

## **CHAPTER SIX: RESEARCH METHODOLOGY**

### **6.0 INTRODUCTION**

The major aim of this chapter is to discuss the key methodological components used to achieve the objectives of the study. To achieve this aim, this chapter starts by identifying the factors affecting the research design, and concentrates on the description of the steps involved in the research process, ranging from the formulation of the research problem to the analysis and processing of data. Finally, issues of validity and reliability, and the limitations faced in this research are discussed.

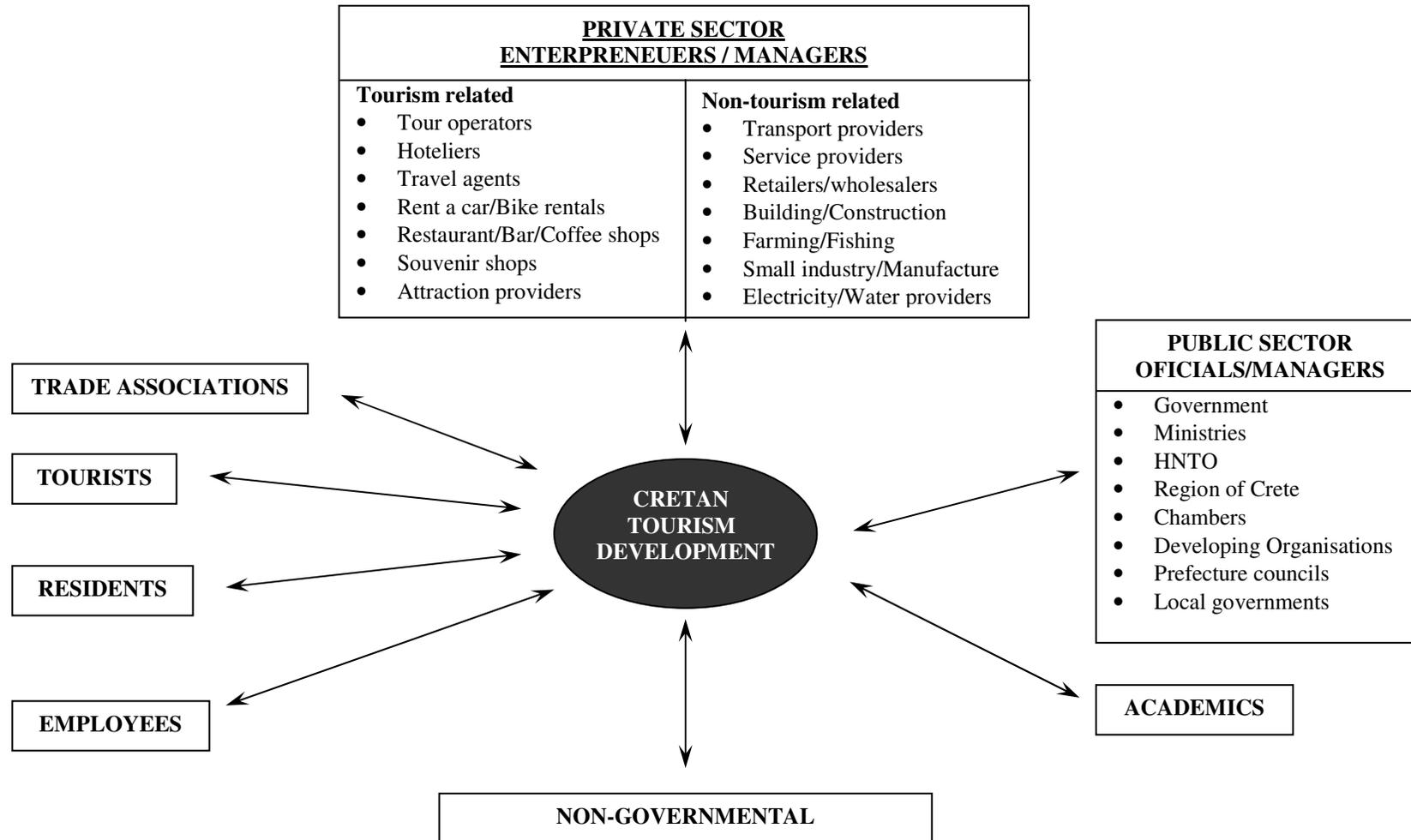
### **6.1 FACTORS AFFECTING THE RESEARCH DESIGN**

To identify factors affecting the design of this research it is helpful to explain the following dilemmas faced in this study.

#### **6.2.1 Stakeholder or community approach**

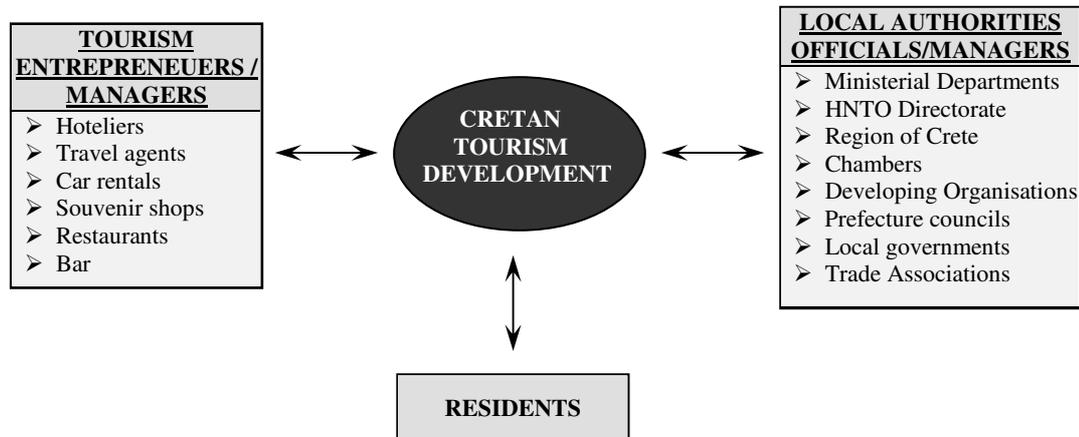
Initially in this study, a survey of major stakeholders was seen as appropriate to identify differences between the needs, desires, and perceptions of each stakeholder group. These differences may be fundamental to identifying community action and reaction to tourism development. Thus, the first step was to define stakeholder. A stakeholder for this study is considered to be any individual, group, or organisation that is affected by or affects the tourism development of the island. After the definition the next step was to identify all actors with a stake in the island's tourism development. To achieve this a "stakeholder map" was designed (Figure 6.1). In total, eight stakeholder groups were named, most having been referred to earlier in the thesis.

Figure 6.1: Stakeholder groups for the development of the Cretan tourism industry



Two main constraints were faced to survey such a large number of stakeholders: limited budget and time, so it was necessary to consider how many stakeholder groups to include in the survey. The literature (Murphy, 1980a; 1980b; 1985; Pearce et al., 1996; Korca, 1998; Andriotis et al., 1999; Pearce and Moscardo, 1999) shows that the community is the appropriate level for analysing tourism development, since the greatest impacts of the industry are felt within the host system. Therefore, it was seen as appropriate to include those stakeholders within the Cretan community having different levels of power and involvement in the island's tourism development, from high (e.g. local authorities) to low (e.g. residents). In other words, the research adopted a community approach, by focusing on the investigation of three groups: residents, tourism entrepreneurs/managers and local authority officials (Figure 6.2), identified in earlier chapters as the major influences on the island's tourism development.

Figure 6.2: Community groups used in the survey



Source: Author.

The sample included the following groups because:

*Residents.* Many are directly or indirectly dependent on tourism for employment and/or incomes. Even if they are not involved in any tourism activity, they have to live with tourism, its subsequent developments, as well as the political and business decisions for tourism development. Equally, residents' acceptance of tourism development is considered important for the long-term success of tourism

in a destination, since if tourists are greeted with hostility, their number will decline (Ritchie, 1988).

*Owners/managers* of tourist enterprises providing facilities and services to tourists. This group was selected because it is directly dependent on tourism arrivals, it provides employment for the local population and its developments affect the appearance and welfare of the community. The tourism sector was represented by a broad cross-section of businesses related to serving the tourist including the owners or managers of accommodation establishments (AEs), travel agencies and car rentals (TA/CRs), restaurants/bars (labelled as catering establishments CE) and tourism shops.

*Local authorities.* This group was selected because it represents the views of those who develop policy and planning, co-ordinate activities, and make decisions for future developments and public good. For the purpose of this survey, the local authorities include central government ministerial departments, development organisations, regional government, Prefecture Councils, local governments (OTAs), the Hellenic National Tourism Organisation (HNTO) directorate, chambers, and trade associations.

### **6.2.2 The qualitative or quantitative debate**

In the literature, several schools of thought have emerged supporting qualitative or quantitative research. Although both are concerned with the investigation of an individual's point of view, they present differences in the nature of data, the methods used for data collection and the analysis process (Punch, 1998). Qualitative researchers argue that because of their elaborate methods of research (e.g. interviewing and observation), they manage to get closer to the individual's perspective. Conversely, quantitative investigators claim that without statistical significance qualitative research results are more unreliable and ambiguous (Denzin and Lincoln, 1998). In effect, quantitative investigators are drawn to quantify data by using closed or quantifiable types of questions and by applying

mathematical models, graphs and statistical tables to achieve more reliable results. In contrast, although qualitative researchers have adopted statistical tools (Walle, 1997), “they seldom report their findings in terms of the kinds of complex statistical measures or methods” (Denzin and Lincoln, 1998, p.9). Other differences between the two approaches are that quantitative research can make comparisons easier, it is more appropriate and cheaper when large samples are used (e.g. postal questionnaires), while qualitative research uses smaller samples, it is more flexible and its sampling purposive. In qualitative research the interviewer has to be more qualified and skilful (Walle, 1997). The differential dimensions of each approach are summarised in Table 6.1.

**Table 6.1: Qualitative versus quantitative research**

<i>Comparison dimension</i>	<i>Qualitative research</i>	<i>Quantitative research</i>
<b>Types of questions</b>	Probing	Limited probing
<b>Sample size</b>	Small	Large
<b>Information per respondent</b>	Much	Varies
<b>Administration</b>	Requires interviewer with special skills	Fewer special skills required
<b>Type of analysis</b>	Subjective, interpretive	Statistical, summarisation
<b>Hardware</b>	Tape recorders, projection devices, video, pictures, discussion guides	Questionnaires, computers, printouts
<b>Ability to replicate</b>	Low	High
<b>Training of the researcher</b>	Psychology, sociology, Social psychology, consumer behaviour, marketing, marketing research	Statistics, decision models, decision support systems, computer programming, marketing, marketing research
<b>Type of research</b>	Exploratory	Descriptive or causal

Source: McDaniel and Gates (1992).

