



Source: © Getty Images

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Research design



There are a huge array of alternative research designs that can satisfy research objectives. The key is to create a design that enhances the value of the information obtained, whilst reducing the cost of obtaining it.



Objectives

After reading this chapter, you should be able to:

- 1 define research design, classify various research designs, and explain the differences between exploratory and conclusive research designs;
- 2 compare and contrast the basic research designs: exploratory, descriptive and causal;
- 3 understand how respondents or the subjects of research design affect research design choices;
- 4 describe the major sources of errors in a research design, including random sampling error and the various sources of non-sampling error;
- 5 explain research design formulation in international marketing research;
- 6 understand the ethical issues and conflicts that arise in formulating a research design
- 7 appreciate the ways in which the Internet can support the process of research design.

STAGE 1
Problem
definition

STAGE 2
Research approach
developed

STAGE 3
Research design
developed

STAGE 4
Fieldwork or data
collection

STAGE 5
Data preparation
and analysis

STAGE 6
Report preparation
and presentation

Overview



Chapter 2 discussed how to define a marketing research problem and develop a suitable approach. These first two steps are critical to the success of the whole marketing research project. Once they have been completed, attention should be devoted to designing the formal research project by formulating a detailed research design (as a reminder, see Figure 2.3).

This chapter defines and classifies research designs. We examine the nature of research design from the perspectives of decision-makers and respondents. Two major types of research design are then discussed: exploratory and conclusive. We further classify conclusive research designs as descriptive or causal and discuss both types in detail. The differences between the two types of descriptive designs are then considered (cross-sectional and longitudinal) and sources of errors are identified. The special considerations involved in formulating research designs in international marketing research are discussed. Several ethical issues that arise at this stage of the marketing research process are considered. A better appreciation of the concepts presented in this chapter can be gained by first considering the following example, which illustrates the use of a number of interrelated techniques to build a research design.

Example

Getting to know you¹

Building a relationship with consumers is a challenge facing all organisations, but particularly so in the case of 'emergent drinkers', those of legal drinking age up to 25. Allied Domecq Spirits and Wines (ADSW) recognised the danger of being distanced from this crucial group, particularly across geographical markets. ADSW worked with Pegram Walters International (PWI) on a project that went far beyond an exploration of the current usage and attitudes towards spirits. The objectives of the project encompassed an exploration of the target groups' personal values, their feelings about their lives, their universe, their hopes and dreams.

There were three stages to the research design. In the first stage the researchers conducted one-hour depth interviews. There were three clear objectives for this stage: to understand personal viewpoints on marketing and lifestyle issues; to clarify and/or narrow down topics for subsequent exploration; and to recruit appropriate 'information gatherers'. From this stage hypotheses were formulated on issues such as how respondents saw themselves and their future, relationships, self-discovery and opting in or out of the system.

In the second stage, from 20 depth interviews, 10 respondents were retained as 'information gatherers'. 'Leading-edge' bars were rented out and 50 adult emergent drinkers were invited to participate in workshops. Given a task guideline, the information gatherers led discussions. As an additional record, the workshops were video recorded. The participants felt comfortable within their peer group and, in the more natural bar environment, fed back real, relevant and honest information.

The third stage occurred on the night following the workshops. Focus groups were used, made up of the 'information gatherers'. They discussed what happened in the workshops and their interpretation of what it actually meant.

In order to ensure that the information remained topical, useful and easily accessible, it was felt important to create a vehicle for an ongoing communication and dialogue with the target market. To achieve this, a high-impact 'magazine' was created to bring the research to life after the presentation of findings. This was referred to as a magazine and not a research report to reflect the lifestyle of the consumer group in question: it contained images, layouts and fonts typically associated with the generation.

The above example illustrates a very creative and useful exploratory research design. As a research design it worked well in that it achieved a balance of the needs and expectations of marketing decision-makers and respondents. Decision-makers helped to set clear research objectives based upon the gaps in their knowledge of the target market. Respondents related well to the issues posed to them, in a context and environment that was comfortable to them. An understanding of the fundamentals of research design, its components, and the trade-offs between the parties involved in making the design work, enabled the researchers to formulate the most appropriate design for the problem at hand.

Research design definition



Research design

A framework or blueprint for conducting the marketing research project. It specifies the details of the procedures necessary for obtaining the information needed to structure or solve marketing research problems.

A **research design** is a framework or blueprint for conducting a marketing research project. It details the procedures necessary for obtaining the information needed to structure or solve marketing research problems. Although a broad approach to the problem has already been developed, the research design specifies the details – the practical aspects – of implementing that approach. A research design lays the foundation for conducting the project. A good research design will ensure that the marketing research project is conducted effectively and efficiently. Typically, a research design involves the following components or tasks, which will be discussed in detail in various chapters:

- 1 Define the information needed (Chapter 2).
- 2 Decide whether the overall design is to be exploratory, descriptive or causal (Chapter 3).
- 3 Design the sequence of techniques of understanding and/or measurement (Chapters 4 to 12).
- 4 Construct and pretest an appropriate form for data collection or questionnaire (Chapters 7, 8 and 13).
- 5 Specify the qualitative and/or quantitative sampling process and sample size (Chapters 6, 14 and 15).
- 6 Develop a plan of qualitative and/or quantitative data analysis (Chapters 9 and 17).

In formulating a research design, the researcher has to balance the perspectives of marketing decision-makers and target respondents. From their education and experience, marketing decision-makers may have certain techniques that they believe to be the most effective and in which they subsequently have more confidence. There is no problem with this, providing the technique is the best means to measure or understand the issue under investigation, from the perspective of respondents. In the example at the start of this chapter, decision-makers had confidence in the qualitative techniques and the data generated. The techniques worked well with the respondents, drawing out a rich picture of respondent behaviour, lifestyle and aspirations. However, should the decision-makers feel that survey techniques are the most effective, giving them the most confidence to support their decisions, the researchers may face a dilemma. If they use survey techniques they may find that respondents may have a different relationship with interviewers, do not reflect in the same manner and ultimately do not reveal so much. Thus, research design involves the researchers developing an understanding of the type of data decision-makers have confidence in, plus an understanding of how respondents may respond to different techniques. The first part of this balancing act involves understanding research design from the decision-makers' perspective; the second part involves understanding the respondents' perspective.

Research design from the decision-makers' perspective



Marketing decision-makers seek support from marketing researchers that is of practical relevance to the decisions they face. To give practical support, decision-makers expect information that is:

- *Accurate*, i.e. the most valid representation of the phenomena under investigation, that has come from the most reliable or consistent form of measurement or understanding, that is sufficiently sensitive to the important differences in individuals being measured or understood. Combining these three criteria refers to the degree to which information may be deemed as 'accurate'.
- *Current*, i.e. as up to date as possible. This is particularly important where consumer attitudes, lifestyle or behaviour change rapidly, perhaps due to rapid technology changes or new product offerings in a highly competitive market.
- *Sufficient*, i.e. the completeness or clarity of a 'picture' that reflects the characteristics of the marketing problem the decision-makers face.
- *Available*, i.e. that access to the relevant information can be made when a decision is imminent. This is particularly important where competitive activity forces the decision-maker into making a rapid response.
- *Relevant*, i.e. that the support given 'makes sense' to decision-makers. In very general terms, decision-makers may criticise qualitative techniques for being biased and unrepresentative and quantitative techniques for lacking depth and a holistic perspective. Ideally, whichever technique is adopted, decision-makers should be aware of the benefits, limitations and even alternatives. With this awareness they can use the findings with confidence to build upon their existing experiences and knowledge.

Generating information that fulfils all the above characteristics is extremely difficult, if not impossible to achieve in marketing research. The evaluation of sources of error, presented later in this chapter, and the restrictions of budget and timescales mean that this list represents 'ideals'. Realistically, trade-offs must be made among the above characteristics. Within the first characteristic of accuracy there are further trade-offs which are primarily caused by what the marketing researcher is attempting to measure or understand:²

- 1 The subject of investigation is usually human.
- 2 The process of measuring or observing humans may cause them to change.
- 3 It is difficult to assess the effect of extraneous variables in marketing experiments and thus their applications are limited.

Given the complexity of the subjects under study, the context or environment in which measurements are taken, and the skills required to perform and interpret measurements, it is difficult (if not impossible) to gain completely objective and accurate measurements. Of all the potential trade-offs, if one were to remove *relevance* then the whole rationale of supporting the marketing decision-maker would be removed. Therefore this characteristic can never be compromised.

Relevance embraces, *inter alia*, the ability to plan and forecast from research findings, to be able to distinguish real differences in consumer traits, and to know that characteristics are representative of groups of individuals. With relevant information such as this, the decision-maker can build up a stronger understanding or awareness of markets and the forces that shape them. In building up this understanding, the decision-maker cannot turn to a single technique or even body of techniques that may be deemed 'ideal' in ensuring that information is relevant. In different types of decision-making scenarios, different techniques will offer the best support for that decision-maker. Establishing the best form of support is the essence of research design.

A fundamental starting point in deciding an appropriate design is viewing the process from the point of view of the potential subject or respondent to a marketing research study.

