification information as most respondents do not like their personal information collected by researchers and this process may alienate the respondent from the interview.

The specific information questions are questions directly associated with the research objectives. They mostly involve various scales and are complex in nature. This type of questions should be asked later in the questionnaire after the rapport has been established between the researcher and the respondent. Most researchers agree that it is good to start with forward and opening questions followed progressively by specific information question and concluding with classification and identification information questions.

# 7. Data preparation and preliminary data analysis

Multiple choice and True or false

- 1. Most market research studies can be solved only by collecting secondary data.
  - a. True
  - b. False
- 2. Which of the following steps is not involved in fieldwork?
  - a. Selection of fieldworkers
  - b. Training of fieldworkers
  - c. Supervision of fieldworkers
  - d. Evaluation of fieldworkers
  - e. All of the above
  - f. None of the above
- 3. Probing helps in motivating the respondent and helps focus on a specific issue.
  - a. True
  - b. False

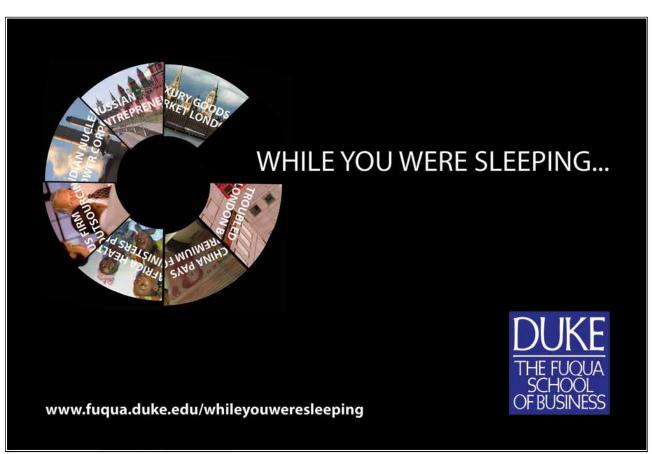


- 4. Which of the following is not an appropriate probing technique?
  - a. Repeating the question
  - b. Repeating the respondents' reply
  - c. Forcing the respondent to remember
  - d. Eliciting clarification
  - e. Using objective/neutral questions or comments
- 5. One of the major editing problem concerns with faking of an interview.
  - a. True
  - b. False
- 6. How can a researcher avoid and cross-check for fake interviews?
  - a. Use complex scales
  - b. Use dichotomous questions
  - c. Use only close ended questions
  - d. Use few open-ended questions
- 7. What types of questions are relatively hard to code?
  - a. Multiple choice questions
  - b. Dichotomous questions
  - c. Open-ended questions
  - d. Likert scale based questions
- 8. Data cleaning involves which of the following.
  - a. Substituting missing value with a neutral value
  - b. Substituting an imputed response by following a pattern of respondent's other responses
  - c. Casewise deletion
  - d. Pairwise deletion
  - e. All of the above
  - f. None of the above
- 9. Categorical variables involve what of the following scales?
  - a. Nominal and ordinal
  - b. Nominal and interval
  - c. Nominal and ratio
  - d. Ordinal and ratio
  - e. Ordinal and interval
  - f. Interval and ratio

- 10. Categorical variables involve what of the following scales?
  - a. Nominal and ordinal
  - b. Nominal and interval
  - c. Nominal and ratio
  - d. Ordinal and ratio
  - e. Ordinal and interval
  - f. Interval and ratio

# **Essay questions**

- 1. Discuss data cleaning and its importance in preliminary data analysis.
- 2. Explain data editing and coding process in details.
- 3. Why should a researcher do a normality and outliers assessment before hypotheses testing?
- 4. List the steps for generic hypothesis testing procedure.