From the above discussion the following dilemma emerges: ‘Is it better to adopt a qualitative or quantitative approach?’ In practice, neither approach is superior or inferior. Both approaches are valid and contribute to social research, and over-reliance on any approach is inappropriate (Punch, 1998). In the field of community perceptions of tourism development, the majority of studies are quantitative. For example, Pearce et al. (1996) reviewed the literature on community responses to tourism impacts, between 1978 and 1995, and identified 31 articles presenting quantitative data. Since quantitative methods are widely accepted for conducting community surveys, they were chosen for this study, although an attempt was made to supplement previous research by posing some qualitative type questions. Nevertheless, although qualitative-type questions were

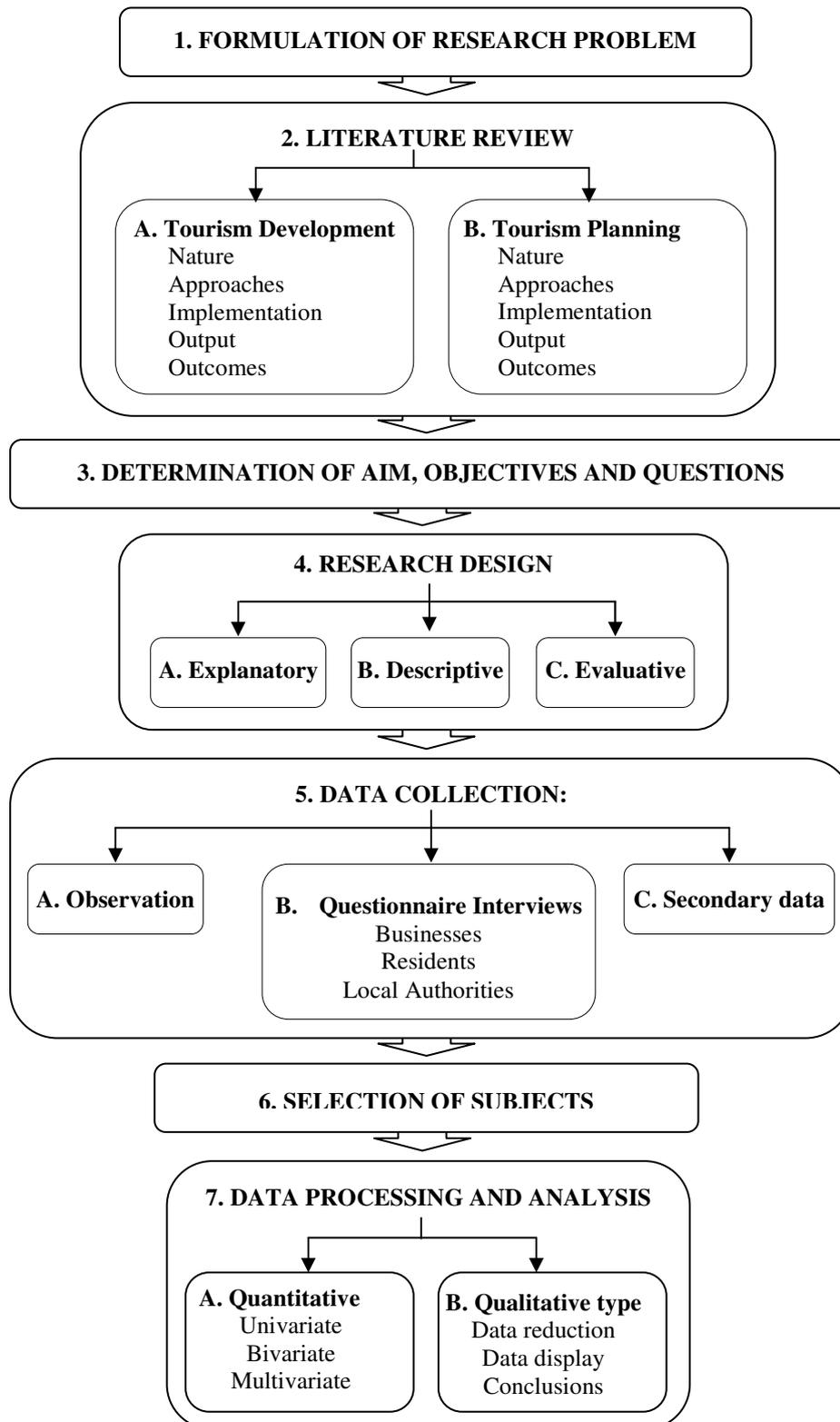
asked, replies were not explored as in depth as qualitative research does, mostly because the sample size was too large for this type of analysis and the study was concerned with understanding respondents' opinions through statistics drawn from the total sample.

## **6.2 THE RESEARCH PROCESS**

This section will discuss in great detail the sequential steps for the planning of the adopted research process. In practice, there is no overall consensus about the stages to be followed during research (Robson, 1993). Different models have been proposed by many authors (e.g. Oppenheim, 1992; Arber, 1993; Singleton et al., 1993; Ryan, 1995; Schutt, 1996; Veal, 1997; Aaker et al., 1998; Punch, 1998), each containing similar steps. As Figure 6.3 indicates, this thesis has adopted the seven steps process proposed by Pizam (1994):

1. Formulation of the research problem.
2. Review of the related research.
3. Identification of aim, objectives and research questions.
4. Selection of research design.
5. Selection of data collection techniques.
6. Selection of subjects.
7. Planning of data processing and analysis.

Figure 6.3: Stages of the research process



Source: Author.

### 6.2.1 Formulation of research problem

All research begins with a clearly defined topic. According to Pizam (1994), a specific topic may be suggested by two types of concern: practical and scientific or intellectual. In terms of practical concerns, Pizam (1994, pp.91-92) identified the following types:

1. Provision of information for decision-making on the need for some new or enlarged facilities or services (e.g. impacts assessment for the construction of a casino);
2. Provision of information concerning the probable consequences of various courses of action for deciding among proposed alternatives (e.g. developers would like to know if the attraction of ecotourists would be profitable);
3. Prediction of some future course of events in order to plan appropriate actions (e.g. investigation of future trends in tourism demand).

The topics suggested by scientific or intellectual interests arise (Pizam, 1994, p.93):

1. From a concern over some social problem (e.g. cultural change);
2. From an interest in some general theme or area of behaviour (e.g. expenditure patterns);
3. From some body of theory (e.g. social theory).

Bailey (1987) adds a major concern relating to problem selection: the researcher's values. In this survey, the choice of the research topic was affected by practical, scientific and personal concerns. First, from a practical point of view, this survey is among the first attempt to offer information to decision-makers and potential developers of Crete on the perceptions of the local community of further tourism development. This is considered essential since the local community is an essential factor for visitors' satisfaction. Secondly, from a scientific point of view, there was a desire to investigate the problems that have resulted from tourism development in Crete as perceived by the local community, as well as to examine

the patterns along which the island has been developed. In a personal respect, having lived on the island and worked in the tourism industry, the author has witnessed various problems resulting from tourism development, as well as a lack of consideration of the local community's opinions and needs before the designing of development plans. Consequently, an interest was expressed in the investigation of these problems and the recommendation of potential solutions.

### **6.2.2 Review of related research**

Once a research topic is chosen and stated, the next step is to review the related studies, in order to identify relationships among the variables to be studied and to “translate the topic into one or more clearly defined, specific questions or problems that are amenable to research” (Singleton et al., 1993, p.69). For this thesis, various sources were used to provide information on the components of tourism development and planning and their incorporation in the case of Crete. In summary, the core of the material used included:

- Relevant publications, e.g. books, conference papers, newspapers, reports etc., obtained from British and Greek libraries of universities, research institutions, organisations and trade associations;
- Key journals, mainly the *Annals of Tourism Research*, the *Journal of Travel Research*, the *Journal of Tourism Management* and the *Journal of Sustainable Tourism* were searched in order to find articles related to tourism planning, development and community perceptions;
- Key words (e.g. community attitudes, tourism development, tourism planning etc.) were searched in a variety of databases;
- A review of the contents of all the above sources was carried out to identify additional relevant material;
- E-mails or letters were sent and visits were paid, to academic experts, requesting literature suggestions.

The above sources helped the author to identify control variables and to develop a research framework. This was mainly achieved by viewing how other researchers have addressed similar topics, something that constituted the basis for the determination of the research aim, the objectives and the research questions.

### **6.2.3 Determination of aim, objectives and questions**

The introductory chapter and the literature review have addressed two major shortcomings of past research, namely the lack of surveys related to tourism development in island regions other than island microstates and limited research into the perceptions of community groups other than residents. These shortcomings led to a focus on the Greek island of Crete, and more specifically the adoption of the following research aim:

to examine the local community's views towards tourism development, in an attempt to establish overall directions for tourism development and suggest effective tourism strategies and policies to alleviate the problems resulting from previous unplanned tourism development.

After the identification of the research aim the next step was to formulate the following research objectives:

- to investigate the components of the tourism development and planning process;
- to analyse the perceptions of the host population, tourism entrepreneurs/managers and local authorities of tourism development and to study the conditions under which tourism could expand further without any increase in negative effects;
- based on the literature review and the research findings, to propose a rationale/framework for the tourism development and planning process;

- based on the tourism development and planning process framework and the study of community perceptions, to recommend effective policies and strategies that will contribute to the designing of a community tourism product for the island of Crete.

To investigate some aspects under-surveyed or not clearly identified in past community research on the island, four questions were developed:

- Are there any variations of development in the island's tourism industry, as well as variations in managers'/owners' opinions, because of factors (independent variables) such as location of establishment, sectoral basis, and size of AEs?
- Are there any differences in the perceptions and attitudes of residents because of their socio-demographic characteristics? More specifically, are there any differences based on seven groups (independent variables), namely city, length of residence, reliance on tourism employment, gender, age, education and income?
- Do local authorities have any actions in force to promote tourism development? If so, what are they?
- Do tourism entrepreneurs and managers perceive the effects of tourism development to be the same as residents and the local authorities, or are they more favourable because of their dependence on tourism for their livelihood?

After the above decisions, the next logical step is to consider the research design, adopted to address the above research questions.