Research design from the respondents' perspective



The potential respondents to any marketing research investigation play a vital role in deciding which research design will actually work in practice. A subject of study may be complex and need time for respondents to reflect upon and put words to the questions posed. Certain methods are more likely to build up a rapport and trust, in these circumstances putting the respondents in the right frame of mind, and getting them to respond in a full and honest manner. Figure 3.1 is a framework that serves to remind how respondents may be accessed, and what kinds of response may be generated.³

In Figure 3.1 the box under the heading 'Layers of response from respondents' represents how respondents may react to questions posed to them. In the first layer of 'Spontaneous, Reasoned, Conventional' are questions that respondents can express a view about quickly, and that are simple for them to reflect upon, relating to common everyday occurrences that are at the forefront of their minds. In such circumstances, simple struc-

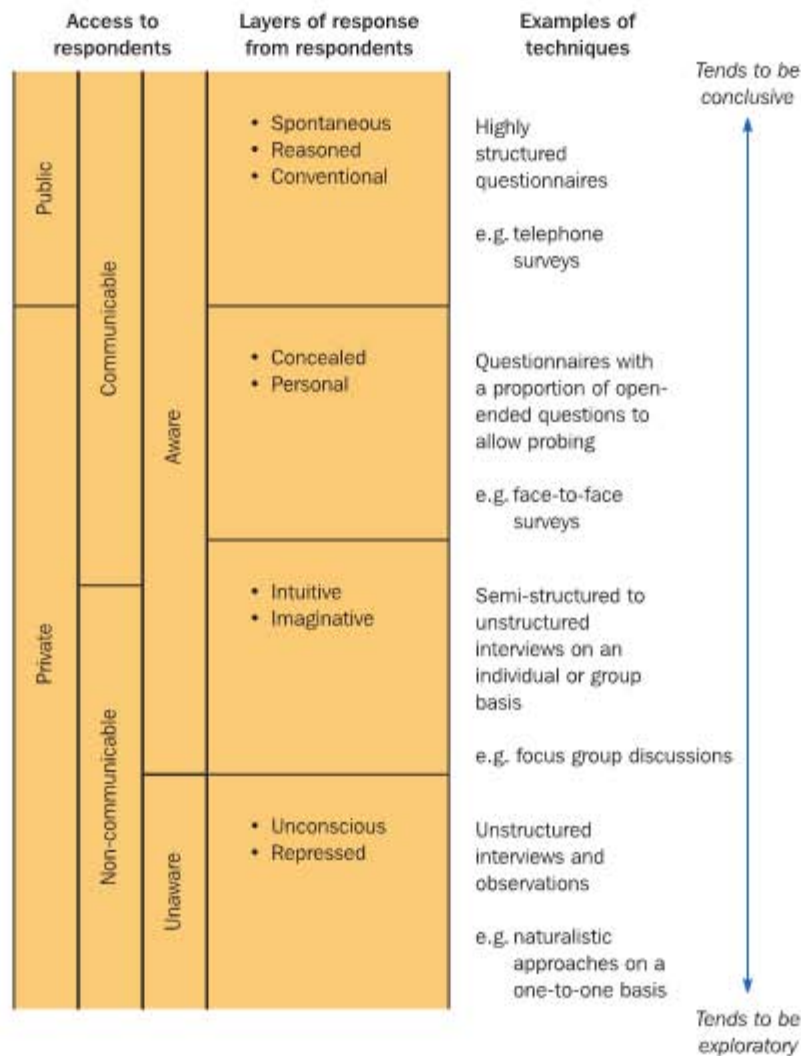


Figure 3.1
Responses to interviewing

structured questioning (or self-reporting) in a standardised manner is possible. Further, the same procedure can be conducted in a consistent manner to a whole array of 'types' of respondent such as age groups, social class and intellectual levels. For example, if questions were posed on which newspapers someone reads, it is a reasonable assumption that respondents are aware of the title(s), the title(s) can be communicated and the topic is not a sensitive issue. In these circumstances, where answers to questions on reading habits are relatively easy to access and respond to, highly structured questionnaires are appropriate. Clearly, in such situations, quantitative techniques are applicable that allow very detailed descriptions or experiments to be made.

Progressing down Figure 3.1, at the second level are questions that are more personal and more sensitive. There are two characteristics that can turn otherwise mundane topics into sensitive ones.⁴ The first involves any private, sacred or stressful aspect of a respondent's life. The second is the real or perceived stigma associated with specific thoughts or actions. A great amount of business-to-business research can be added to these in terms of commercially sensitive information. Again, structured questionnaires can measure the relevant issues but an amount of rapport may be needed to induce respondents to trust the interviewer and reveal their 'more personal' attitudes and behaviour. Where the presence of the interviewer causes discomfort or bias, the method of audio-computer-assisted-self-interviewing may be used.⁵ This technique combines the higher response rates of personal interviews with the privacy of self-administered questionnaires.

At the third level are questions that require respondents to be creative. For example, if respondents were to be asked about their attitudes and behaviour towards eating yogurt, this could be done in a very structured manner. Questions could be set to determine when it was eaten, favourite flavours and brands, where it was bought, how much was spent, etc. The same can be said of alcohol consumption, though this could well be a sensitive issue for many respondents. Now imagine a new product idea that mixes yogurt and alcohol. What combinations of alcohol and yogurt would work, and what types of consumer would be attracted to them? Would they be a dessert liqueur such as Baileys Irish Cream or frozen yogurt to compete with the Häagen Dazs luxury ice creams? Would champagne, advocaat, whisky or beer be the best alcoholic ingredient? Should any fruits be added? Individually? Forest fruits? Tropical fruits? How would the product be packaged? What name would best suit it? What price level would it sell at? On what occasions would it be consumed?

Answering these questions demands a great amount of creativity and imagination. It demands that respondents reflect upon ideas, can play with ideas and words and dig deep to draw out ideas in a relaxed manner. Structured questionnaires cannot do this; such a scenario would work best with the use of focus groups.

At the fourth level may be questions that respondents may not be able to conceptualise, never mind be willing to express what they feel about a particular issue. Consumers may absorb masses of marketing related stimuli, react to them and 'intend' to behave without really knowing why or even being aware of the true drivers of their intentions or behaviour.⁶ An example may be trying to understand the childhood influences of family and friends on an individual's perception and loyalty to brands of washing-up liquid. Another example may be understanding the image consumers have of themselves and an image they wish to portray by spending €20,000 on a Rolex wristwatch. Respondents do not normally have to think through such issues or articulate them, until a marketing researcher comes along!

There is an implicit assumption in research that people carry attitudes around in their head that determine their buying behaviour. Most of the time, we don't give much thought to the burger we've eaten or even the flight we've made. Our natural inclination is to be polite and cooperative. If a researcher asks us to give an opinion we will do our best to formulate one on the spot.⁷



Source: © Alamy

In circumstances where the marketing researcher is digging deep into topics that respondents do not normally think about or articulate, polite responses to questions may be very misleading. The characteristics of the individual respondent may determine what is the best way to probe and elicit appropriate responses. Nothing is standardised or consistent in these circumstances, the researchers having to shape the questions, probes and observations as they see fit in each interview.

As well as understanding how respondents may react to particular issues, researchers should also understand how the context or environment

may affect respondents. The following example sets out aspects about the meaning of 'context' when conducting interviews. Sarah Brown, a senior marketing research executive, reveals a variety of methods that help to create an environment that allows respondents to feel and think naturally.

Example Keeping it real⁸

One of the most frequent criticisms of focus groups and depth interviews is that they are conducted in artificial environments, placing respondents in synthetic situations and drawing out unnatural responses.

Home turf

To understand specialised subpopulations, e.g. video gamers, horse lovers, or jobseekers, it is vital to reach people in the context of their specialisation. Researchers should visit the places where people live this part of their identity; read their newsletters; visit their chat rooms; and attend their conventions. Talk to those who deal with the subpopulation on a regular basis. To understand students, interview teachers; to understand drivers, talk to traffic police; and so on.

Object poverty

Objects or pictures from daily life are powerful stimulants for emotions and memories and can trigger respondents to recall their behaviour with greater clarity. Sometimes how we think we behave differs from how we really behave, and working with objects helps to keep respondents grounded and personally engaged.

Act natural

On-location groups or depth interviews, whether in a store, respondents' homes, or another 'real' location in which the behaviour of interest takes place, are an effective way to keep respondents relaxed, lively and as natural as possible.

Networking

This is often used to research young people to reflect their highly social character. Respondents work in pairs and act as consultants, interviewing members of their friendship peer group. Researchers thereby understand both the individual and the individual in his or her social context, accessing the views and behaviours of a range of people through a single respondent.

Figure 3.2
Understanding respondents – to help choose optimum research techniques



As a further example, return to the first level of Figure 3.1, where respondents may be more relaxed and feel in control if they can answer the set questions about their newspaper reading habits on the Internet rather than on the street. In the example at the start of this chapter that explored the hopes and dreams of ‘emergent drinkers’, techniques were used at the third and fourth levels of Figure 3.1. The context of the interviews was in ‘leading-edge bars’. This context could have helped the target respondents to relax, to develop a better rapport with interviewers and other respondents, and to think more about the issues and express their feelings more clearly. If the interviews were conducted over the Internet, the same levels of relaxation and rapport would not work. If the interviews were targeted at older respondents, they would have felt very self-conscious in ‘leading-edge bars’, which may restrict their responses. Researchers therefore must understand characteristics of respondents, how they react to particular issues and how they react in different contexts or environments. These factors are illustrated in Figure 3.2, which acts as a reminder of the understanding of respondents that researchers must develop, in order to choose and apply the best research technique.

Research design classification

Exploratory research

A research design characterised by a flexible and evolving approach to understand marketing phenomena that are inherently difficult to measure.

Conclusive research

A research design characterised by the measurement of clearly defined marketing phenomena.

Research designs may be broadly classified as exploratory or conclusive (see Figure 3.3). The differences between **exploratory research** and **conclusive research** are summarised in Table 3.1.

