Chapter 4

Methods and Preliminary Analysis

4.1. Introduction

This chapter discusses the methods employed in the study. The discussion will include ethical considerations, the rationale of the selected research design, description of the exploratory research, questionnaire design, sampling technique, method of data collection, and data analysis. A final model of post-choice satisfaction will be presented at the end of the chapter.

As discussed in chapter 1, the aim of the research is to examine the CS/D of the university as a study destination, as experienced by international post-graduate students from China, India, Indonesia, and Thailand studying in Victorian universities. The selected methodology of the study is consistent with its aim in that it follows a post positivist research paradigm incorporating both qualitative and quantitative research methods to support the research objectives flowing from the overall aim.

The discussion in this chapter is presented in two parts. The first part of the discussion will focus on the preliminary analysis and the qualitative research methods employed in the study, including the research design, exploratory research and its findings, selection of the explanatory variables, questionnaire design, pre-testing of the questionnaire, sampling issues, and questionnaire administration. The second part of the discussion will concentrate on the quantitative data analysis strategy comprising descriptive statistics of the sample, quantitative techniques including factor analysis, computation of satisfaction scores, ANOVA, as well as logistic and linear regression. The chapter begins with ethical considerations that have been fundamental to the study.

Figure 4.1 presents the structure of the chapter and discussion elements.
Figure 4.1: Chapter Outline

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4.2. Ethical considerations

Ethical conduct in research based on Social Sciences and Humanities Research Council (SSHRC) was strictly adhered to in the process of gathering data for the study.

Kervin (1992) has proposed a checklist for ethical research outlining the need to take action to avoid any harm to the participants or others directly or indirectly, violating accepted research practice and also community standards in conducting research.

The following action was taken by the researcher to ensure that the study complies with the accepted ethical guidelines.

- Approval from the University Ethics Committee to conduct both the exploratory research and the main survey involving humans. This entailed rationalising the processes involved and the submission of the instruments used in these studies for scrutiny by the University Ethics Committee;
- Detailed instructions in the instruments used confirming the process in place to ensure participants confidentiality and anonymity;
- Obtaining written consent from the participants involved in the exploratory research stage;
- Choice given to potential respondents of the main survey either to participate or not to participate in the exercise, together with the option of contacting the Chair of the University Ethics Committee to obtain any clarification on the survey. All contact details were given in the covering letter accompanying the questionnaire;
- Letters written by the international offices of respective universities to students inviting their participation in the research emphasising the need to use their own discretion in responding to the questionnaire.
4.3. Research paradigm

This study uses a methodology aligning with a post positivist research paradigm in that greater objectivity, rigor and logical reasoning are key criteria in examining the research problems (Hussey and Hussey, 1997). In this tradition, it is argued that although reality is there to be studied, captured, and understood, it can never be fully apprehended, only approximated. Moreover, it relies on multiple methods as a way of capturing as much of reality as possible, while placing emphasis on the discovery and verification of theories (Denzin and Lincoln, 2000). Based on this paradigm, the study starts with a review of literature to establish the theory and to construct testable hypotheses. Then, it takes the form of a triangulation study where both qualitative and quantitative data sources are used. Denzin (as quoted in Hussey and Hussey, 1997, p.74) defines triangulation as “the combination of methodologies in the study of the same phenomenon”. In other words, both qualitative and quantitative methods are concerned with aspects of issues that are important in understanding and analysing the individual’s point of view. While qualitative research, arguably, gets closer to the respondents’ perspective with detailed interviews and observations, quantitative research relies on more remote, inferential empirical methods and materials though supported by objective evaluations. This view is shared by Frankel and Devers (2000) who describe qualitative research as primarily inductive in that the researcher’s task consists of describing and understanding people and groups’ particular situations, experiences, and meanings before developing and/or testing more general theories and explanations. In contrast, quantitative research is primarily deductive, drawing heavily on existing theoretical and substantive prior knowledge to conceptualise specific situations, in order to predict and explain phenomena (Frankel and Devers, 2000).

There is an ongoing debate on the choice of either qualitative or quantitative approaches in analysing consumer behaviour. Over reliance on quantitative data in such studies is criticised by some researchers. Townley (2001) used a qualitative approach in his study of student satisfaction and, argues that qualitative research can be used as effectively as quantitative survey based studies. His view is supported by many other researchers (Ruyter and Scholl 1998; Morgan 1998; Healey and Perry 2000) who believe that marketers and academics, in general, give lesser priority to qualitative method due to its failure to provide hard data and its reliance on small
samples which cast doubts about its representativeness and ultimately its validity. These researchers reject the notion that only hard statistics have any meaning because to say a certain percentage is satisfied or dissatisfied provides an incomplete picture unless one analyses why consumers feel that way to enable management to ascertain the problem or potential problem and the ways of dealing with them. The contention therefore is that it is necessary to have a richer set of information to enrich and inform the “hard” statistics (Townley 2001).