#### **6.2.4 Research design**

There are four types of research design: exploratory, descriptive, explanatory and evaluative.

**Exploratory research design** is undertaken to explore previously under-researched and unclassified areas and provide input for further research. The main difficulty of exploratory design is that the researcher has to begin with a general description of the phenomenon, where there are no clearly delineated independent and dependent variables, and as a result no categories to classify what one sees, no guidelines for the researcher to indicate what is important, whom to interview, or what leads to follow up (Singleton et al., 1993, p.91). In exploratory designs the sample is usually small, non-representative and the process is unstructured and more open than in any other kind of design. In the literature, there are a lot of studies dealing with community perceptions, having identified various independent and dependent variables and specified various groups that can provide insights into tourism development issues. Therefore, since the main topic of this study has already been researched by other authors, the exploratory design was not adopted, and it was decided to utilise the following three types of research design.

**Descriptive design** aims to describe a phenomenon. It is characterised by a prior formulation of specific hypotheses, based on previous research. The information needed is clearly designed and pre-planned (Malhotra, 1996). A major type of descriptive design is the case study.

A *case study* is a strategy for doing research which involves “an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Robson, 1993, p.52). The important points of a case study are that it is (Robson, 1993, p.52):

- a strategy, i.e. a stance or approach, rather than a method such as observation or interview;
- concerned with research, taken in a broad sense and including evaluation;
- empirical in the sense of relying on the collection of evidence about what is going on;
- about the particular, a study of a specific case;

- focused on a phenomenon in context, typically in situations where the boundary between the phenomenon and its context is not clear; and
- uses multiple methods of evidence or data collection.

As Veal (1997) states cases can consist of single individuals, communities, countries or organisations. Additionally, as several authors recommend (Marshall and Rossman, 1989; Yin, 1989; Stake, 1994), when a study confronts a process question, looks to track changes over time and reveal complexities about how the decision-making of various stakeholder groups has developed tourism, the appropriate research method is the case study. Since one of the research objectives is to examine the development and planning process on the island of Crete, through the actions and perceptions of community groups, the case study was seen as a useful technique. In particular, secondary sources of data were utilised for the understanding of past and present policies and planning initiatives and how they affected the development of the island.

However, if case study does not include quantitative research, it lacks rigour, reliability and does not address generalisability. For this reason, in conjunction with the limited research on community attitudes to the tourism development of the island, the second type of descriptive design, the *survey*, was adopted as a compatible component of the case study. Surveys refer to the “collection of standardised information from a specific population, or some sample from one, usually but not necessarily, by means of questionnaire or interview” (Robson, 1993, p.49). A survey is a technique commonly used in studies that have individuals as the units of analysis, because they describe community attitudes by identifying the proportion of a sample that possess a specific attribute or opinion, collect measurable variables and enable a degree of quantification, as well as the variables association in the analysis process. Through surveys this study could ask questions about attitudes and opinions, as well as development patterns of the island, and assess the tourism outcomes for the island and its community.

However, for the writing of the case study, the research moved beyond description by adopting a ***causal or explanatory design***, in order to investigate relationships

by giving answers to problems and hypotheses. The major purposes of causal design are (Malhotra, 1996, p.97):

- To understand which variables are the cause (independent variables) and which variables are the effect (dependent variables) of a phenomenon.
- To determine the nature of the relationship between the causal variables and the effect to be predicted.

Through explanatory research, this study seeks to explore aspects of the island's development patterns and to provide explanations and data for testing hypotheses. In particular, this research investigated themes, such as: how will future tourism developments gain the approval of the Cretan community? Why are community tourism impacts perceived differently by different socio-demographic groups? Why do development patterns vary between cities, sectors and size of AEs? Was the attraction of mass tourism caused, for example, by ineffective promotion or misguided tourism policy?

For the better understanding of the case study, an *evaluation design* was utilised. This type of design arises from the need to analyse the success or effectiveness of specific policies or programmes (Veal, 1997, p.4). It is highly developed in some areas of public policy, although it is less utilised in tourism (Howell and Badmin, 1996; Veal, 1997). The major reason for this is the difficulty of obtaining data that correspond satisfactorily to the evaluation of a program's performance (Ritchie, 1994). Nevertheless, the significance of evaluation design is located in two types of output, the identification of a programme's strengths and weaknesses, and the understanding of major factors that determine a programme's success (Ritchie, 1994, p.20). During the presentation of the secondary data, by using evaluation design, this study attempted to examine the plans and programmes of the public sector (at local, regional and national level), as well as the European Community's intervention in tourism development and planning, and to evaluate the outcomes of their actions for the resources of the island and the local community's life.

### 6.2.5 Data collection techniques

There are three common types of data collection: observation, direct communication, (i.e. questionnaire and interviews) and secondary data. This research involved all three data collection types. Since the survey took place at the respondent's workplace or residence, during the interview the researcher could observe and collect visual information concerning the natural environment of the respondent, e.g. whether the facilities of AEs corresponded to their category. In addition, direct observation was used to identify possible inaccurate replies given by respondents. For example, the business questionnaire included a question asking owners/managers if their enterprise employed any non-local staff. All respondents apart from two replied negative to this question, although observation showed that foreigners were employed in some of the enterprises. However, because they were not registered with the appropriate National Insurance Agency, owners/managers were reluctant to reveal their number. As a result, this question was excluded from further analysis. Finally, after observation of the island's coastal resorts a model of the morphology of a typical Cretan resorts was suggested.

Since it was not possible to obtain all the data by observation, most of the data were collected by interviews. Because of the distinctive advantages of interviews, including an explanation of the survey's purpose, correction of misunderstandings, observation of respondents, greater depth and probing, and control of sequence of questions, meant that this was the most efficient method of data collection (Adams and Schvaneveldt, 1991; Oppenheim, 1992; Robson, 1993; Pizam, 1994). For community studies, this technique is the most appropriate to provide insights into how community groups think about complex issues concerning their destination, e.g. exploitation of tourism resources. Additionally, interviews of community members can allow each participant group to have their views heard equally, in contrast with other techniques, e.g. public meetings, that the views of a particular community group or individual may predominate.

However, interviews are a one-way participation technique, without any chance of a community group to debate with others. To overcome this drawback Yuskel et al. (1999, p.352) suggest that interview findings can be used as a basis for interactive negotiation between community groups in workshops or meetings. Other disadvantages include that they are more expensive and time-consuming (compared to postal surveys), and often there is a difficulty of obtaining cooperation from potential interviewees. Besides, Yuskel et al. (1999) report that because this technique does not involve direct dialogue (e.g. business sector with decision-makers), some community groups may consider that their opinions may be ignored by decision-makers. However, because of the interview's paramount advantages compared to other research methods, and the fact that most previous surveys of tourist enterprises and residents undertaken in Crete (e.g. AHTE, 1995; Tsartas et al., 1995; Papadaki-Tzedaki, 1997), have used personal interviews as the only data collection technique to achieve acceptable response rates, they were preferred to collect the required information.

Many different types of interviews have been proposed (Minichiello et al., 1990; Patton, 1990). The most accepted is the three-way classification of interviewing. This classification is carried out according to the degree of structure, or in other words, the depth of the interview. There are structured interviews, where the questionnaire is planned and standardised in advance, responses are categorised and pre-coded, and there is no attempt to go to any depth (Fontana and Frey, 1994). In contrast, unstructured interviews are not standardised and preplanned, and are generally open-ended (Punch, 1998).

In this survey the third type of classification was used: the semi-structured, that is a combination of structured and unstructured questions. By using this type, the interviewer was able to adapt questions according to each respondent's level of comprehension, and to understand that when respondents replied to a certain question, they also provided answers to a question that would be asked later. Very often, the free conversation between the researcher and the respondent permitted the former to lead the conversation and to probe. All these gave the interviewer the chance to better achieve the research objectives (e.g. through follow-up

questions). This was evident when some respondents showed great interest in the survey by asking questions and discussing some questions in detail. There was visible interest in the subject, even in cases where respondents were not directly involved in any tourism activity, possibly because tourism is a reality in the islanders' life.

Apart from interviews and observation, secondary data were collected from public and private organisations and libraries in Greece in order to receive information in statistics, development laws, plans, regulations and all relevant research having been undertaken by them. In addition, Internet, as well as reports from British libraries were used for the collection of secondary data from International Organisations, e.g. OECD, WTO, WTTC, and EC.

However, the task of using official statistics in general, and in particular in tourism, is fraught with the following constraints and limitations:

- A lack of a solid, comprehensive and internationally uniform information base on the economic repercussions of tourism (Paci, 1998, p.279) and the lack of a universally accepted definition of tourism (Smith, 1995) make it difficult task to identify who tourists are, their numbers and their expenditures;
- Purchases by visitors are made in many traditional industries, while tourism commodities are also purchased by non-visitors (Smith, 1995, p. 226). This creates difficulties in the calculation of tourist expenditure and the number of people employed in the industry;
- Secondary data collected for other purposes may not be appropriate to the present situation (Czinkota and Ronkainen, 1994; Malhotra, 1996);
- Limited dependability of the data due to the fact that secondary data may contain relatively high margins of error and inaccuracy (Holmes, 1987; Malhotra, 1996; Malhotra et al., 1996; Luk, 1999);
- Secondary data may not be current, and the time lag between data collection and publication may be long (Czinkota and Ronkainen, 1994; Malhotra, 1996, p.120);

- Some research may be consciously or unconsciously biased due to attempts made by researchers to please the project sponsor (Czinkota and Ronkainen, 1994);
- Often countries do not have sophisticated data collection systems and they tend to supply numbers that are estimates rather than precise readings (Czinkota and Ronkainen, 1994);
- In some countries there is a large black economy for which data are not available (Holmes, 1987).

### **6.2.6 Selection of subjects**

Subsequent to the specification of the data collection techniques, the next step was to choose the subjects from whom the data would be collected. There are two ways to collect data. The ideal method is the study of all elements within the population (census), something that is not always possible. An alternative is to collect data from a proportion of the population by taking a sampling frame. This method was seen as appropriate for this study. In respect of sample size the focus of this survey was not to have a very large sample but to determine the sample size by the number of sub-groups (independent variables), as well as time and costs constraints.

Due of differences among the three groups, different sampling methods were used to obtain a representative sample from each community group.

#### **6.2.6.1 Tourism businesses sampling**

A sample frame of tourism businesses was selected through a three-stage sampling method.