The primary objective of exploratory research is to provide insights into and an understanding of marketing phenomena.⁹ It is used in instances where the subject of the study cannot be measured in a quantitative manner or where the process of measurement cannot realistically represent particular qualities. For example, if a researcher was trying to understand what ‘atmosphere’ meant in a restaurant, exploratory research may help to establish all the appropriate variables and how they connected together. What role did music play? What type of music? How loud? What types of furniture? What colours and textures? What types of lighting? What architectural features? This list could go on to consider what ‘atmosphere’ may mean in the context of a restaurant experience for particular types of consumer. ‘Atmosphere’ may not be measurable from the respondent’s perspective. From the perspective of the creative director in an advertising agency, quantitative measurements of the individual components of ‘atmosphere’ may not create the holistic feel of a restaurant in a manner the creative director can relate to.

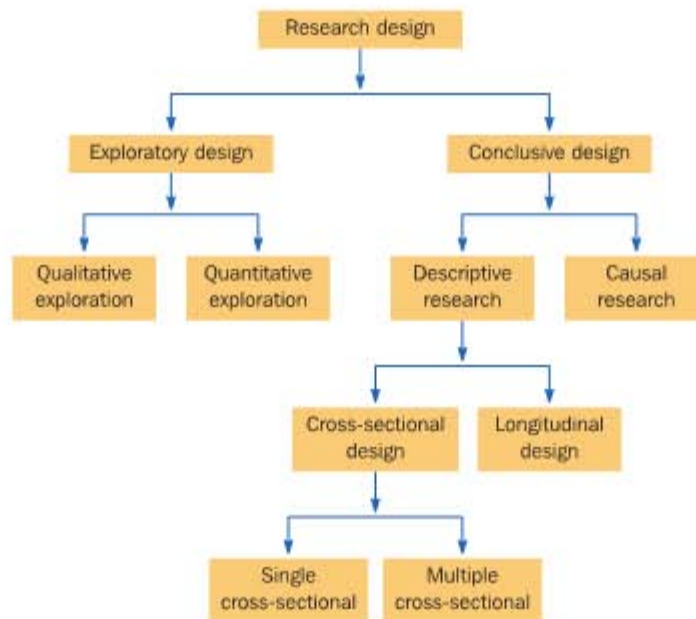


Figure 3.3
A classification of marketing research designs

Table 3.1 Differences between exploratory and conclusive research

	Exploratory	Conclusive
Objectives	To provide insights and understanding of the nature of marketing phenomena To understand	To test specific hypotheses and examine relationships To measure
Characteristics	Information needed may be loosely defined Research process is flexible, unstructured and may evolve Samples are small Data analysis can be qualitative or quantitative	Information needed is clearly defined Research process is formal and structured Sample is large and aims to be representative Data analysis is quantitative
Findings/results	Can be used in their own right May feed into conclusive research May illuminate specific conclusive findings	Can be used in their own right May feed into exploratory research May set a context to exploratory findings
Methods	Expert surveys Pilot surveys Secondary data Qualitative interviews Unstructured observations Quantitative exploratory multivariate methods	Surveys Secondary data Databases Panels Structured observations Experiments

Exploratory research may also be used in cases where you must define the problem more precisely, identify relevant courses of action, or gain additional insights before going on to confirm findings using a conclusive design. The following example of researching computer games players illustrates the connection between exploratory and conclusive designs.

Example Greedy Gamers¹⁰

Future Publishing, a leading computer games magazine publisher, wanted to identify the role that the specialist games press plays within the gaming community. In particular, it was interested in the extent to which games magazines can both influence the decision-making process for games purchases and generate positive word-of-mouth recommendations. Future asked Continental Research to conduct the research. Qualitative research was initially conducted with active gamers. It quickly became clear that gaming is a very competitive activity for some, and it was therefore important to understand the difference between reported gaming activity and success, and reality. For example, there was talk of dusk-till-dawn gaming sessions; of the 'friend' who could complete four games within one day; and the teenager whose mum had to write him a sick note because his thumbs ached and his vision went blurry after a heavy gaming session! The key role of the qualitative research in all of this was to identify different gaming typologies in terms of not only their gaming activity, but also their communication role in the gaming fraternity.

For example: Greedy Gamers eat and breathe gaming (some of them quite literally, as they would eat while playing a game one-handed). For them, it was a key topic of conversation with everyone that they came into contact with.

Once different typologies had been identified, Continental was able to hypothesise about the likelihood of communication between different types of gamers. For the quantitative research stage of the project, Continental spoke to a representative sample of active gamers aged between 10 and 35. Continental's Grapevine matrix analysis tool enabled it to use the typologies in its questionnaire. The matrix identified the extent to which readers of the gaming press (whether exposed to adverts, reviews, previews or demo discs) were transmitting knowledge to other gamers.

The research findings gave publishers and editors a greater insight into their readers and core target market. It was also of great use to advertising sales, providing a better understanding of how advertising within Future's magazines works.

In this example, the information needed was loosely defined at an exploratory stage, using research questions rather than specific hypotheses or actual measurements. The research process that was initially adopted can be characterised as flexible, loosely structured and, in some circumstances, evolutionary in nature.

In an example of a flexible, loosely structured and evolutionary approach, consider conducting personal interviews with industry experts. The sample, selected to generate maximum insight, is small and non-representative. However, the emphasis in the sampling procedure is focused upon 'quality' individuals who are willing to open up, use their imagination, be creative and reveal perhaps sensitive thoughts and behaviour. 'Quality' also may emerge from their level of expertise; for example, there may only be a small population of chief executives in airline companies in Europe. If a small sample of, say, six chief executives from the largest and fastest developing airlines allowed access to a marketing researcher and revealed their attitudes and behaviour, insights may be gained that no conclusive study could achieve. By being flexible in the issues to discuss, loosely structured in how probes and additional issues emerge, and evolutionary in the nature of who to talk to and the best context in which to gain their confidence and get them to express what they really feel, an exploratory design can be very beneficial.

There is an exception to exploratory designs being built around qualitative techniques. There are examples of quantitative findings being used for exploratory purposes. For example, within a survey that examines specific research questions and hypotheses lies the opportunity to examine additional connections between questions that had not been initially considered. Simple correlations through to multivariate techniques that explore potential connections between questions may be conducted; this process is known as data mining (examined in more detail in Chapter 5). In essence, data mining searches for significant connections or patterns in a dataset that a researcher or decision-maker may be unaware of.

To summarise, exploratory research is meaningful in any situation where the researcher does not have enough understanding to proceed with the research project. Exploratory research is characterised by flexibility and versatility with respect to the methods, because formal research protocols and procedures are not employed. It rarely involves structured questionnaires, large samples and probability sampling plans. Rather, researchers are alert to new ideas and insights as they proceed. Once a new idea or insight is discovered, they may redirect their exploration in that direction. That new direction is pursued until its possibilities are exhausted or another direction is found. For this reason, the focus of the investigation may shift constantly as new insights are discovered. Thus, the creativity and ingenuity of the researcher play a major role in exploratory research. Exploratory research can be used for any of the purposes listed in Table 3.2.

Table 3.2 A summary of the uses of exploratory research designs

1	To obtain some background information where absolutely nothing is known about the problem area
2	To define problem areas fully and to formulate hypotheses for further investigation and/or quantification
3	To identify and explore concepts in the development of new product or forms of marketing communications
4	During a preliminary screening process such as in new product development, in order to reduce a large number of possible projects to a smaller number of probable ones
5	To identify relevant or salient behaviour patterns, beliefs, opinions, attitudes, motivations, etc., and to develop structures of these constructs
6	To develop an understanding of the structure of beliefs and attitudes in order to aid the interpretation of data structures in multivariate data analyses
7	To explore the reasons that lie behind the statistical differences between groups that may emerge from secondary data or surveys
8	To explore sensitive or personally embarrassing issues from the respondents' and/or the interviewer's perspective
9	To explore issues that respondents may hold deeply, that are difficult for them to rationalise and that they may find difficult to articulate
10	To 'data-mine' or explore quantitative data to reveal hitherto unknown connections between different measured variables

The objective of conclusive research is to describe specific phenomena, to test specific hypotheses and to examine specific relationships. This requires that the information needed is clearly specified.¹¹ Conclusive research is typically more formal and structured than exploratory research. It is based on large, representative samples, and the data obtained are subjected to quantitative analysis. Conclusive research can be used for any of the purposes listed in Table 3.3.

As shown in Figure 3.3, conclusive research designs may be either descriptive or causal, and descriptive research designs may be either cross-sectional or longitudinal. Each of these classifications is discussed further, beginning with descriptive research.

Table 3.3 A summary of the uses of conclusive research designs

- 1 To describe the characteristics of relevant groups, such as consumers, salespeople, organisations, or market areas
- 2 To estimate the percentage in a specified population exhibiting a certain form of behaviour
- 3 To count the frequency of events, especially in the patterns of consumer behaviour
- 4 To measure marketing phenomena to represent larger populations or target markets
- 5 To be able to integrate findings from different sources in a consistent manner, especially in the use of marketing information systems and decision support systems
- 6 To determine the perceptions of product or service characteristics
- 7 To compare findings over time that allow changes in the phenomena to be measured
- 8 To measure marketing phenomena in a consistent and universal manner
- 9 To determine the degree to which marketing variables are associated
- 10 To make specific predictions

Descriptive research

Descriptive research

A type of conclusive research that has as its major objective the description of something, usually market characteristics or functions.