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# Solutions to chapter 7 questions

Multiple choice and True or false

- 1. b
- 2. f
- 3. a
- 4. c
- 5. a
- 6. d
- 7. c
- 8. e
- 9. a
- 10. f

## **Essay questions**

1. Discuss data cleaning and its importance in preliminary data analysis.

#### **Answer**

Data cleaning focuses on error detection and consistency checks as well as treatment of missing responses. The first step in the data cleaning process is to check each variable for data that are out of the range or as otherwise called logically inconsistent data. Such data must be corrected as they can hamper the overall analysis process. Most advance statistical packages provide an output relating to such inconsistent data. Inconsistent data must be closely examined as sometimes they might not be inconsistent and be representing legitimate response.

In most surveys, it happens so that respondent has either provided ambiguous response or the response has been improperly recorded. In such cases, missing value analysis is conducted for cleaning the data. If the proportion of missing values is more than 10%, it poses greater problems. There are four options for treating missing values: (a) substituting missing value with a neutral value (generally mean value for the variable); (b) substituting an imputed response by following a pattern of respondent's other responses; (c) casewise deletion, in which respondents with any missing responses are discarded from the analysis and (d) pairwise deletion, wherein only the respondents with complete responses for that specific variable are included. The different procedures for data cleaning may yield different results and therefore, researcher should take utmost care when cleaning the data. The data cleaning should be kept at a minimum if possible.

2. Explain data editing and coding process in details.

## Answer

The usual first step in data preparation is to edit the raw data collected through the questionnaire. Editing detects errors and omissions, corrects them where possible, and certifies that minimum data quality standards have been achieved. The purpose of editing is to generate data which is: accurate; consistent with intent of the question and other information in the survey; uniformly entered; complete; and arranged to simplify coding and tabulation.

Sometimes it becomes obvious that an entry in the questionnaire is incorrect or entered in the wrong place. Such errors could have occurred in interpretation or recording. When responses are inappropriate or missing, the researcher has three choices:

- (a) Researcher can sometimes detect the proper answer by reviewing the other information in the schedule. This practice, however, should be limited to those few cases where it is obvious what the correct answer is.
- (b) Researcher can contact the respondent for correct information, if the identification information has been collected as well as if time and budget allow.



(c) Researcher strike out the answer if it is clearly inappropriate. Here an editing entry of 'no answer' or 'unknown' is called for. This procedure, however, is not very useful if your sample size is small, as striking out an answer generates a missing value and often means that the observation cannot be used in the analyses that contain this variable.

One of the major editing problem concerns with faking of an interview. Such fake interviews are hard to spot till they come to editing stage and if the interview contains only tick boxes it becomes highly difficult to spot such fraudulent data. One of the best ways to tackle the fraudulent interviews is to add a few open-ended questions within the questionnaire. These are the most difficult to fake. Distinctive response patterns in other questions will often emerge if faking is occurring. To uncover this, the editor must analyse the instruments used by each interviewer.

Coding involves assigning numbers or other symbols to answers so the responses can be grouped into a limited number of classes or categories. Specifically, coding entails the assignment of numerical values to each individual response for each question within the survey. The classifying of data into limited categories sacrifices some data detail but is necessary for efficient analysis. Instead of requesting the word male or female in response to a question that asks for the identification of one's gender, we could use the codes 'M' or 'F'. Normally this variable would be coded 1 for male and 2 for female or 0 and 1. Similarly, a Likert scale can be coded as: 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree and 5 = strongly agree. Coding the data in this format helps the overall analysis process as most statistical software understand the numbers easily. Coding helps the researcher to reduce several thousand replies to a few categories containing the critical information needed for analysis. In coding, categories are the partitioning of a set; and categorization is the process of using rules to partition a body of data.

3. Why should a researcher do a normality and outliers assessment before hypotheses testing?

### Answer

To conduct many advance statistical techniques, researchers have to assume that the data provided is normal (means it is symmetrical on a bell curve) and free of outliers. In simple terms, if the data was plotted on a bell curve, the highest number of data points will be available in the middle and the data points will reduce on either side in a proportional fashion as we move away from the middle. Normality and outliers analysis provides clarity with regard to fundamental assumption of many advance statistical techniques. The skewness and kurtosis analysis can provide some idea with regard to the normality. Positive skewness values suggest clustering of data points on the low values (left hand side of the bell curve) and negative skewness values suggest clustering of datapoints on the high values (right hand side of the bell curve).