*Stage One.* At this stage, establishments selected to form part of the survey were identified according to the main criteria of location and level of tourism development. The island has a large number of tourist businesses spread over myriad locations. Therefore, a selection of locations had to be undertaken. In

terms of location, four areas were selected in each Prefecture, a total 16 areas on the island. These areas were selected because they exhibited extensive tourism development. They included the capital city of each Prefecture and three major resorts (Table 6.2). Areas with lower concentration of tourism enterprises would be useful to form part of the survey, but this was not possible, because then more areas would have to be included, many located a long distance from each other, something that would increase the survey costs, as well as the duration of the survey. Besides, the selection of businesses was disproportionate to their number in each Prefecture, since proportional allocation would yield a very large sample frame in the Prefecture of Heraklio where almost half of the island's tourism enterprises are located, and a much smaller one in the other Prefectures.

**Table 6.2: Areas used in the tourism businesses sample**

	<b>Heraklio</b>	<b>Lassithi</b>	<b>Rethymno</b>	<b>Chania</b>
1.	City of Heraklio	City of Agios Nikolaos	City of Rethymno	City of Chania
2.	Lim. Chersonnissou	Elounda	Adele	Maleme
3.	Stalis	Sissi	Missiria	Georgioupoli
4.	Amoudara	Sitia	Perivolia	Agia Marina

*Stage Two.* After location was determined, the next step was to make a list of tourist enterprises in each area. There were various sources for the sampling lists of tourist enterprises. For AEs, a main source was the Hotel Directory of Greece 1997, produced by the Hotel Chamber of Greece. For TA/CRs the HNTD directorate of Heraklio provided a list. To enrich these lists, as well as to design sampling lists for tourist shops, CEs, additional sources were used, including Yellow Pages, Local and National Directories (e.g. Greek Travel Pages and the Hellenic Travelling Monthly Guides) and the Internet. All these sources were the best possible for the designing of a comprehensive sampling list for each sector, which contained location of establishments, address, name of director, as well as category of AEs. The main weakness of using so many sources was the tendency towards repetition, necessitating cross-checking to ensure lack of duplication.

It is important to note that TA/CRs were grouped together, as were restaurants and bars, because of the difficulty of separating their activities. For example, the vast

majority of travel agencies (91%) rented cars and the majority of restaurants ran as bars at certain times.

*Stage Three.* The next step was to select enterprises from the lists. For AEs, simple random or systematic sampling might produce misleading results since each accommodation unit does not carry identical weight. Therefore, a mix of AEs was considered appropriate in order to identify variations by quality and size. The best indicator of quality and size was seen the category of the establishment. Category is almost always related to size and specifies the facilities provided. Stratified random sampling was used to select the AEs, specifically one unit from each of the categories Lux', A', B' C', as well as one apartment from each area by using a random number. Where an area lacked a hotel of the category required, it was selected from another area. Hotels D' and E' and rented rooms were excluded from the survey, as they are not well-organised, usually accommodate only domestic tourists and the majority were not included in the sources used to create the list.

Regarding other sectors, no information was available for stratification. Therefore, systematic sampling was used to select five enterprises from each area. This involved choosing a sampling interval by dividing the total number of enterprises in each sector and area by five, and selecting a random starting number within the sampling interval. This method was seen as appropriate because it gave every member of the population the same chance of being selected in the sample (Hoinville et al., 1977). Table 6.3 indicates the estimated population, sample frame and the response rates (45.6%), achieved in the business survey. Response rates within different Prefectures did not present significant deviations, although different types of enterprises presented differences in their response rate.

Table 6.3: Population, sampling frame and response rate

	Estimated population	Sample Frame	Response	
		No.	No.	%
<b>Total Accommodation Establishments</b>	643	80	52	65.0
Heraklio	248	20	14	70.0
Chania	113	20	12	60.0
Rethymno	105	20	13	65.0
Lassithi	177	20	13	65.0
<b>Total Travel Agencies / Car Rentals</b>	246	80	32	40.0
Heraklio	121	20	6	30.0
Chania	57	20	8	40.0
Rethymno	30	20	8	40.0
Lassithi	38	20	10	50.0
<b>Total Catering Establishments</b>	714	80	28	35.0
Heraklio	259	20	5	25.0
Chania	124	20	10	50.0
Rethymno	119	20	6	30.0
Lassithi	212	20	7	35.0
<b>Total Tourist Shops</b>	698	80	34	42.5
Heraklio	208	20	9	45.0
Chania	149	20	8	40.0
Rethymno	162	20	9	45.0
Lassithi	179	20	8	40.0
<b>Total Tourist Enterprises</b>	2301	320	146	45.6
Heraklio	836	80	34	42.5
Chania	443	80	38	47.5
Rethymno	416	80	36	45.0
Lassithi	606	80	38	47.5

320 tourist entrepreneurs/managers were approached at their place of work during working hours, so that respondents would feel comfortable in their natural surroundings. No pre-arranged appointment was made with any of the respondents, unless otherwise requested. Respondents were asked to participate in the survey under the condition that they had been working on the island for the two previous tourist seasons. If a respondent was absent, up to three subsequent attempts were made to meet him or her. If a business had moved away or closed, the interviewer selected the next business on the sampling frame.

At the beginning of the interview, all respondents (including residents and local authority officials) were informed that the survey was a tourism study as part of a postgraduate studies programme. Furthermore, to increase the response rate, anonymity and confidentiality were assured, and a rapport was established, so that respondents felt motivated to complete the interview. To ensure freedom of responses, interviews were not recorded electronically. Instead the interviewer

took hand-written notes and following each discussion, completed his notes in detail.

#### **6.2.6.2 Residents sampling**

The most appropriate method to select residents is to approach them in the place they live. To achieve this, at first, the use of systematic sampling from the governmental electoral rolls or the Yellow Pages was considered, but this was abandoned for the following reasons:

- some households may be missing, e.g. households with an unlisted telephone, with no telephone or households where electors were registered to vote in another area;
- some addresses may not be valid and it could be impossible to trace the people;
- both methods did not list households but only names and addresses and therefore households with more than one telephone or more than one elector they would be included more than once in the list;
- the sample would be scattered throughout the island, and the cost of visiting those selected for a face-to-face interview would be very high.

As a near approximation, it was decided to use a multi-stage sampling procedure, which allows a large sample to be interviewed for quite a low cost (Hoinville et al., 1977).

In particular, a three stage sampling method was employed.

*Stage one.* At this stage the areas (or primary sampling units) were selected. Although it was considered ideal to conduct interviews across the island, including urban, rural, inland and coastal areas, to obtain higher representation, due to a limited financial budget and a lack of time, it was decided to conduct interviews in a more affordable way. Specifically, a municipality of each capital city of the four Prefectures was chosen to be included in primary sampling unit.

These cities house a high share of the island's population and their residents have diversified business and employment interests. Many employees working in the tourism industry, as well as employees in other economic sectors, live in these cities. The four municipalities were Heraklio, Agios Nikolaos, Chania and Rethymno. Since the municipality is the major part of the city, with the same name, from now on, any reference to a city means the municipality. In total, the sampling frame was 400 households, 100 households in each city.

As previously in the business survey, so in the resident survey, the selection was disproportionate to the number of households in each city, because proportional allocation would yield to a large frame in some cities and a smaller one in others. For example, the number of households in the city of Heraklio is approximately 13 times more than the city of Agios Nikolaos. Therefore, for comparison reasons a decision was made that the sample frame would include households disproportionate to the total number of households in each city.

*Stage two.* This stage selected individual elements within each city. The cities were divided into polling districts, with the exception of Agios Nikolaos, where because of its small size, the whole city was a polling district. Through electoral registers the number of electors in each polling district was determined. To select four polling districts within each of the three cities, the probability proportionate to size (PPS) proposed by Hoinville et al. (1977) was employed. Since the number of electors in each polling district varies considerably, PPS was seen as appropriate in order to select a representative sample taking into account the size of each polling district. In general this method gives an equal chance of selection to every member of the population under study. As Hoinville (1977) remarks, by adopting this method:

an individual in a district with a large population has a greater than average chance that his district will be selected, but this is compensated for because his chance of being selected within the district will be proportionate to the reciprocal of its population (p.66).

Polling districts in each city are listed with their electoral size in Appendix I. To identify four polling districts within each city, the total number of electors was divided into four to specify a sampling interval. Then a random number (smaller than the sampling interval) was drawn. To draw the random number each random interval was divided into two. The first polling district selected is the one whose population interval includes the random number; and subsequent polling districts were selected by successive additions of the sampling interval. For each polling district selected, a list of all streets was made and one street was selected by using a random number.

*Stage three.* In order to achieve a representative group within the relevant polling districts, the researcher started randomly in a selected street in each district and each fifth property on one side only of the street, in total 25, was incorporated into the sample. At each house, an adult (18 or over) was asked to participate in the survey. If a house was a multiple family residence, it was considered a household. If a house appeared vacant or occupied but no one was in, the interviewer moved to an adjacent house. The same procedure was used for the city of Agios Nikolaos with the exception that, since the whole city was a polling district, the researcher selected four streets, using systematic random sampling, and 25 households were selected in each street. Recognising that seasonal residents may influence the response, only permanent residents of the community, defined as those persons living in the community for at least nine months of the year, were interviewed. Table 6.4 indicates the estimated population, sample frame and the response rate achieved for each city (on average 48.5%).

**Table 6.4: Total sample and response rate**

	Estimated population	Sample Frame	Response	
		No.	No.	%
<b>Total Households</b>	63,053	400	194	48.5
<b>Heraklio</b>	36,462	100	55	55.0
<b>Chania</b>	15,674	100	50	50.0
<b>Rethymno</b>	8,209	100	50	50.0
<b>Agios Nikolaos</b>	2,708	100	39	39.0

### 6.2.6.3 Local authorities sampling

Non-probability sampling was used for the selection of local authority officials. The sampling procedure used was judgmental or purposive sampling, whereby representatives of the sample are identified in accordance with the interest of the researcher because they will shed light on a particular aspect of the phenomenon under investigation (Hornby and Symon, 1994). 28 local authority officials were selected, those with an involvement in the development of the island. Officials were selected from the four major cities, although the majority of interviews were undertaken in Heraklio, since the largest city on the island has the highest concentration of authorities (e.g. Region of Crete, Governmental Departments, HNTTO directorate). At first, only authorities with direct involvement in the tourism development of the island were considered appropriate. However, tourism is a multi-faceted industry, and it was decided that interviews with officials not directly involved in tourism, e.g. from technical and commercial chambers, would be useful.