As the name implies, the major objective of **descriptive research** is to describe something, usually market characteristics or functions.¹² A major difference between exploratory and descriptive research is that descriptive research is characterised by the prior formulation of specific research questions and hypotheses. Thus, the information needed is clearly defined. As a result, descriptive research is preplanned and structured. It is typically based on large representative samples. The following example illustrates the use of descriptive research in an image study that determines consumer perceptions of Flora and its products.

Focus on

Sports Marketing Surveys

Flora London Marathon 2004

Flora has sponsored the London Marathon (<http://www.london-marathon.co.uk/>) for a number of years. Flora wished to evaluate the impact of its sponsorship investment and employed Sports Marketing Surveys to measure the impact of Flora's brand on TV, evaluating the nature of the Marathon TV audience and the exposure of its brand to this audience. In conjunction with this work, Flora wished to measure characteristics of its image. In order to measure this image Sports Marketing Surveys conducted 225 interviews with 18–70 year olds, immediately after the Marathon. These interviews were conducted on a face-to-face basis in the homes of respondents, allowing their interviewers to present visual prompts.

A descriptive research design specifies the methods for selecting the sources of information and for collecting data from those sources.

Examples of descriptive studies in marketing research are as follows:

- Market studies describing the size of the market, buying power of the consumers, availability of distributors, and consumer profiles.
- Market share studies determining the proportion of total sales received by a company and its competitors.
- Sales analysis studies describing sales by geographic region, product line, type of account and size of account.
- Image studies determining consumer perceptions of the firm and its products.

- Product usage studies describing consumption patterns.
- Distribution studies determining traffic flow patterns and the number and location of distributors.
- Pricing studies describing the range and frequency of price changes and probable consumer response to proposed price changes.
- Advertising studies describing media consumption habits and audience profiles for specific TV programmes and magazines.

Cross-sectional design

A type of research design involving the collection of information from any given sample of population elements only once.

Single cross-sectional design

A cross-sectional design in which one sample of respondents is drawn from the target population and information is obtained from this sample once.

Multiple cross-sectional design

A cross-sectional design in which there are two or more samples of respondents, and information from each sample is obtained only once.

These examples demonstrate the range and diversity of descriptive research studies. Descriptive research can be further classified into cross-sectional and longitudinal research (Figure 3.3).

Cross-sectional designs

The cross-sectional study is the most frequently used descriptive design in marketing research. **Cross-sectional designs** involve the collection of information from any given sample of population elements only once. They may be either single cross-sectional or multiple cross-sectional (Figure 3.3). In **single cross-sectional designs**, only one sample of respondents is drawn from the target population, and information is obtained from this sample only once. These designs are also called sample survey research designs. In **multiple cross-sectional designs**, there are two or more samples of respondents, and information from each sample is obtained only once. Often, information from different samples is obtained at different times. The following examples illustrate single and multiple cross-sectional designs respectively.

Example

Designing coupons from cross-sections¹³

A cross-sectional study based on a single survey was conducted to determine the effectiveness of sales promotion coupons in stimulating sales, as well as to assess coupon user and non-user profiles. The data were collected from 8,000 households. The results showed that 31% of all coupon-redeeming households accounted for 72% of all redemptions. Demographically, heavy coupon redeemers were large households with children and annual incomes exceeding €30,000, with female heads of household aged 35–54 who worked part-time. Light users of coupons were smaller households with female heads who were younger and worked full-time. Such information was useful to consumer products firms like Procter & Gamble that rely heavily on coupon promotion, as it enabled the company to target its promotions to heavy coupon redeemers.

Example

Chase and Grabbits multiply like rabbits¹⁴

Eating behaviour trends were examined in a marketing research project commissioned by the Pillsbury Company. This project involved data from food diaries collected over three time waves. Each wave had a different sample of 1,000 households for a total sample size of 3,000 in the multiple cross-sectional design. Based on an analysis of eating patterns, the market was divided into five segments: Chase and Grabbits, Functional Feeders, Down Home Stokers, Careful Cooks and Happy Cookers. The changes in composition of these segments were examined over time. For example, the Chase and Grabbits experienced the biggest increase over the 15-year period (+136%). Currently, this group represents 26% of the total sample. The group's desire for more convenience also increased over time. Says one Chase and Grabbit, 'Someday all you'll have to do is take a pill and it'll give you everything you need.' This information enabled the Pillsbury Company to target different products for different segments. For example, the Chase and Grabbit segment represented a prime segment for prepared foods and TV dinners.

The survey of coupon use, a single cross-sectional design, involved only one group of respondents who provided information only once. On the other hand, the Pillsbury study involved three different samples, each measured only once, with the measures obtained five years apart. Hence, the latter study illustrates a multiple cross-sectional design. A type of multiple cross-sectional design of special interest is cohort analysis.

Cohort analysis

A multiple cross-sectional design consisting of surveys conducted at appropriate time intervals. The cohort refers to the group of respondents who experience the same event within the same interval.

Cohort analysis consists of a series of surveys conducted at appropriate time intervals, where the cohort serves as the basic unit of analysis. A cohort is a group of respondents who experience the same event within the same time interval.¹⁵ For example, a birth (or age) cohort is a group of people who were born during the same time interval, such as 1951–1960. The term ‘cohort analysis’ refers to any study in which there are measures of some characteristics of one or more cohorts at two or more points in time.

It is unlikely that any of the individuals studied at time 1 will also be in the sample at time 2. For example, the age cohort of people between 8 and 19 years was selected, and their soft drink consumption was examined every 10 years for 30 years. In other words, every 10 years a different sample of respondents was drawn from the population of those who were then between 8 and 19 years old. This sample was drawn independently of any previous sample drawn in this study from the population of 8 to 19 years. Obviously, people who were selected once were unlikely to be included again in the same age cohort (8 to 19 years), as these people would be much older at the time of subsequent sampling. This study showed that this cohort had increased consumption of soft drinks over time. Similar findings were obtained for other age cohorts (20–29, 30–39, 40–49, and 50+). Further, the consumption of each cohort did not decrease as the cohort aged. These results are presented in Table 3.4 in which the consumption of the various age cohorts over time can be determined by reading down the diagonal. These findings contradict the common belief that the consumption of soft drinks will decline with the greying of Western economies. This common but erroneous belief has been based on single cross-sectional studies. Note that if any column of Table 3.4 is viewed in isolation (as a single cross-sectional study) the consumption of soft drinks declines with age, thus fostering the erroneous belief.¹⁶

Table 3.4 Consumption of soft drinks by various age cohorts (percentage consuming on a typical day)

Age	1950	1960	1970	1980	
8–19	53	63	73	81	
20–29	45	61	76	76	C8
30–39	34	47	68	71	C7
40–49	23	41	59	68	C6
50+	18	29	50	52	C5
		C1	C2	C3	C4
C1: cohort born prior to 1900 C2: cohort born 1901–1910 C3: cohort born 1911–1920		C4: cohort born 1921–1930 C5: cohort born 1931–1940 C6: cohort born 1941–1950		C7: cohort born 1951–1960 C8: cohort born 1961–1970.	

Cohort analysis is also used to predict changes in voter opinions during a political campaign. Well-known marketing researchers such as MORI or Gallup, who specialise in political opinion research, periodically question cohorts of voters (people with similar voting patterns during a given interval) about their voting preferences to predict election results. Thus, cohort analysis is an important cross-sectional design. The other type of descriptive design is longitudinal design.

Longitudinal design

A type of research design involving a fixed sample of population elements measured repeatedly. The sample remains the same over time, thus providing a series of pictures that, when viewed together, vividly illustrate the situation and the changes that are taking place.

Longitudinal designs

In **longitudinal designs**, a fixed sample (or samples) of population elements is measured repeatedly as in the following example at Ford motors.

Scores impact on margins at Ford¹⁷

Apart from ad hoc marketing research projects and new product development studies, Ford also runs a number of big continuous studies which are mainly company performance related. One major study measures the effectiveness of its distribution channels. Ford measures customer satisfaction in every Ford dealership in 19 European markets, in terms of both sales and after-sales performance. This covers over 5,000 dealers. Ford produces a monthly report for every dealer and it is available on a website showing the action plans that have been developed with Ford staff to remedy any problems. There is an added incentive that performance scores are keyed in on a quarterly basis, to dealer margins. It's a popular motivational tool and it works. With the help of this longitudinal study, the strength and performance of Ford's dealer network in Europe provides the company with a significant competitive advantage.

Example

A longitudinal design differs from a cross-sectional design in that the sample or samples remain the same over time. In other words, the same people are studied over time. In contrast to the typical cross-sectional design, which gives a snapshot of the variables of interest at a single point in time, a longitudinal study provides a series of 'pictures'. These 'pictures' give an in-depth view of the situation and the changes that take place over time. For example, the question 'how did the German people rate the performance of Chancellor Helmut Kohl immediately after unification of West and East Germany?' would be addressed using a cross-sectional design. A longitudinal design, however, would be used to address the question 'how did the German people change their view of Kohl's performance during his term of office?'

Panel

A sample of respondents who have agreed to provide information at specified intervals over an extended period.

Often, the term **panel** is used interchangeably with the term 'longitudinal design'. A panel consists of a sample of respondents, generally households, who have agreed to provide general or specific information at set intervals over an extended period. The emphasis of the panel is on measuring facts, e.g. who in the household bought what, where they bought it, when, and other aspects of their behaviour. Panels are really only established when observations or measurements over an extended period are meaningful. The observations are usually gathered through questionnaires such as purchase diaries or electronically, e.g. by scanning purchasing. Panels are maintained by syndicated firms, and panel members are compensated for their participation with gifts, coupons, information or cash.¹⁸

Access panel

A general 'pool' of individuals or households who have agreed to be available for surveys of widely varying types and topics.