Positive kurtosis values suggest that the datapoints have peaked (gathered in centre) with long thin tails. Kurtosis values below 0 suggest that the distribution of datapoints is relatively flat (i.e. too many cases in the extreme). In a way, without normality and outliers assessment researcher may get false results which might lead to wrong conclusion and decision making.

4. List the steps for generic hypothesis testing procedure.

#### Answer

Testing for statistical significance follows a relatively well-defined pattern, although authors differ in the number and sequence of steps. The generic process is described below.

- 1. Formulate the hypothesis
- 2. Select an appropriate test
- 3. Select desired level of significance
- 4. Compute the calculated difference value
- 5. Obtain the critical value
- 6. Compare the calculated and critical values
- 7. Marketing research interpretation



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# 8. Report preparation and presentation

Multiple choice and True or false

- 1. Marketing research report is the bridge between researcher and manager with regard to the research findings.
  - a. True
  - b. False
- 2. A project can still be called successful, even if the research results are not effectively communicated using the research report.
  - a. True
  - b. False
- 3. Many times managers judge the research by the quality of the report.
  - a. True
  - b. False
- 4. While writing the report, researcher should empathize with how the manager will be reading and interpreting the report?
  - a. True
  - b. False
- 5. Which of the following must be kept in mind when writing a marketing research report?
  - a. Empathizing skills
  - b. Structure and logical arguments
  - c. Objectivity
  - d. Professional presentation
  - e. All of the above
- 6. Many consider executive summary as the soul of the research report?
  - a. True
  - b. False
- 7. Executive summary should involve all of the following, except:
  - a. Why and how the research was carried out
  - b. What was done to manage fieldworkers
  - c. What was found
  - d. What can be interpreted and acted upon by the manager

- 8. Which of the following sections in report should provide background information to the research?
  - a. Research methodology
  - b. Results
  - c. Conclusion
  - d. Introduction
- 9. Pilot testing should be discussed in which of the following sections of the report.
  - a. Introduction
  - b. Research methodology
  - c. Results
  - d. Conclusion
- 10. Researcher should explain any jargons used in the report succinctly.
  - a. True
  - b. False

# **Essay questions**

- 1. Discuss the importance of marketing research report in the overall marketing research process.
- 2. What are the key issues to keep in mind when writing research reports?
- 3. List the components of a generic marketing research report.
- 4. Write a brief note on report presentation.

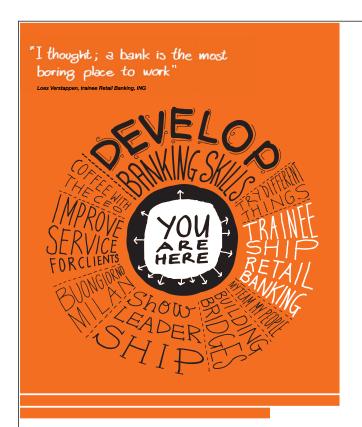
# Solutions to chapter 8 questions

Multiple choice and True or false

- 1. a
- 2. b
- 3. a
- 4. a
- 5. e
- 6. a
- 7. b
- 8. d
- 9. c
- 10. a

# **Essay questions**

1. Discuss the importance of marketing research report in the overall marketing research process.



# Where do you want to go?

ING is looking for talented trainees for IT, Finance, Risk, Retail Banking and Commercial Banking. If you have the hands-on mentality and skills to back it up, you'll nd the bank to be a world of opportunity. Try, practice and discover what you're good at. We'll throw you in at the deep end, but not without a coach, a lifeline and ample rewards. Join the ING International Talent Programme at ING.nl/graduates



## Answer

Marketing research report is the bridge between researcher and manager with regard to the research findings. Even if the research project is carried out with most meticulous design and methodology, if the research results are not effectively communicated using the research report to the manager, the research project may not be a success. This is because the research results will not help in achieving the major aim of any research project, which is to support the decision making process. Research report is a tangible output of the research project and not only helps in decision making but also provides documentary evidence and serves as a historical record of the project. Many a times, managers are only involved in looking at the research report (i.e. oral presentation and written report) and therefore most times the research project is judged by the quality of the research report. This has direct association with the relationship between the researcher and manager. All of the above reasons suggest the importance of marketing research report.