Each official with development and planning interests received a phone call with a request to participate in the study. Very often telephone contact with the potential interviewee was not possible, but the interview request was made via a secretary or an administrative assistant. If it was not possible to arrange an interview by phone, the interviewer visited the official. The interviewer gave the head of the authority the opportunity to forward the questionnaire to a more knowledgeable person within the authority, if he/she thought that this person was more appropriate to interview.

Upon acceptance of the request to participate in the study, a meeting was arranged. 25 interviews were conducted, including four from local governments (OTAs), four from Prefecture Councils, two from development organisations, one from the Region of Crete, one from the directorate of the HNTTO, two ministerial departments, five trade associations and six chambers. Three interviews did not take place.

### 6.2.7 Questionnaires design

To develop the three interview questionnaires, the research questions from the literature review were used. These questions were then expanded to cover other relevant issues. Questionnaires used in previous studies (e.g. Pizam, 1978; Stallibras, 1980; Hennessy et al., 1986; Vaughan and Wilkes, 1986; Shaw et al., 1987; Ritchie, 1988; Williams et al., 1989; Long et al., 1990; Johnson et al., 1994; McCool and Martin, 1994; Buhalis, 1995; Madrigal, 1995; Akis et al., 1996) were also used as input into the questionnaire design process. The following issues were considered before writing the questionnaire, as proposed by Oppenheim (1992, p.101):

1. *Instrument of data collection* (e.g. interviews, postal questionnaires, observation).
2. *Method of approach to respondents* (e.g. length, duration and purpose of the research).
3. *Build-up of question sequences* (e.g. scales involved in the questions).
4. *Order of questions* (e.g. sequence based on logical flow process).
5. *Type of questions* (e.g. closed, open).

The instrument of data collection was interview, which allows the use of semi-structured questionnaires composed of open-ended and closed questions. Open-ended questions (without fixed categories for responses) were used to allow greater flexibility of answers, to encourage interviewees to give more spontaneous opinions and to avoid the potential bias arising from restricting responses to the researcher's own fixed categories (Ryan, 1995). However, one deficiency of open-ended questions is the difficulty of categorising and interpreting responses. Therefore, if there was a good idea of what was likely to be obtained from a question, the closed format was adopted.

Three different questionnaires were designed, one for each survey, in a way to make them easy for interviewees to understand. The three questionnaires included some identical or similar questions, worded appropriately for their respective

concerns, in order to compare and examine differences and similarities in attitudes between the groups. Copies of the three questionnaires are attached in Appendix J. An analysis of the content of each questionnaire follows:

**The tourist enterprises' questionnaire** consisted of four sections:

*Section A: Personal information*, related to length of residence, previous employment and educational background.

*Section B: Information on enterprise*, such as business profile, ownership characteristics, economic performance, extent of dependency on tourism, employment structure, their respective commercial and administration concerns, problems faced and perception of the role of tour operators.

*Section C: Operational information*. This section differed for each group of enterprises (although most of the questions were similarly worded). Questions in this section were concerned with size and quality indicators, the variety of services/products provided, pricing, variance of sales and linkages with the local economy for the purchase of supplies/services.

*Section D: General attitudes*. The last section included 10 attitudinal statements dealing with the impacts of tourism and development options. The response to each question was rated on a five-point Likert type scale ranging from 1 to 5. The five-point Likert scale is probably the most frequently used measure in community attitude surveys, and is very easy to understand. Other questions dealt with the satisfaction of respondents with the actions of the public sector for tourism development, their desire for further development and the future strategies and measures for promotion and development to be undertaken by the public sector.

**The residents' questionnaire** consisted of three sections:

*Section A: Personal information*, related to length of residence, employment information, and influence on respondents family of tourism.

*Section B: Attitudes and perceptions*. This section consisted of 30 attitudinal questions based on statements to which respondents were asked to respond using a

five-point Likert scale of options, from very positive to very negative. Seven statements were designed to assess residents' perceptions of the social impacts of tourism. 13 statements dealt with the economic implications of tourism development. Five statements dealt with the environmental impacts of development. Two statements focused on the overall impacts and three statements dealt with options for future tourism development. This section also asked respondents to indicate their satisfaction with the actions of the public sector in tourism development and their desire for further expansion.

*Section C: Socio-demographic information such as gender, age, education, employment and income.*

**The local authorities questionnaire** included questions about the authority's involvement in tourism, personal opinions of officers on tourism impacts, nine attitudinal statements and questions asking officials about the sufficiency of the island in products/services consumed by the tourism industry, the extent of Cretan ownership, problems faced by the tourism industry, as well as questions about strategies and measures for further tourism development.

### **6.2.8 Pilot survey**

In an attempt to validate the data collection techniques, and check comprehensibility and whether the answers received would provide the information sought, a pilot survey took place in the city of Heraklio in April 1997. The sampling procedure used to pre-test the three questionnaires was judgmental or purposive sampling.

Initially, the intent was to administer self-completed questionnaires, and collect them the next day. This would be cheaper than personal interviews and it would allow wider coverage. However, out of 18 questionnaires (12 for enterprises and six for residents), only one was collected. The remaining questionnaires were not completed for reasons, such as workload, absence of the respondent and/or lack of interest. In addition, some open-ended questions were too complex to be explored

satisfactorily without an interviewer to explain, prompt and ensure complete coverage. Therefore, self-administered questionnaires as a data collection technique was abandoned since it would lead to a low response rate and incomplete and unclear responses.

Alternatively, face-to-face interviews were chosen. In total, the questionnaire was tested on 15 interviewees, two with local authorities, five with residents and eight with entrepreneurs/managers (two from each sector). Interviewees were asked not only to answer the questions, but also to highlight things that were not understandable or questions that they considered necessary but they were not included in the questionnaire. After the pilot survey, several amendments were made to the questionnaire, including altering question wording, shortening the length of the questionnaire by omitting some questions, changing questions and altering the order of questions to provide a more logical flow.

## **6.2.9 Data analysis**

After data have been collected the next step is to analyse them. The data analysis plan can be divided into two parts based on the type of questions: the quantitative and the qualitative type questions.

### **6.2.9.1 Quantitative analysis**

Having collected the data, the next step was to analyse them by utilising the Statistical Package for the Social Sciences (SPSS) 8.0. Before analysis, an accuracy check was carried out both at the time of the input and once after; and some corrections were made.

A major dilemma faced before analysis takes place is if data have to be weighted. Weighting is a method that “attempts to account for non-response by assigning differential weights to the data depending on the response rates” (Malhotra, 1996, p.406). According to Malhotra (1996, p.483), weighting should be applied with

caution because it destroys the self-weighting nature of the sample design. In this study, after much thought, weighting was avoided. The major reason for the resident survey was that the official data based on the 1991 census were out of date and covered the whole island or Prefectures and not just the areas used in the survey. For the business survey although data could be compiled for the number of enterprises in each area and the number of enterprises in each sector, it was seen that these data may not be representative. For example, Papadaki-Tzedaki (1997) found that in Rethymno 26 out of 154 hotel establishments did not have any license for various reasons. As a result, these establishments were not listed in the Hotel Directory of Greece, the main source for the construction of the AEs sampling list. Equally, during the survey there were also enterprises in the sampling frame, that had closed down or changed business activity, and therefore had to be replaced. As a result, since official data were not always valid, weighting could have destroyed the self-weighting nature of the sample design and introduced complications.

The statistical techniques used can be summarised in three categories: univariate, bivariate and multivariate. The question was to choose which statistical method to use within each technique. To take this decision, type of measurement is the main factor. There are three major types of measurement (Nachmias and Nachmias, 1976; Baker, 1988; Adams and Schvaneveldt, 1991; de Vaus, 1991; Easterby-Smith et al., 1991; Diamantopoulos and Schlegelmilch, 1997):

1. *Nominal* (or categorical): ranks the items in distinctive categories that imply no specific order (e.g. gender);
2. *Ordinal*: ranks the items in order but it is impossible to quantify precisely how much difference there is between the categories (e.g. quality rankings);
3. *Interval*: ranks the item in a numerical order and identifies the differences between the variables (e.g. age).

After identifying the types of measurement, an analysis of the statistical techniques used follows:

## I. Univariate techniques

The first step in analysing the data is to identify what data look like by examining each variable separately (Baker, 1988). The *frequency distribution* of a variable is used to identify how the data are distributed across the categories<sup>1</sup>; the *mean* (or average value) and the *median* measures of central tendency describe the center, middle, or most typical value in the sample (SPSS, 1997); the *range* to measure the distance between highest and lowest point in a set of cases; and the *standard deviation* the square root of the variance, to measure “how much dispersion (or spread) there is in the distribution of values in a sample” (Baker, 1988, p.397). Where Likert-Scale negative statements were used, the results were reversed. This means that all positive views are in the 1 to 3 end of the scale and all the negative views in the 3 to 5 end of the scale.

Univariate techniques revealed an interesting pattern of response. However, they were not enough to explain different attitudes of respondents and development patterns. Therefore, more sophisticated methods were utilised.

## II. Bivariate techniques

The next step was the examination of relationship patterns between two variables through the use of bivariate techniques. These techniques are based on the notion that observations can be placed in several categories simultaneously (Nachmias and Nachmias, 1976), in tables known as cross-tabulations or contingency tables. The rows in the table represent the categories of one variable and the columns the categories of the other.

The most widely known test for comparing frequency distributions of two variables is the *chi square* ( $\chi^2$ ).  $\chi^2$  compares the observed and expected frequencies in each category and examines the null hypothesis ( $H_0$ ), assuming that

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<sup>1</sup> Because the sample size of the local authorities' survey was small (25 respondents), it was seen as more appropriate for the frequency distribution tables to be expressed in terms of the number of respondents/responses rather as percentages. However, there were times where for comparison reasons, percentages were used.

the variables are independent of each other (Singleton et al., 1993; Bryman and Cramer, 1997; Cramer, 1997; SPSS, 1997).

The level of probability for rejecting the null hypothesis for all tests was based on the significant value of .05, where the results would have occurred by chance only 5 times out of 100. The main limitation faced in the use of  $\chi^2$  is that in order to use this test, no more than 20 percent of cells should have expected frequencies of less than 5, and none should contain expected frequencies of less than 1. In any case where that happened, two solutions were used: the collapsing of some categories or Fisher's exact test for independence in a 2 x 2 table. If neither of these cases were applicable, the  $\chi^2$  was used for descriptive reasons, although its validity is questioned.