Access panels are made up of a 'pool' of individuals or households who have agreed to be available for surveys of widely varying types and topics.¹⁹ They are used to provide information for ad hoc decisions rather than for longitudinal studies, a typical use being for new product testing. A pre-recruited panel that is willing to participate makes it easier to set up the test and conduct interviews after the test. Access panels are also used to test concepts, advertising and pricing decisions.

Online consumer access panels are becoming increasingly more prevalent in marketing research. Rising rates of non-response or refusal to take part in telephone or personal interviews (to be discussed in Chapters 10 and 13) make it more difficult to recruit for a single survey. This increases the attractiveness of representative and motivated panels of pre-recruited respondents. Using the Internet enables international surveys to be conducted at relatively low cost and short time frames, adding to the attractiveness of the technique.

Data obtained from panels may provide information on market shares that are based on an extended period of time. Such data may also allow the researcher to examine changes in market share over time.²⁰

Relative advantages and disadvantages of longitudinal and cross-sectional designs

The relative advantages and disadvantages of longitudinal versus cross-sectional designs are summarised in Table 3.5. A major advantage of longitudinal design over cross-sectional design is the ability to detect change as a result of repeated measurement of the same variables on the same sample.

Table 3.5 Relative advantages and disadvantages of longitudinal and cross-sectional designs

Evaluation criteria	Cross-sectional design	Longitudinal design
Detecting change	–	+
Large amount of data collection	–	+
Accuracy	–	+
Representative sampling	+	–
Response bias	+	–

Note: A + indicates a relative advantage over the other design, whereas a – indicates a relative disadvantage.

Tables 3.6 and 3.7 demonstrate how cross-sectional data can mislead researchers about changes over time. The cross-sectional data reported in Table 3.6 reveal that the purchases of Brands A, B and C remain the same in periods 1 and 2. In each survey, 20% of the respondents purchase Brand A, 30% Brand B and 50% Brand C. The longitudinal data presented in Table 3.7 show that substantial change, in the form of brand switching, occurred in the study period. For example, only 50% (100/200) of the respondents who purchased Brand A in period 1 also purchased it in period 2. The corresponding repeat purchase figures for Brands B and C are, respectively, 33.3% (100/300) and 55% (275/500). Hence, during this interval Brand C experienced the greatest loyalty and Brand B the least. Table 3.7 provides valuable information on brand loyalty and brand switching (such a table is called a turnover table or a brand-switching matrix).²¹

Longitudinal data enable researchers to examine changes in the behaviour of individual units and to link behavioural changes to marketing variables, such as changes in advertising, packaging, pricing and distribution. Since the same units are measured repeatedly, variations caused by changes in the sample are eliminated and even small variations become apparent.²²

Another advantage of panels is that relatively large amounts of data can be collected. Because panel members are usually compensated for their participation, they are willing to participate in lengthy and demanding interviews. Yet another advantage is that panel data can be more accurate than cross-sectional data.²³ A typical cross-sectional survey

Table 3.6 Cross-sectional data may not show change

Brand purchased	Time period	
	Period 1 survey	Period 2 survey
Total surveyed	1,000	1,000
Brand A	200	200
Brand B	300	300
Brand C	500	500

Table 3.7 Longitudinal data may show substantial change

Brand purchased in period 1	Brand purchased in period 2			
	Brand A	Brand B	Brand C	Total
Total surveyed	200	300	500	1,000
Brand A	100	50	50	200
Brand B	25	100	175	300
Brand C	75	150	275	500

requires the respondent to recall past purchases and behaviour; these data can be inaccurate because of memory lapses. Panel data, which rely on continuous recording of purchases in a diary, place less reliance on the respondent's memory. A comparison of panel and cross-sectional survey estimates of retail sales indicates that panel data give more accurate estimates.²⁴

The main disadvantage of panels is that they may not be representative. Non-representativeness may arise because of:

- 1 *Refusal to cooperate.* Many individuals or households do not wish to be bothered with the panel operation and refuse to participate. Consumer panels requiring members to keep a record of purchases have a cooperation rate of 60% or less.
- 2 *Mortality.* Panel members who agree to participate may subsequently drop out because they move away or lose interest. Mortality rates can be as high as 20% per year.²⁵
- 3 *Payment.* Payment may cause certain types of people to be attracted, making the group unrepresentative of the population.

Another disadvantage of panels is response bias. New panel members are often biased in their initial responses. They tend to increase the behaviour being measured, such as food purchasing. This bias decreases as the respondent overcomes the novelty of being on the panel, so it can be reduced by initially excluding the data of new members. Seasoned panel members may also give biased responses because they believe they are experts or they want to look good or give the 'right' answer. Bias also results from boredom, fatigue and incomplete diary entries.²⁶ The following example from the marketing research agency Taylor Nelson Sofres (TNS) illustrates how it copes with potential panel bias.

Example

Rubbish in, rubbish out²⁷

Arno Hummerston, Head of Interactive Solutions Worldwide at TNS Interactive (www.tnsinteractive.com), notes that companies like TNS spend a lot of money on recruiting respondents to online panels. 'If you start with rubbish you end up with rubbish.' As part of the ESOMAR Project Team on online panels, TNS has been looking at how to define a well-recruited panel. For TNS, a panel is recruited from multiple sources with the panellist's details verified. Arno argues that care must be taken to account for the differences between the type of people who take part in online panels and those who do not, to ensure that the panel is truly representative. TNS deals with this issue by running parallel studies to make sure that online panellists are responding in the same way online as they would offline. If a bias is found, the results are calibrated to account for it. In this respect, he argues, online is no different from any other form of research:

When we interpret the data, we take all the factors into account, in the same way that any decent research company should take into account the factors and biases they encounter in telephone or face-to-face research. If you only phone people during the day for example, that will have an effect on the type of person you are speaking to. So long as you can identify the bias, you can account for it.

Causal research



Causal research

A type of conclusive research where the major objective is to obtain evidence regarding cause-and-effect (causal) relationships.

Causal research is used to obtain evidence of cause-and-effect (causal) relationships. Marketing managers continually make decisions based on assumed causal relationships. These assumptions may not be justifiable, and the validity of the causal relationships should be examined via formal research.²⁸ For example, the common assumption that a decrease in price will lead to increased sales and market share does not hold in certain competitive environments. Causal research is appropriate for the following purposes:

- 1 To understand which variables are the cause (independent variables) and which variables are the effect (dependent variables) of marketing phenomena.
- 2 To determine the nature of the relationship between the causal variables and the effect to be predicted.
- 3 To test hypotheses.

Like descriptive research, causal research requires a planned and structured design. Although descriptive research can determine the degree of association between variables, it is not appropriate for examining causal relationships. Such an examination requires a causal design, in which the causal or independent variables are manipulated in a relatively controlled environment. Such an environment is one in which the other variables that may affect the dependent variable are controlled or checked as much as possible. The effect of this manipulation on one or more dependent variables is then measured to infer causality. The main method of causal research is experimentation.²⁹

Due to the complexity and importance of this subject, Chapter 11 has been devoted to causal designs and experimental research.

Relationships between exploratory, descriptive and causal research



We have described exploratory, descriptive and causal research as major classifications of research designs, but the distinctions among these classifications are not absolute. A given marketing research project may involve more than one type of research design and thus serve several purposes.³⁰ Which combination of research designs to employ depends on the nature of the problem. We offer the following general guidelines for choosing research designs.

- 1 When little is known about the problem situation, it is desirable to begin with exploratory research. Exploratory research is appropriate for the following:
 - a When the nature of the topic under study cannot be measured in a structured, quantifiable manner.
 - b When the problem needs to be defined more precisely.
 - c When alternative courses of action need to be identified.
 - d When research questions or hypotheses need to be developed.
 - e When key variables need to be isolated and classified as dependent or independent.
- 2 Exploratory research may be an initial step in a research design. It may be followed by descriptive or causal research. For example, hypotheses developed via exploratory research can be statistically tested using descriptive or causal research.
- 3 It is not necessary to begin every research design with exploratory research. It depends on the precision with which the problem has been defined and the researcher's degree of certainty about the approach to the problem. A research design could well begin with descriptive or causal research. To illustrate, a consumer satisfaction survey that is conducted annually need not begin with or include an exploratory phase.

- 4 Although exploratory research is generally the initial step, it need not be. Exploratory research may follow descriptive or causal research. For example, descriptive or causal research results in findings that are hard for managers to interpret. Exploratory research may provide more insights to help understand these findings.

The relationships between exploratory, descriptive and causal research are further illustrated by the following example. The example starts with a description of the environmental context of a marketing problem, shows the related marketing decision problem and the related marketing research problem, and then evaluates potential research designs that could work.

Example

How would you like your alligator cooked, madam?

Environmental context

Supermarket X has seen a continual decline in the sales of beef over the past five years. Over this period, a number of factors have emerged which collectively may have eroded consumers' confidence in the product and changed their attitudes and behaviour. The factors may be summarised as follows:

- *Animal health scares* related to diseases in cattle throughout Europe, including BSE and foot-and-mouth disease.
- *Health awareness* in terms of relationship between diet, nutrition and health has become a topic that is more widely debated – especially the role and benefits of red meats.
- The *organic food* movement has significantly grown over this period, raising awareness in consumers of food production and what they deem to be 'quality' food.
- *Animal welfare*, in terms of how animals are treated on farms, on their journey to the abattoir and in the slaughter process, has become a topic that is more widely debated.