2. What are the key issues to keep in mind when writing research reports?

#### **Answer**

Before communicating the results of the project to the manager, the researcher should keep several issues in mind for effective communication. The first and foremost rule for writing the report is to empathize. The researcher must keep in mind that the manager who is going to read and utilize the findings of the research project might not be as technically knowledgeable with statistical techniques or at times with the methodology. Furthermore, the manager will be more interested in knowing how results can be used for decision making rather than how they have been derived. Therefore, the jargons and technical terms should be kept at minimum. If the jargons cannot be avoided, then researcher should provide a brief explanation for the manager to understand it.

The second rule researcher should keep in mind is related to the structure of the report. The report should be logically structured and easy to follow. The manager should easily be able to grasp the inherent linkages and connections within the report. The write up should be succinct and to the point. A clear and uniform pattern should be employed. One of the best ways to check weather the structure of the report is sound or not, the report should be critically looked at by some of the research team members.

Furthermore, researcher must make sure that the scientific rigour and objectivity is not lost when presenting the research project findings. At times, because of the heavy involvement of researcher in the overall research process, it is possible that there is a loss of objectivity. Therefore, researcher should keep a tab on the aspects of objectivity of the overall report. Many times managers do not like to see the results which oppose their judgemental beliefs however the researcher must have the courage to present the findings without any slant to conform to the expectations and beliefs of the managers.

A professionally developed report is always well received as it makes the important first impression in manager's mind. It is therefore very important for researcher to focus on the presentation of the report. The other important aspect is the use of figures, graphs and tables. There is an old saying that, 'a picture is worth 1000 words' and that is quite true when reporting the results of a research project. Use of figures, graphs and tables can help in interpretations as well as greatly enhance the look and feel of the report which in turn can augment the reader engagement.

If the report is prepared keeping in mind the above stated key issues, the overall credibility of the research report as well as of the researcher can be greatly enhanced.

3. List the components of a generic marketing research report.

#### Answer

Following is the list of components for a generic marketing research report.

- 1. Title page
- 2. Table of contents
- 3. Executive summary
  - a. Research objectives
  - b. Brief discussion on methodology
  - c. Major findings
  - d. Conclusion
  - e. Recommendations
- 4. Introduction
  - a. Problem definition
- 5. Research design
  - a. Type of design used
  - b. Data collection
  - c. Scaling techniques
  - d. Questionnaire development and pilot testing
  - e. Sampling
  - f. Fieldwork
- 6. Data analysis and findings
  - a. Analysis techniques employed
  - b. Results
- 7. Conclusion and recommendation
- 8. Limitations and future directions
- 9. Appendices
  - a. Questionnaire and forms
  - b. Statistical output

# 4. Write a brief note on report presentation.

#### Answer

The presentation has become an integral part of most marketing research projects. Most managers are finding it hard to read the entire report and so prefer the researcher to present the report in an oral presentation. Furthermore, the presentation provides an opportunity for the research and management team to interact the issues of concern and in that way it becomes an important exercise.

For any presentation, the most important aspect is preparation. Researcher should first develop an outline of the presentation keeping the audience in mind. Once the outline is developed, the researcher should focus on the content management and decide as to what is relevant and important and what is not. Use of various audio-visual aids as well as other materials such as chalkboards or flipcharts should be planned out in advance. While audio-visual presentation adds to the overall engagement, chalkboards and flipcharts provide flexibility in presentation.

The rules regarding what to do and what not to do when writing reports also apply to the presentation and researcher must keep in mind that the presentation is being done for the managers to grasp the results. Researcher must remember that the research was conducted for assistance in decision making and was not a statistical exercise. Therefore, the focus of the presentation should be on how the research can help managers in making a better informed decision.