As simple comparison of the  $\chi^2$  from tables with different dimensions and sample size is relatively meaningless, Cramer's V was utilised to measure the strength of association between two nominal variables or one nominal and one ordinal. Cramer's V is derived from the  $\chi^2$  statistic and varies between 0 and +1, with the larger value signifying a higher degree of association. However, Cramer's V does not indicate how the variables are associated, unlike Spearman's  $\rho$  (explained below).

*Spearman's correlation coefficient rho ( $\rho$ )* was used to assess not only the strength of the relationship but also the direction between two ordinal variables. It ranges from +1 (perfect positive correlation), when there are no differences between the ranks, to -1 (perfect negative correlation), when the ranks of one variable are the exact reverse, and 0 when there is no relationship between the two variables (Levin, 1977; Bailey, 1987; Cramer, 1997).

*T-tests* were applied to compare variability of response based on means calculated for one dependent variable and one independent variable divided into two subgroups. When the independent variable was divided into three or more subgroups *One Way Analysis of Variance (ANOVA)* was applied. The purpose of

t-test and ANOVA is to test the hypothesis that group means of the population are equal. When the hypothesis is rejected, one mean (or more in ANOVA) is different from the other(s) and there is statistical significance. In t-test, the difference in the variance of the two subgroups is provided by the Levene's test for equality of variances, i.e. a type of one-way ANOVA (Bryman and Cramer, 1997, p.144). If Levene's test is significant, then the variances are unequal (Howitt and Cramer, 1997), otherwise they are equal. SPSS calculates a t-value and significance for equal and unequal variances. On the other hand, ANOVA estimates differences among scores within each group and between groups, by using the F-ratio.

The larger the value of the t-test and the F-ratio, the greater the probability of rejecting the null hypothesis and accepting the research hypothesis (Levin, 1977, p.149). The t-test and ANOVA are interpreted with reference to the degrees of freedom (df). Degrees of freedom technically refer to the freedom of variation among a set of scores (Levin, 1977, p.134). In the t-test degrees of freedom depend on the sample size and determine the shape of the sampling distribution of differences. If there is a sample of N scores, then N-1 are free to vary while only one is fixed in value (Levin, 1977, p.134). The same applies to ANOVA, although ANOVA has a second degree of freedom that varies with the number of subgroups. Specifically, if there are  $\Psi$  groups, then degrees of freedom is  $\Psi-1$ .

### **III. Multivariate techniques**

The univariate and bivariate analyses proved interesting. However, for the residents survey, it was found that they could not give a clear explanation of what was needed at this stage, since the association between two variables was not substantial enough to allow causal inferences (Nachmias and Nachmias, 1976). In an attempt to explore the data further and identify any relationships among three or more variables simultaneously, it was decided to re-analyse the data using more complex analytic techniques, namely multivariate statistics. Multivariate statistics were not applied to the tourist enterprises and local authorities' analyses because the sample size and the nature of questionnaires did not allow it. Before any analysis of the multivariate techniques takes place, it should be noted that in the

three multivariate methods used, missing values were handled using the listwise option, where cases with missing values are omitted from analysis.

The following multivariate techniques were used:

### Factor analysis

Factor analysis offers two applications. First, it can examine the correlations between the variables and second the correlations between the respondents. In this study factor analysis was used to examine the correlations between variables. To group individual respondents, cluster analysis was found to be more appropriate, as it is a commonly accepted method for many researchers. The reason for this is that factor analysis when used to examine correlations between respondents presents computational difficulties.

The primary purpose of factor analysis is to examine interrelationships among a large number of (metric) variables by condensing them into a smaller set of components (factors) with a minimum loss of information (Hair et al., 1987, p.6; Diamantopoulos and Schlegelmilch, 1997). Each factor contains “variables correlated with one another, but largely independent of other variables or subsets” (Tabachnick and Fidell, 1989, p.597). Factor analysis involves the following six steps: selecting and measuring a set of variables, preparing a correlation matrix, extracting a set of factors from the correlation matrix, determining the number of factors, rotating the factors to increase interpretability and interpretation of the results (Tabachnick and Fidell, 1989, p.598).

Two main types of factor analysis exist: the common factor analysis that analyses only the common (shared) variance and seeks to identify underlying dimensions (known as common factors), and the principal component analysis where the total variance is analysed and the original set of variables is reduced into a smaller set of composite variables (called ‘principal components’) (Diamantopoulos and Schlegelmilch, 1997, p.216). In this study, common factor analysis was chosen (instead of principal component analysis) for the following evident advantages (Kline, 1994, p.44):

- It is clearly useful to separate out common and unique variance since unique variance is of no scientific interest; and
- In common factor analysis the factors are hypothetical rather than real. Thus, a factor may account for the correlations among variables without being completely defined by them. This makes them of some theoretical interest.

Before using factor analysis (as well as cluster analysis) three tests were used to test if the data were appropriate.

- Cronbach Alpha ( $\alpha$ ) Coefficient is the most accepted method for testing the reliability of a scale (Ryan, 1995). Cronbach  $\alpha$  tests the reliability by measuring the correlations that exist for each possible way of splitting a set of items in half (Ryan, 1995, p.254). This coefficient varies from 0 to 1, and researchers seek for values greater than .6 for satisfactory internal consistency reliability (Malhotra, 1996). In this study Cronbach  $\alpha$  was .711, showing that the scale was reliable.
- Kaiser-Meyer-Olkin (KMO) test was used to check the appropriateness of the factor model. This test compares “the magnitudes of the observed correlation coefficients with the magnitudes of the partial correlation coefficients” (Malhotra, 1996, p.649). It takes the following values: 90+ = marvellous; 80+ = meritorious; 70+ = middling; 60+ = mediocre; 50+ = miserable; and below .50 = unacceptable (Kaiser and Rice, 1974). According to Tabachnick and Fidell (1989), for good factor analysis values of above .60 are required. The KMO measure of sampling adequacy had a large enough value .683, indicating that both the number of variables and the sample size are appropriate for factor (and cluster) analysis.
- Apart from the sample size and variables number, it is important for some of the variables to be correlated. If the correlations between the variables are small, factor analysis will not be appropriate. Therefore, *the Barlett’s test for sphericity (BTS)* was used to examine the hypothesis that the variables are uncorrelated in the population. This test is based on a  $\chi^2$  transformation of the determinant of the correlation matrix (Malhotra, 1996, p.649). The results of

BTS were 1899.620, (df = 666, p = .000) rejecting the null hypothesis that the variables are uncorrelated.

On the assumption that the scale is reliable, the factor model is appropriate and relationships exist within the variables, factor analysis was used to identify associations on residents' perceptions.

An important concept of factor analysis is the choice of factor rotation. The concept rotation means that the reference axes of the factors are turned about the origin until some other position has been reached which makes the larger loadings larger and the smaller ones smaller than their unrotated values (Hair et al., 1987, p.241; SPSS, 1997, p.301). The reason for this is to transform the factor matrix to make easier the interpretation (Kim and Muller, 1987). There are two types of rotation: the orthogonal and the oblique. In orthogonal rotation, the axes are maintained at 90 degrees, meaning that each factor is independent and as a result the correlation between the factors is zero. In the oblique, rotation is not maintained at 90 degrees and the factors are correlated (Hair et al., 1987; Tabachnick and Fidell, 1989; Kline, 1994; Malhotra, 1996; Stevens, 1996; Wright, 1997; Aaker et al., 1998). In order to decide the most appropriate method of rotation, the correlation matrix was examined. At first oblique rotation was considered because it is more flexible and realistic and leads to the most efficient way of reaching a simple and more easily interpretable structure (Hair et al., 1987). However, orthogonal rotation was used because of its conceptual simplicity, and because it is more appropriate when there is little correlation between factors. Besides, oblique solution is a subject of controversy and experimentation (Hair et al., 1987; Ryan, 1995). However, both models were tested and analysed using a factor loading of .40 and not many differences were found.

There are mainly three orthogonal rotation methods: *Quartimax*, *Varimax*, and *Equimax*. In this study, *Varimax* was used because it minimises the number of variables that have high loadings on a factor and therefore the interpretability of

the factors is easier (SPSS, 1997). Because of its distinctive advantages, it is the most commonly used method in factor analysis.

Another critical choice in factor analysis is the determination of the number of factors. There are four main different types of procedures for determining the number of factors (Hair et al., 1987, p.248; Malhotra, 1996, pp.651-652; Aaker et al., 1998):

- A priori determination. The researcher, due to prior knowledge knows the number of factors to expect and thus can specify the number of factors to be extracted beforehand.
- Determination based on eigenvalues, (i.e. the amount of variance accounted for by a factor). The rationale of this criterion is that any individual factor should account for at least the variance of a single variable, if it is to be retained for interpretation.
- Determination based on a scree plot. In this case the shape of the scree plot (that is a plot of the eigenvalues against the number of factors in order of extraction) is used to determine the number of factors.
- Determination based on percentage of variance. The cumulative percentage of the variance extracted by successive factors is used to determine the number of factors.

In this case the criterion of eigenvalues greater than 1 was used to determine the number of factors, because this criterion indicates the relative importance of each factor and is more reliable when the number of variables is between 20 and 50 (Hair et al., 1987; Malhotra, 1996; Aaker et al., 1998).

By using this criterion a total of ten factors were identified. One item “the money that tourism brings in is of benefit to the whole community” showed a relatively small correlation with other items, and did not have an adequate loading to be included in a factor with other statements but it was a factor itself. Therefore, it was excluded from further analysis, making the number of factors nine.

Another decision to be taken with Factor Analysis is to identify which factor loadings are worth considering. Factor loadings are the correlation of a variable and each respective factor (Bailey, 1987). According to Hair et al. (1987) loadings at above  $\pm.30$  are considered moderate,  $\pm.40$  important and above  $\pm.50$  very significant. However, the number of variables under investigation determines the significance of loadings and therefore there should be adjusted according to the size of the sample (Stevens, 1996). In the factor model, loadings of an absolute value of .40 or more were considered in order to load highly enough and because it was appropriate for the number of variables and sample size. Six items showed a relatively small amount of correlation with other items in the survey and failed to meet the criterion of  $\pm.40$ . As a result these items were excluded from factor analysis. These items were:

1. Authorities in the future should encourage greater numbers of tourists.
2. Prices of many goods and services in the region have increased because of tourism.
3. There should be no government incentives for tourism development.
4. This community should control tourism development.
5. There should be a specific tax on tourists.
6. Tourism provides an incentive for the conservation of natural resources.