Marketing decision problem and related marketing research problem

The marketing decision-makers in Supermarket X could perceive these issues as threats or opportunities and react in a number of ways. The following are two examples of a multitude of directions they could choose. The **marketing decision problem** could be '*should a new product be introduced?*', i.e. beef is in decline, therefore determine which product is felt to be the 'replacement', setting a **marketing research problem** of '*to determine consumer preferences and purchase intentions for the proposed new product*'. The **marketing decision problem** could alternatively be '*should the advertising campaign be changed to allay consumer fears?*', i.e. having a belief that 'ex-consumers' of beef can be tempted back, if only the negative connotations related to the product are addressed, setting a **marketing research problem** of '*to understand the nature of consumer fears and to test the impact of various advertising formats in terms of changing consumer attitudes*'.

Research design

The marketing research problem '*to determine consumer preferences and purchase intentions for the proposed new product*' could be tackled with a descriptive research design, further classified as a cross-sectional design. The second description of a marketing research problem, '*to understand the nature of consumer fears and to test the impact of various advertising formats in terms of changing consumer attitudes*', has two components, so it may have a more complex research design. The first component, to understand the nature of fears and ways of overcoming those fears, could be tackled with an exploratory research design. This could be followed by a causal research design where the impacts of different advertising formats are tested out.

The implication of the above connections between a marketing research problem and a research design may be that there is a simple, single design that will answer all the questions that the decision-maker faces; this is not always the case. There may be a number of

research techniques that need to run simultaneously or cannot be effectively applied unless other techniques precede or succeed them. As one learns of the nature of different research techniques and their benefits and limitations, it becomes clear that techniques can connect together. By combining different research techniques, greater power in understanding and measuring consumers may be achieved, ultimately giving greater support to decision-makers.

The following research design illustrates this point by pulling together a number of research techniques to create a research design (Figure 3.4). This design should not be seen as the 'ideal' solution; it is but one of many research designs that could be used to tackle the marketing research problem.

The research design starts with **internally generated secondary data** where, depending upon how data have been collected and stored, a huge array of issues could be examined. For example, sales trends of beef could be analysed to determine whether there are differences in the decline based upon beef cuts, e.g. minced beef vs. steaks, or geography, e.g. sales patterns in different stores. If different sales promotions have been tried out, the correlations with increased sales could be examined. If different alternatives such as ostrich meat, kangaroo meat or even soya-based cuts have been sold, how have they performed?

In conjunction with this stage, the researcher could collect and analyse **externally generated secondary data**. Again, a huge array of issues could be examined. For example, production levels of different alternatives to beef could be examined, looking in detail at the levels of growth or decline in new products and established products and where these products come from. In this stage, statistics that set out the wider forces that shape the market can be quantified.

In conjunction with this stage, the researcher could collect and examine different forms of **intelligence** (covered in detail in Chapter 4). For example, the writings of economists, health experts and even chefs from leading newspapers and magazines all over the world could be evaluated. This source, being far more qualitative, may help in the interpretation of some of the analyses of internal and external secondary data. It may spark off new ideas of data to track down and new connections between data sources. Intelligence may help to locate experts who may have access to secondary data or be willing to talk in more detail.

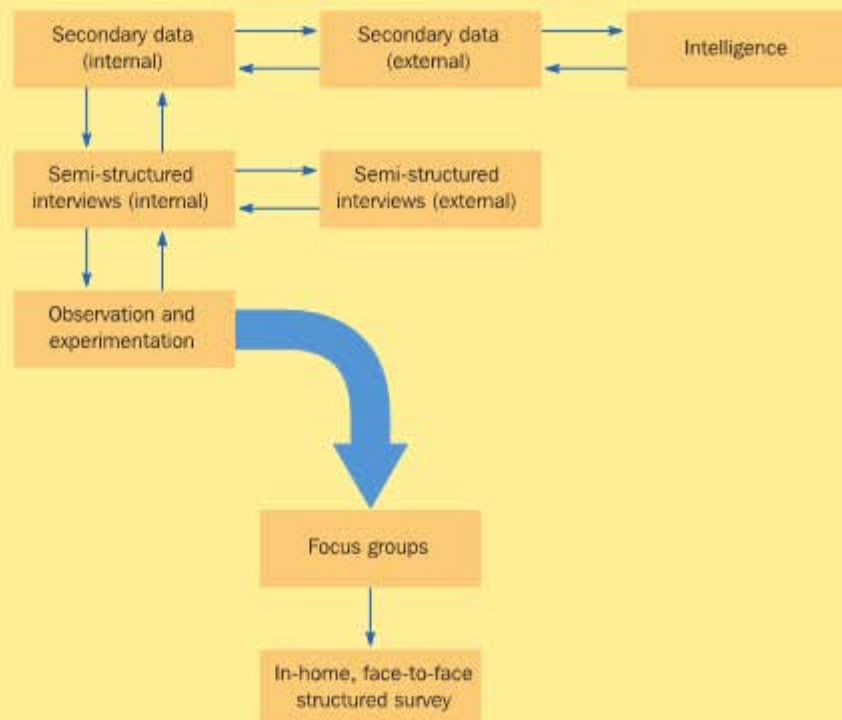


Figure 3.4 Should a new product be introduced to replace beef? – research design



With a very rich descriptive base of secondary data and intelligence, the researcher could conduct exploratory **semi-structured interviews** with managers within Supermarket X. These qualitative interviews could help to interpret many of the secondary data and intelligence analyses. They could help explain, for example, the reasons behind varying levels of success in advertising and sales promotion activities in regenerating beef sales. Why different alternatives were chosen and how they were promoted, positioned in the store and priced could be examined.

Concurrently, semi-structured interviews could be conducted with individuals who work outside Supermarket X and subsequently may be more difficult to gain access to. These interviews could be directed at experts with knowledge of health issues, culinary trends and lifestyle changes. Again, on a qualitative basis, the future of different alternatives to beef could be examined and the comparative benefits and limitations to beef evaluated. Ideas could be generated that could be discussed and developed in interviews with managers in Supermarket X, making the semi-structured interviews concurrent and interrelated in nature.

The exploratory stage of semi-structured interviewing could generate ideas about the nature of alternatives to beef, the types of consumer they should be targeted to and the ways in which these alternatives may be promoted. Having an array of stores, researchers could set up an **experiment** to try to establish what may be influencing purchases of beef and alternatives. If consumers using the supermarket have loyalty or store cards, an **observation** of their patterns of purchase may also be made.

Having established an understanding of the variables that may affect the choice of beef and alternatives, the researcher may seek a more in-depth understanding of the most significant variables. By setting up **focus groups** with representatives from, for example, young single persons, single parents, young families and elderly couples, chosen issues can be explored in a most creative manner. Discussion may ensue, recipes can be tasted, packages and forms of promotions can be commented upon, all resulting in a much stronger understanding of consumer preferences and purchase intentions for the proposed new product.

Finally, the researcher may wish to test out the ideas developed from the focus groups in a conclusive manner. A **face-to-face survey** may be conducted in target respondents' homes, using laptops to conduct the interviews, recording the responses but also showing video and audio recordings that may help to convey the nature and style of beef alternatives. By this stage the researcher would have a very clear understanding of the issues that are relevant to the marketing decision-makers and to the target respondents and ultimate consumers. Conclusive data that determine consumer preferences and purchase intentions for the proposed new product would be established.

This example can be criticised for taking too long to undertake, being too expensive and perhaps applying too many techniques that do not offer sufficient additional understanding. Such criticism cannot really be addressed without knowing the value that decision-makers may get from this decision support, compared with how much they would have to pay for it. For this illustration it does not matter, in that the intention was to show that different research techniques can support each other and can work concurrently. Decision-makers can receive interim reports and feed back their ideas to give more focus to the issues and types of respondent in subsequent stages. The example also illustrates that researchers can be very creative in their choice of techniques that combine to make up a research design.

Given that the design presented uses techniques that could be termed exploratory, descriptive and causal, the question this raises is 'how may we describe the overall research design?' The final research technique used was **conclusive, descriptive and single cross-sectional**, and this encapsulates the overall design. In deciding what encapsulates the overall research design, one examines the ultimate aim of an investigation, and in this case it was to describe in a conclusive manner.

Potential sources of error in research designs



Several potential sources of error can affect a research design. A good research design attempts to control the various sources of error. Although these errors are discussed in detail in subsequent chapters, it is pertinent at this stage to give brief descriptions.

Where the focus of a study is a quantitative measurement, the **total error** is the variation between the true mean value in the population of the variable of interest and the observed mean value obtained in the marketing research project. For example, the annual average income of a target population may be €85,650, as determined from census information via tax returns, but a marketing research project estimates it at €62,580 based upon a sample survey. As shown in Figure 3.5, total error is composed of random sampling error and non-sampling error.

Total error

The variation between the true mean value in the population of the variable of interest and the observed mean value obtained in the marketing research project.

Random sampling error

The error arising because the particular sample selected is an imperfect representation of the population of interest. It may be defined as the variation between the true mean value for the sample and the true mean value of the population.

Non-sampling error

An error that can be attributed to sources other than sampling and that can be random or non-random.

Random sampling error

Random sampling error occurs because the particular sample selected is an imperfect representation of the population of interest. Random sampling error is the variation between the true mean value for the population and the true mean value for the original sample. Random sampling error is discussed further in Chapters 14 and 15.

Non-sampling error

Non-sampling errors can be attributed to sources other than sampling, and may be random or non-random. They result from a variety of reasons, including errors in problem definition, approach, scales, questionnaire design, interviewing methods, and data preparation and analysis. Non-sampling errors consist of non-response errors and response errors.

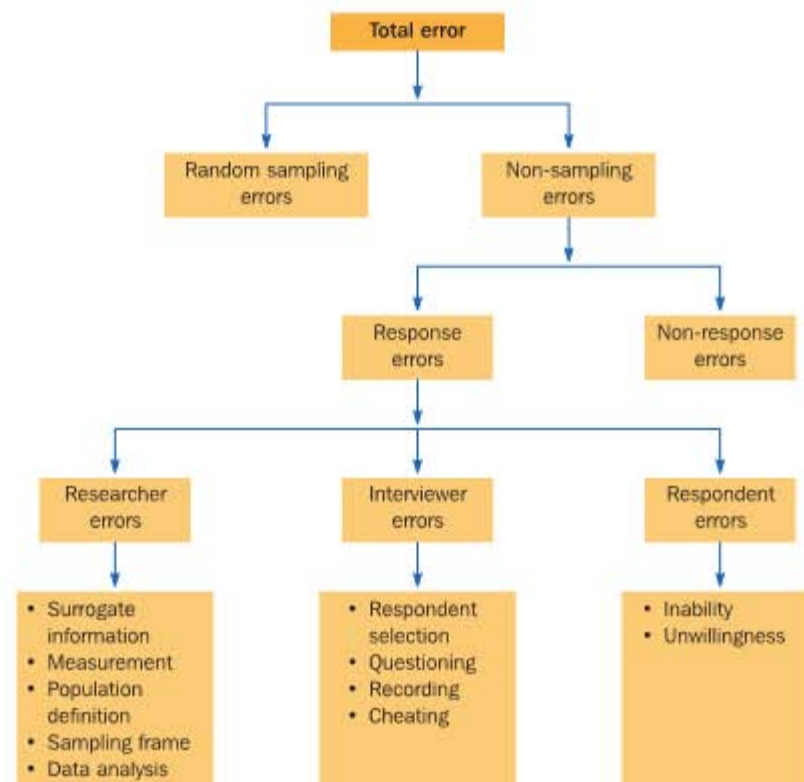


Figure 3.5
Potential sources of error in research designs

Non-response error

A type of non-sampling error that occurs when some of the respondents included in the sample do not respond. This error may be defined as the variation between the true mean value of the variable in the original sample and the true mean value in the net sample.

Response error

A type of non-sampling error arising from respondents who do respond but who give inaccurate answers or whose answers are mis-recorded or mis-analysed. It may be defined as a variation between the true mean value of the variable in the net sample and the observed mean value obtained in the market research project.

A **non-response error** arises when some of the respondents included in the sample do not respond. The primary causes of non-response are refusals and not-at-homes (see Chapter 15). Non-response will cause the net or resulting sample to be different in size or composition from the original sample. Non-response error is defined as the variation between the true mean value of the variable in the original sample and the true mean value in the net sample.

Response error arises when respondents give inaccurate answers or their answers are mis-recorded or mis-analysed. Response error is defined as the variation between the true mean value of the variable in the net sample and the observed mean value obtained in the marketing research project. Response error is determined not only by the non-response percentage but also by the difference between respondents and those who failed to cooperate, for whatever reason, as response errors can be made by researchers, interviewers or respondents.³¹ A central question in evaluating response error is whether those who participated in a survey differ from those who did not take part, in characteristics relevant to the content of the survey.³²

Errors made by the researcher include surrogate information, measurement, population definition, sampling frame and data analysis errors:

- *Surrogate information error* may be defined as the variation between the information needed for the marketing research problem and the information sought by the researcher. For example, instead of obtaining information on consumer choice of a new brand (needed for the marketing research problem), the researcher obtains information on consumer preferences because the choice process cannot be easily observed.
- *Measurement error* may be defined as the variation between the information sought and information generated by the measurement process employed by the researcher. While seeking to measure consumer preferences, the researcher employs a scale that measures perceptions rather than preferences.
- *Population definition error* may be defined as the variation between the actual population relevant to the problem at hand and the population as defined by the researcher. The problem of appropriately defining the population may be far from trivial, as illustrated by the case of affluent households. Their number and characteristics varied depending on the definition, underscoring the need to avoid population definition error. Depending upon the way the population of affluent households was defined, the results of this study would have varied markedly.

Example**How affluent is affluent?**

The population of the affluent households was defined in four different ways in a study:

- 1 Households with income of €80,000 or more.
- 2 The top 20% of households, as measured by income.
- 3 Households with net worth over €450,000.
- 4 Households with discretionary income to spend being 30% higher than that of comparable households.

- *Sampling frame error* may be defined as the variation between the population defined by the researcher and the population as implied by the sampling frame (list) used. For example, the telephone directory used to generate a list of telephone numbers does not accurately represent the population of potential landline consumers due to unlisted, disconnected and new numbers in service. It also misses out the great number of consumers that choose not to have landlines, exclusively using mobile telephones
- *Data analysis error* encompasses errors that occur while raw data from questionnaires are transformed into research findings. For example, an inappropriate statistical procedure is used, resulting in incorrect interpretation and findings.

Response errors made by the interviewer include respondent selection, questioning, recording and cheating errors:

- *Respondent selection error* occurs when interviewers select respondents other than those specified by the sampling design or in a manner inconsistent with the sampling design. For example, in a readership survey, a non-reader is selected for the interview but classified as a reader of *Le Monde* in the 15–19-year-old category in order to meet a difficult quota requirement.
- *Questioning error* denotes errors made in asking questions of the respondents or in not probing, when more information is needed. For example, while asking questions an interviewer does not use the exact wording or prompts as set out in the questionnaire.
- *Recording error* arises due to errors in hearing, interpreting and recording the answers given by the respondents. For example, a respondent indicates a neutral response (undecided) but the interviewer misinterprets that to mean a positive response (would buy the new brand).
- *Cheating error* arises when the interviewer fabricates answers to a part or the whole of the interview. For example, an interviewer does not ask the sensitive questions related to a respondent's debt but later fills in the answers based on personal assessment.

Response errors made by the respondent comprise inability and unwillingness errors:

- *Inability error* results from the respondent's inability to provide accurate answers. Respondents may provide inaccurate answers because of unfamiliarity, fatigue, boredom, faulty recall, question format, question content and other factors. For example, a respondent cannot recall the brand of toothpaste purchased four weeks ago.
- *Unwillingness error* arises from the respondent's unwillingness to provide accurate information. Respondents may intentionally misreport their answers because of a desire to provide socially acceptable answers, to avoid embarrassment, or to please the interviewer.³³ For example, to impress the interviewer, a respondent intentionally says that they read *The Economist* magazine.

These sources of error are discussed in more detail in subsequent chapters; what is important here is that there are many sources of error. In formulating a research design, the researcher should attempt to minimise the total error, not just a particular source. This admonition is warranted by the general tendency among naive researchers to control sampling error with large samples. Increasing the sample size does decrease sampling error, but it may also increase non-sampling error, e.g. by increasing interviewer errors. Non-sampling error is likely to be more problematic than sampling error. Sampling error can be calculated, whereas many forms of non-sampling error defy estimation. Moreover, non-sampling error has been found to be the major contributor to total error, whereas random sampling error is relatively small in magnitude. The point is that total error is important. A particular type of error is important only in that it contributes to total error.

Sometimes, researchers deliberately increase a particular type of error to decrease the total error by reducing other errors. For example, suppose that a mail survey is being conducted to determine consumer preferences in purchasing shoes from a chain of specialist shoe shops. A large sample size has been selected to reduce sampling error. A response rate of 30% may be expected. Given the limited budget for the project, the selection of a large sample size does not allow for follow-up mailings. Past experience, however, indicates that the response rate could be increased to 45% with one follow-up mailing and to 55% with two follow-up mailings. Given the subject of the survey, non-respondents are likely to differ from respondents in many features. Hence, it may be desirable to reduce the sample size to make money available for follow-up mailings. While decreasing the sample size will increase random sampling error, the two follow-up mailings will more than offset this loss by decreasing non-response error.



International marketing research

While conducting international marketing research, it is important to realise that, given environmental differences, the research design appropriate for one country may not be suitable in another. Consider the problem of determining household attitudes towards major appliances in the Netherlands and Saudi Arabia. While conducting exploratory research in the Netherlands, it is appropriate to conduct focus groups jointly with male and female heads of households. It would be inappropriate to conduct such focus groups in Saudi Arabia, however. Given the traditional culture, wives are unlikely to participate freely in the presence of their husbands. It would be more useful to conduct one-on-one in-depth interviews with both male and female heads of households being included in the sample. An understanding of environmental influences can affect the choice and application of individual research techniques. Ultimately, the rules of using different techniques to build up an understanding of consumers remains the same, regardless of geographic boundaries, as illustrated in the following example.

Example

Chinese sport a favourable attitude towards sporting goods³⁵

A marketing research study was performed to gain insight and understanding into the behaviour of consumers in China in relation to sports and sporting goods. The research design included both exploratory and conclusive research. Exploratory research was necessary to gain an understanding of the social, cultural, economic and legal environment of China. The researcher also utilised both secondary data and one-to-one depth interviews with retail outlet managers to gather this information.

For the conclusive research, a single cross-sectional design was used. A survey was developed and 4,000 questionnaires were distributed to respondents in 10 Chinese cities. Of these, 54% were completed and returned. A single cross-sectional design was appropriate because the researcher wanted to gain an understanding of the current state of consumers' attitudes, motivations and behaviours in relation to sporting goods.