Consequently the factor analysis utilised only 23 items. For the naming and interpretation of factors higher loadings have influenced the name or label selected. In addition, for the analysis although all the variables were examined for a particular factor, greater emphasis was placed on the variables with higher loadings. Additionally, communality ( $H^2$ ) was calculated to indicate the amount of variance that each variable shares with common factors (Malhotra, 1996, p.647). Communalities range from 0 to 1, with 0 showing that the common factors explain none of the variance of the variable and 1 that they explain all the variance (SPSS, 1997).

*Multiple regression analysis.*

Multiple regression analysis is a statistical technique which examines the relationship between a dependent variable and several independent variables (Hair et al., 1987; Tabachnick and Fidell, 1989; Kent, 1993; Bryman and Cramer, 1997; Howitt and Cramer, 1997; SPSS, 1997). The aim of regression analysis is to predict the dependent variable by knowing several independent variables (Hair et al., 1987). However, in this study multiple regression was utilised to identify the number of independent variables which are more strongly related to the dependent (factor) and to estimate the percentage of variance in each factor explained by the independent variables. Regression analysis can be applied to a data set in which the independent variables are correlated with one another and with the dependent variables to varying degrees.

To use regression analysis the independent variables have to be either dichotomous (yes/no), or continuous. If the independent variables are nominal, with more than two categories, they have to be converted into a set of dichotomous variables by dummy variable coding (0/1). Dummy coding assigns subjects to the 1' and 0', depending on whether they do, or they do not, possess the characteristic in question (Hair et al., 1987). Among the seven independent variables two, gender and city, were transformed to dichotomous. Regarding gender, 1 corresponded to males and 0 to females. On the other hand, city, because it was based on four categories, had to be split into more variables. According to Lewis-Beck (1993, p.76) a categorical variable with J categories requires a J-1 dummy variable in order to capture all the distributional information contained in the original set of distinctions. Thus, the independent variable city, with four categories, required three dummy variables to represent all the information contained in the original variable. As a result, three of the categories were represented by separate dummy variables (city of Heraklio versus other cities, city of Rethymno versus other cities, city of Chania versus other cities), and the fourth category (city of Agios Nikolaos) was excluded and served as a reference group. In multiple regression, there should be a minimum of at least 10 to 15 times more cases than independent variables. In the regression models there were 163 cases and nine independent variables, 18.1 cases per independent variable.

Missing values were handled using the listwise option and 31 cases were excluded from the total sample of 194 cases.

There are three forms of multiple regression: forward, backward and stepwise. Stepwise regression was used because it is the safest method when the aim is to explore the data for a solution which accounts for the maximum variance for a minimum of independent variables (Clark-Carter, 1997, p.350). In stepwise regression the variables are placed in the model, one at a time. If any variable does not contribute significantly to the model, it is removed.

The following statistics are used in regression analysis (Hair et al., 1987):

*Coefficient of determination ( $r^2$ ).* This measures the percentage of total variation of the dependent variable explained by the independent variables. It varies between 0 and +1. The higher its value the better the prediction of the dependent variable.

*Beta coefficient ( $\beta$ ).* When two or more coefficient variables are measured,  $\beta$  is used to compare the relative effect of each independent variable on the dependent.

*Significance testing.* In multiple regression, two types of significance testing exist. The significance for the overall test is made with the use of the F-ratio. The F-ratio hypothesis is that the amount of variation explained by the regression model does not occur by chance (i.e.,  $r^2$  is greater than 0) (Hair et al., 1987). The t-test tests the significance of the correlation between the dependent variable and one of the independent variables.

#### Cluster analysis.

Although both factor and cluster analyses are concerned with reduction, factor analysis seeks to reduce the number of variables, while cluster analysis is concerned with the reduction of the number of individuals or objects (Hair et al., 1987; Ryan, 1995). This is achieved by looking at the similarities and differences between the individuals or objects of interest, in order to determine the number of groups (clusters) in the sample and classify them according to their characteristics (Bailey, 1987; Hammond, 1995). As a result, individuals or objects within the

same cluster are more like each other than the ones in other clusters (Diamantopoulos and Schlegelmilch, 1997).

There are mainly two methods for clustering objects into categories: the *Hierarchical Cluster Analysis* and the *K-Means Cluster Analysis*. In the hierarchical method, clustering involves “the construction of a hierarchy or a tree like structure composed of separate clusters” (Hair et al., 1987, p.294). In K-means, the number of clusters are chosen by the researcher and cases are grouped into the cluster with the closest centre (SPSS, 1997). K-means was chosen instead of hierarchical method, because it is more appropriate for large samples (Milligan and Cooper, 1988; Everitt, 1993; Beaman and Vaske, 1995; Green and Krieger, 1995; SPSS, 1997), as the sample size of this survey.

Since the objective of cluster analysis is to group similar objects together, it is necessary to use some measure to assess how similar or different the objects are (Malhotra, 1996, p.676). In hierarchical cluster analysis, there are approximately 37 distance measures for defining how different or alike two objects are (SPSS, 1997, p.264). In contrast in a K-means procedure, distances are computed using *simple Euclidean distance*, i.e. “the square root of the sum of the squared differences in values for each variable” (Malhotra, 1996, p.676).

The major problem with cluster analysis is that there is no definite procedure for identifying the number of clusters (Ryan, 1995). To approach this problem researchers should investigate the distances between clusters. According to Hair et al. (1987) researchers should stop “when this distance exceeds a specified value or when the successive distances between groups make a sudden jump” (p.306). This is easier through the use of an icicle plot or a dendogram. To select the best number of clusters, solutions were computed for several numbers of clusters from two to six. The best alternative, after an evaluation of all solutions, was considered to be three clusters for the following reasons:

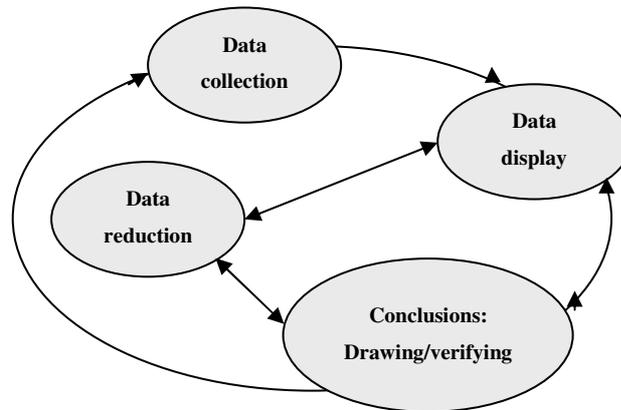
- at a three clusters solution the sizes of the clusters were more equal (66, 22, and 78), whereas, for example, in a four clusters solution the sizes were more unequal (56, 5, 75 and 30);
- the distance between the clusters was too high for most of the other solutions; and
- the findings will be more manageable and better to communicate with a three cluster solution than a solution with more clusters.

It should be noted that the three clusters accounted for 166 of the 194 respondents. The 28 respondents (14%) were outliers due to missing values. In Cluster analysis, any significance of the distance between clusters can be identified through the use of ANOVA tests. However, the F tests should be used only for descriptive purposes and not to test significance, since the clusters are chosen to maximise differences among cases in different clusters (SPSS, 1997).

#### **6.2.9.2 Analysis of qualitative type questions**

Much has been written on different types of qualitative analysis. For instance, Tesch (1990) identified 26 different approaches to qualitative analysis. This variety and diversity of qualitative approaches of analysis mean that there is no single methodological framework for the analysis of qualitative data and the approach followed by each researcher depends on the purpose of the research (Punch, 1998). In this study, ‘transcendental realism’, proposed by Miles and Huberman (1994) was adopted for the analysis of open-ended questions. According to this approach after the collection of data the following components of data analysis exist (Figure 6.4):

Figure 6.4: Components of data analysis: Interactive model



Source: Miles and Huberman (1994).

*Data reduction* is a part of the analysis that occurs continually. According to Punch (1998, p.203), it has three stages: the early stage, through editing, segmenting and summarising the data, the middle stage, through coding, memoing, and associated activities, and the later stage, through conceptualising and explaining. Coding is the major operation to get the analysis going. Coding is the process of putting tags, names or labels against pieces of data (Punch, 1998), in an attempt to attach meaning to them. In the three questionnaires closed questions were pre-coded. Answers from open-ended questions were copied from the questionnaires and presented in the form of a raw report. Individual codes were given for the most frequent responses and the remainder was grouped into meaningful categories. Although the aim was not to leave many responses in the other category, this was inevitable because responses to some questions differed significantly for some respondents. Finally, data were entered into the computer (SPSS).

*Data display* through various ways, such as graphs, charts, tables etc. This component is “an organised, compressed assembly of information that permits conclusion drawing and/or action taking, is a second part of analysis” (Huberman and Miles, 1998, p.180).

*Drawing and verifying conclusions.* The only reason for reduction and displaying data is to interpret them and draw conclusions (Punch, 1998). There is a range of

tactics to achieve this, such as comparisons, contrast, noting of themes and patterns, clustering, triangulation, and looking for negative statements (Huberman and Miles, 1998).

### 6.3 LIMITATIONS AND ISSUES OF VALIDITY AND RELIABILITY

For quantitative studies, there are two major issues to be considered to ensure that the measures developed are reasonably good. These issues are validity and reliability.

***Validity*** is the extent to which the collected data actually reflect the phenomenon under investigation. According to Veal (1997), tourism research presents a lot of difficulties in ensuring validity for the reason that it deals with people's attitudes and behaviour. The researcher is reliant on individual responses, mainly through the use of questionnaires, and there is no control over responses (e.g. misunderstandings). Since these instruments have many deficiencies, and attitudinal surveys can be an unstable reflection of attitudes (e.g. changes over a short time or by exogenous variables), the data obtained can never be as certain as the data obtained by the natural sciences (Pizam, 1994; Veal, 1997, p.35).

Many approaches have been proposed for assessing validity (Nachmias and Nachmias, 1976; Moser and Kalton, 1979; Bailey, 1987; de Vaus, 1991; Ryan, 1995; Aaker et al., 1998; Punch, 1998; McQueen and Knussen, 1999), although none is perfect.

*Criterion validity.* A comparison is made with how respondents reply to questions measuring a concept and existing, well-accepted measures of the concept. In this study, no other measure was used because it was not available. However, in criterion validity the interpretation of the findings is based upon the ability of the variables to predict another variable (Ryan, 1995, p.36). Prediction was made through regression analysis to clarify how well the seven independent variables could predict the factors (dependent variables).