As well as findings such as the strong brand recognition of Adidas, Nike, Asics and Reebok, specific social, cultural and environmental trends were also identified. For instance, China is becoming more fitness conscious. China is also becoming a more casual society, which is leading to the use of sporting goods for facilitation of the casual lifestyle. Also, the Chinese tend to shop a lot on Sundays and the Chinese wife tends to make family purchasing decisions.

In many countries, particularly developing countries, consumer panels have not been developed, making it difficult to conduct descriptive longitudinal research. Likewise, in many countries the marketing support infrastructure – that is, retailing, wholesaling, advertising and promotional infrastructure – is lacking, making it infeasible to implement a causal design involving a field experiment. In formulating a research design, considerable effort is required to ensure the equivalence and comparability of secondary and primary data obtained from different countries. In the context of collecting primary data, qualitative research, survey methods, scaling techniques, questionnaire design and sampling considerations are particularly important. These topics are discussed in more detail in subsequent chapters.



Ethics in marketing research

During the research design stage, not only are the concerns of the researcher and the client involved, but the rights of the respondents also must be respected. Although normally there is no direct contact between the respondents and the other stakeholders (client and researcher) during the research design phase, this is the stage when decisions with ethical ramifications, such as using hidden video or audio tape recorders, are made.

The basic question of the type of research design which should be adopted (i.e. descriptive or causal, cross-sectional or longitudinal) has ethical overtones. For example, when studying brand switching in toothpaste purchases, a longitudinal design is the only actual way to assess changes in an individual respondent's brand choice. A research firm that has not conducted many longitudinal studies may try to justify the use of a cross-sectional design. Is this ethical?

Researchers must ensure that the research design utilised will provide the information needed to address the marketing research problem that has been identified. The client should have the integrity not to misrepresent the project and should describe the constraints under which the researcher must operate and not make unreasonable demands. Longitudinal research takes time. Descriptive research might require interviewing customers. If time is an issue, or if customer contact has to be restricted, the client should make these constraints known at the start of the project. The client buying services from a marketing research firm should not take undue advantage of it to ask for unreasonable concessions or discounts for a current project by making false promises of future research contracts as illustrated in the following example.

Example

Big Brother or Big Bully?³⁶

Ethical dilemmas may arise due to the strong desire of marketing research firms to become suppliers to large organisations who invest heavily in marketing research projects. Many companies in financial services, airlines, beverages and automobiles, for example, have enormous marketing budgets and regularly employ external marketing research firms. Large clients can manipulate the price for a current project or demand unreasonable concessions in the research design (e.g. the examination of additional variables, more focus groups, a larger or more targeted sample for the survey, or additional data analyses) by implying that there is the potential for the marketing research firms to become a regular supplier. This may be considered just business, but it becomes unethical when there is no intention to follow up with a larger study or to use the research firm in the future.

Responsibilities to research respondents must not be overlooked. The researcher should design the study so as not to violate the respondents' right to safety, right to privacy, or right to choose. Furthermore, the client must not abuse power to jeopardise the anonymity of the respondents.

As well as its general code of conduct, ESOMAR produces a series of guidelines that are specific to particular research techniques (Internet research), types of respondent (children) and types of industry (pharmaceutical).

To see how ESOMAR guides the ethical practices of the marketing research industry in Europe, and how marketing research associations in individual countries throughout the world guide the ethical practices of domestic marketing research, visit www.esomar.nl.



Internet and computer applications

The Internet can facilitate the implementation of different types of research designs.

Exploratory research

If an exploratory research design is to be utilised, discussion groups, chat rooms or newsgroups can be used to discuss a particular topic to great depth. Files can be exchanged that can include moving images and sounds, allowing questions and probes to be built around this material. Formal focus groups may be conducted with experts or individuals representing target groups, all on a global basis if needed. Illustrations of qualitative interviews using the Internet are presented in Chapters 6 to 8.

Listservers could also be used to obtain initial information needed to develop a research design. Listservers make interactive discussion possible for special interest groups, user groups and customer service forums. Messages sent to the listener are forwarded to all subscribers of that listserver. Broad or specific questions could be asked of listserver subscribers. The questions might not constitute a specifically developed survey, and the members of the listservers might not represent the target respondents precisely, but if they are chosen based upon their relationship to the area being researched, they can provide a means of quickly receiving responses that can begin to clarify the research area. Discussion groups or lists allow for ongoing discussions among members, with or without moderation. Every member can write to the group, and, in doing so, everyone will receive a copy of the message. More information on listservers can be obtained at www.lsoft.com/lists/listref.html.

Conclusive research

Many descriptive studies utilise secondary data in defining the nature of a problem, as a technique in its own right and as a means to develop sampling plans. The use of the Internet for these purposes is discussed in Chapter 4. In primary data collection, the Internet can be used for surveys (discussed in Chapter 10) and in panels (Chapters 4 and 10). The use of the Internet for causal research designs is discussed in Chapter 11.

In addition to Internet applications, computers can also help to control total error. By using computers, researchers can model and calculate how the various sources of error may affect the results and what levels of errors could be acceptable. It is relatively easy to estimate random sampling error when probability sampling schemes are used. Estimating the impact of various non-sampling errors, however, is much more problematic. Simulation can be conducted to determine how the distributions and levels of various non-sampling errors will affect final results.³⁷

Summary



A research design is a framework or blueprint for conducting the marketing research project. It specifies the details of how the project should be conducted in order to fulfil set research objectives. The challenge faced by marketing researchers in developing a research design is that they need to balance an understanding of research design from the decision-makers' perspective with an understanding of potential respondents' reactions to issues researched using different techniques, applied in differing contexts. Research designs may be broadly classified as exploratory or conclusive. The primary purpose of exploratory research is to develop understanding and provide insights.

Conclusive research is conducted to measure and describe phenomena, test specific hypotheses and examine specific relationships. Conclusive research may be either descriptive or causal. The findings from both exploratory and conclusive research can be used as input into marketing decision-making.

The major objective of descriptive research is to describe market characteristics or functions. Descriptive research can be classified into cross-sectional and longitudinal research. Cross-sectional designs involve the collection of information from a sample of population elements at a single point in time. These designs can be further classified as single cross-sectional or multiple cross-sectional designs. In contrast, in longitudinal designs repeated measurements are taken on a fixed sample. Causal research is designed for the primary purpose of obtaining evidence about cause-and-effect (causal) relationships.

Many research designs combine techniques that can be classified as exploratory, descriptive and causal. In cases where there is an array of interrelating techniques, the researcher should examine the ultimate aim of an investigation, and decide what encapsulates the overall research design, i.e. a desire to explore, describe or experiment.

A research design consists of six components. Error can be associated with any of these components. The total error is composed of random sampling error and non-sampling error. Non-sampling error consists of non-response and response errors. Response error encompasses errors made by researchers, interviewers and respondents. In formulating a research design when conducting international marketing research, considerable effort is required to ensure the equivalence and comparability of secondary and primary data obtained from different countries. In terms of ethical issues, the researchers must ensure that the research design used will provide the information sought and that the information sought is the information needed by the client. The client should have the integrity not to misrepresent the project and should describe the situation within which the researcher must operate and must not make unreasonable demands. Every precaution should be taken to ensure the respondents' or subjects' right to safety, right to privacy, or right to choose.

Questions



- 1 Define research design in your own words.
- 2 What expectations do marketing decision-makers have of research designs?
- 3 How does the subject of enquiry as seen by potential research respondents affect research design?
- 4 How does formulating a research design differ from developing an approach to a problem?
- 5 Differentiate between exploratory and conclusive research.
- 6 What are the major purposes for which exploratory research is conducted?
- 7 Describe how quantitative techniques may be used in exploratory research.
- 8 What are the major purposes for which descriptive research is conducted?
- 9 Discuss the advantages and disadvantages of panels.
- 10 Compare and contrast cross-sectional and longitudinal designs.
- 11 Describe cohort analysis. Why is it of special interest?
- 12 What is a causal research design? What is its purpose?
- 13 What is the relationship between exploratory, descriptive and causal research?
- 14 What potential sources of error can affect a research design?
- 15 Why is it important to minimise total error rather than any particular source of error?

Exercises



- 1 Imagine that you are the marketing researcher appointed by BMW and that you have been hired to conduct a study of its corporate image.
 - a Discuss the potential issues that may affect your choice of context in which to interview female executives that buy the 7-series cars.
 - b Discuss the potential issues that may affect your choice of context in which to interview teenagers whose parent(s) own a BMW.
- 2 Visit the website of the Association of Qualitative Research Practitioners, www.aqrp.co.uk. Browse through the business directory to get a feel for the nature of industries and marketing issues that may be supported by exploratory studies. Find the agency MORI and examine the work of its specialist qualitative agency www.mori.com/qualitative. In what manner(s) does this agency link exploratory designs to conclusive designs?
- 3 Imagine that you are conducting an image study for the online dating agency www.match.com. What elements of the way that it presents its services and how its customers use the site could help you in an exploratory stage of this study?
- 4 Visit the website of the research organisation JD Power and Associates, www.jdpower.com. Work through its corporate site and choose a study that it has conducted to examine. What research design has it used for this study and what potential error issues could emerge given the nature of what it was investigating?
- 5 In a small group discuss the following issues: 'There are many potential sources of error in a research project. It is impossible to control all of them. Hence, all marketing research contains errors and we cannot be confident of the findings.' And 'If a research budget is limited, small sample sizes through exploratory studies are the best solution.'

Video Case Exercise: Nike

Innovation is a core value of the Nike brand. What factors may demand an innovative research design for challenges such as measuring or understanding the brand values of Nike?



download from
www.pearsoned.co.uk/malholtra_euro

Notes

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