*Subjective validity.* There are two methods of subjective validation: the face validity and the content validity. Face validity refers to the judgement that an operational definition appears, on the face of it, to measure the concept it is intended to measure (Singleton et al., 1993, p.122). However, face validity is not widely acceptable because it is based on personal judgement rather than objective evidence (Singleton et al., 1993). On the other hand, content validity refers to the degree to which a measure covers the full range of behaviour being measured (Clark-Carter, 1997, p.29). To ensure face and content validity experts were asked to judge if the instrument covered the range that they would expect and a review of the literature was undertaken to identify different aspects of the concept. An additional method was a pre-test, in other words, the pilot survey, to check a proper and broad flow of questioning. However, tourism development and planning are broad areas, which cannot be covered fully in this survey, as the length of the questionnaire had to be limited to an appropriate time. Therefore, certain questions, such as preferred future scenarios for tourism development, and desire of respondents to participate in planning, had to be excluded from the questionnaires.

*Construct validity.* This method evaluates how well a measure conforms with theoretical expectations. From the research findings it is evident that the adopted instruments assessed the theoretical construct of the literature review satisfactorily and therefore we can assume that the research has achieved construct validity. For example, the results of the factor and cluster analysis can ascertain construct validity, since by the use of these two techniques many aspects of the theory became apparent, such as the significance of the economic benefits and the concern for environmental and social costs.

To sum up, there is no ideal way of determining validity. As de Vaus (1991) states:

The method chosen will depend on the situation. If a good criterion exists use it; if the definition of the concept is well defined or well accepted use this approach; if there are well established theories which use the concept which we use to validate, use this

approach. If all else fails we have to say this is how the concept is defined and these measures, on the face of it, seem to cover the concept, and to give the measure to other people (referred to as a panel of judges) to see what they think (p.57).

**Reliability** means the degree to which the results we obtain will be the same from one occasion to another (de Vaus, 1991; Clark-Carter, 1997; Sapsford, 1999). It can be distinguished from validity, because validity is concerned with whether the research instrument measures what it is supposed to measure. Reliability interferes with the consistency of the results. If a measure is valid, then it is also reliable, although if a measure is reliable it does not imply that it is valid also, because somebody can measure reliable something other than that he/she intends to measure (Singleton et al., 1993). Although in the natural sciences, reliability is easy to control, in the social sciences, most of the times this is not possible, because they deal with human beings in ever-changing social situations (Veal, 1997, p.36). Therefore, Veal (1997, p.36) suggests that social scientists, including those in tourism, should be very careful when they make general statements based on empirical research for the reason that any findings are related only to the subject involved, and at the time and place that the research was undertaken.

Certainly, timing for this study was a critical issue. Although the business survey had to take place during the tourism season, it was decided to undertake it late (October and November) when business activity was lower. Nevertheless, refusals to participate in the survey were evident because of workload. This was more evident in TA/CRs, CEs and tourist shops, because of direct contact of respondents with customers. Therefore, the response rates for these enterprises was lower (ranging from 35-42.5%), compared with AEs (65%).

The residents' survey took place during August and September, when the impacts of heavy tourism concentration were more acute, which might influence respondents' perceptions, since attitudes might vary with differing levels of tourist activity. Therefore, more accurate information might be obtained from surveys undertaken in different seasons of the year to account for seasonality of tourism activity. Timing might also have affected the response rate since some residents

employed in tourism were busy or absent, especially in the city of Agios Nikolaos, where the response rate of residents survey was low (39%) compared with the other cities (50-55%), perhaps due to the higher involvement of residents of this city in tourism activities.

De Vaus (1991) considers three aspects of reliability: sources of reliability, testing reliability and increasing reliability. As sources of reliability, de Vaus (1991) identified bad wording of questions, and that different interviewers eliciting different answers from respondents. He gave as examples the influence of gender, ethnic origin and appearance of the interviewer, problems with the coding of questions since different codes can be used for the same response, and he identified that even well developed questions can have unreliability problems.

In this survey, the best way to increase reliability, applicable for the three questionnaires, was to use questions well tested by other researchers, paying attention to the wording of the questions (the pilot survey and experts judgements were utilised to ensure good wording), correct coding and good appearance and friendly manners of the interviewer. On the other hand, the interviewer had the same ethnic origin as the interviewees, although his gender may have affected response rates, or the freedom of female respondents to express their opinion.

Several methods have been established for testing reliability for single and multiple-item indicators. For single item indicators (single questions), the only method is the test-retest, whereby the researcher asks the same respondents the same question twice, usually at a two to four week interval, and then calculates the correlation co-efficient for both interviews, which for reliable results the coefficient should be high. Due to time and budget limitations, this method was not used and instead the internal consistency reliability test, Cronbach  $\alpha$ , was used for the resident questionnaire to test the extent to which the items are consistent with each other or are all working in the same direction (Punch, 1998, p.99). The results of the Cronbach  $\alpha$  reported above confirm the reliability of the scale.

Apart from validity and reliability there are alternative criteria of evaluation, as proposed by Lincoln and Guba (1985), used mainly in qualitative analysis, although they can be easily adopted in this survey. These include credibility, transferability, dependability and confirmability.

Robson (1993, p.403) identifies the goal of credibility (parallel to internal validity): “to demonstrate that the enquiry was carried out in a way which ensures that the subject of the enquiry was accurately identified and described”. The major techniques known to increase credibility are prolonged involvement, persistent observation and triangulation. In this study, prolonged involvement was crucial, since the researcher has lived all his life in the island and has worked in the tourism industry and as a result he has substantial knowledge of tourism outcomes. Moreover, through triangulation, by using different sources and methods for data collection, an attempt was made to enhance the credibility of the investigation of the complex phenomena of tourism development and community perceptions.

Transferability (external validity or generalisation) refers to whether the findings of the study “can be transferred to another similar context or situation and still preserve the particularised meanings, interpretations, inferences from the completed studies” in order to extend knowledge use (Leininger, 1994, p.106). It was a constant concern of this study to give a full specification of the methodological choices and procedures followed in the research design, in order to help others designing studies to determine the extent of transferability to the development of their studies, and permit adequate comparisons.

Dependability (parallel to reliability) refers to whether the process of the study is consistent, reasonably stable over time and across researchers and methods, in other words, a kind of quality control (Miles and Huberman, 1994, p.278). As a study that is valid must be reliable, so a study that is credible is also dependable. As a result, triangulation, used to test credibility, is a means of assessing dependability. Furthermore, to attest dependability, attention was paid to the

processes followed in this research and attempts were made to ensure that the process was clear, systematic and well documented.

Confirmability/objectivity refers to whether the reader has been told enough to judge the adequacy of the process and assess whether the findings flow from the data (Robson, 1993). To achieve confirmability, the general methods and procedures of the study were described explicitly and in detail.

However, the limitations of this study may have influenced the research outcome. Crete is a large island with residents and tourist enterprises that may vary in characteristics according to geographical location. Therefore, it would be best to increase data reliability by eliciting information from many different areas (four for the residents survey and 16 for the enterprises). However, since the interviews were conducted in so many areas spread throughout the island, certain study limitations attributable to time and financial considerations deserve mention. Therefore, the total sample had to be small, if somebody considers the sample size used at postal surveys. Besides, the research instrument used was time demanding, since the average interview for the residents questionnaire was approximately 35 minutes, and for the owners/managers, as well as local authorities one hour, although there were cases where it took up to two hours. Therefore, the major limitations faced in this survey were limited time and low budget.

Equally, asking questions on issues that respondents have little knowledge of, or are unable to express an opinion on, can lead to 'very rough and ready answers'. This was evident in cases where respondents were poorly educated leading to misunderstanding, which required the interviewer to elaborate on the questions. Additionally, some respondents from the business sector were suspicious and refused to reply, or replied with diffidence, to many of the financial questions, considering them 'strictly confidential'. Due to inadequate data collection, three questions related to the financial performance of enterprises (amount of capital investments, total turnover and VAT payments) were excluded from further analysis. This may be explained because:

- the fierce competition between the enterprises made many of the owners/managers reluctant to provide insights into their financial performance;
- many enterprises may not declare the correct amount of turnover in order to reduce the amount of payable taxes;
- respondents from many of the firms, particularly the smaller ones, did not have available or they could not remember detailed information, and stated that “only their external accountant knew this”.
- Some interviewees believed that the interviewer was employed by the taxation agency to acquire further information about their business affairs.

Further, two questions were excluded from analysis because they did not provide any analytical benefit. The first question asked owners/managers to name the facilities/services provided by their enterprises and the second asked owners/managers of CEs the average spend of each incoming tourist at their establishment.

Another difficulty was the refusal of a significant number of potential respondents to participate in the interview, which may create problems of representation, as the results may have been biased by either favourable or unfavourable responses, since the non-respondents may differ in their characteristics from the respondents. Nevertheless, data is not available for the non-respondents profile and therefore it is not possible to proceed to a test of non-response bias. The non-response was more obvious in the business sector survey, due to workload, and for many of the residents, due to lack of interest and fear of opening their door to a stranger. Cretans are not used to participating in surveys and therefore it was quite difficult for many of them to be interviewed. For example, Kousis (1989) in her survey of a Cretan community abandoned formal interviews because, after repeated attempts, the local residents felt very uneasy.

There were also cases where although an appointment was arranged (mainly with an owner/manager or local authority official), he/she did not show up or was not

on time, so the interview took place at another time or did not materialise. Since the private sector and local authority interviews were conducted in the respondents' place of work, very often respondents were performing other duties resulting in delays and disruptions.

## 6.4 CONCLUSION

This chapter has presented the sequential steps followed to complete this thesis. The entire research process used in this survey has been analysed from beginning to end, in order to understand each step followed. According to Ritchie (1985):

The quality of research and planning activities is no better than the quality of information on which these activities are based. In turn, the quality of this information depends upon the use of methods of data collection, which provide appropriate and reliable inputs, which can be analysed and interpreted so as to provide meaningful insights and conclusions (p.94).

The quality of the sequential steps analysed above will show if the major aim of this study will be achieved and if meaningful conclusions and future tourism strategies in the final chapter may be provided that, when adopted by the Cretan tourism industry, will ensure optimal outcomes. However, it is important to note that the survey design was constrained by limited time and cost, and the need to obtain a sufficiently large absolute return from a representative sample in a fairly small total population.