The preceding paragraph represents a justification of the use of qualitative data in research but also an endorsement of the application of both qualitative and quantitative analysis in order to achieve the objectivity, rigor and logical reasoning in examining research problems. This study adopts the balanced approach of using both qualitative and quantitative analysis to deal with the research problem.

4.4. Research Design

A research design is a basic plan that guides the data collection and analysis phases of the research project (Kinnear and Taylor, 1996). It provides a framework that specifies the type of information to be collected, its sources and the collection procedure. As shown in figure 4.1, and the discussion in section 4.1 the research design followed in this study is a combination of exploratory and explanatory research supported by qualitative and quantitative data analysis.

Exploratory research focuses on gaining insights and familiarity with the subject area for more rigorous investigations at a later stage and also provides inputs for decision-making (Malhotra, 1999; Hussey and Hussey 1997; Kinnear and Taylor (1996). The first phase of this study involved a detailed review of literature to identify the theoretical background related to international education and customer satisfaction with reference to international students and the analysis of various research themes and constructs resulted in determining the research problem and the questions to be investigated. This was followed by focus group discussions and in-depth interviews to refine and validate these themes and the theoretical constructs before research hypotheses were formulated. The findings of the exploratory research are presented in
this chapter, as they are relevant to discussion on research design in the subsequent sections.

Explanatory research, on the other hand, goes beyond exploratory and descriptive research in terms of analysing the characteristics of marketing phenomena, their frequency of occurrence, discovering and measuring the association and relationships of the marketing variables to provide a plausible explanation for observations (Hussey and Hussey, 1997; Kinnear and Taylor, 1996). A questionnaire was developed to gather quantitative data and multiple statistical techniques were used to analyse and interpret the data, including hypothesis testing.
Part A.

4.5. Qualitative research methods and Preliminary analysis

The Part A of this chapter will focus on the qualitative research methods and the preliminary data analysis and the qualitative research methods employed in the study, which will include the exploratory research and its findings, selection of the explanatory variables, questionnaire design, pre-testing of the questionnaire, sampling issues, and questionnaire administration.

4.5.1. Exploratory Research

The literature review in chapter 2, provided an insight into the research themes and constructs, helped to formulate and define the research problem more precisely, identify key variables and relationships for further examination and, gain insights for developing an approach to the problem. Focus group discussions and, in-depth interviews comprised the methods used in this phase.

The primary focus of this phase is to extend the factors identified by earlier researchers (Lawley 1993 and 1997; Lawley and Blight 1997; DETYA, 2000) related to the pre-purchase (Pre-choice) decision making process for investigation into their relevance to post-purchase (Post choice) satisfaction and dissatisfaction.

The key objectives of the exploratory research were to:

- review the variables related to the choice of study destination so far identified in order to ascertain the importance of these variables in explaining post-choice satisfaction;
- identify any additional variables that could impact on student satisfaction;
- verify the relationships between the identified variables and expectations of students of university as a study destination and, following from above, to establish a set of variables to be included in the major study of this thesis;
- ascertain how these variables could be operationalised in a questionnaire.
The investigation during this process included assessing the importance of the factors influencing CS/D among the target students, and the differences in the ranking of these factors. Apart from verifying the relevance of the factors discussed in the literature, the process provided the opportunity to identify additional factors with regard to student perceptions and expectations of studying in Australia. Appendix 4 and 5 provide summaries of studies covering factors influencing choice of destination and post-choice behaviour.

4.5.2. Focus Group Discussions

4.5.2.1. Why Focus Groups?
Many marketing practitioners consider focus groups as the most important qualitative research procedure to the extent that it is synonymous with qualitative research (Malhotra et al, 2002). Focus groups are described as a technique:

- used to gather data relating to the feelings and opinions of a group of people who are involved in a common situation. It is a technique that combines both interviewing and observation and therefore becomes an important technique used in preliminary research, and pilot studies to develop questionnaires (Hussey and Hussey, 1997);
- aimed at using group interaction to produce data and insights that could be less accessible without the interaction found in a group (Morgan, 1998);
- that gathers information from group interaction that is focussed on a series of topics introduced by a discussion leader or moderator (Solomons, 1992).

Malhotra et al (2002) provided a comprehensive list of advantages and disadvantages of focus groups. Given their focus on a terminology that provides uniform wording, some of the descriptions appear inadequate to highlight all of the advantages and disadvantages.

Among the advantages presented by the authors are:
- **Synergism**: Ability to produce a wider range of information, insight and ideas than individual responses secured privately;
- **Snowballing**: a bandwagon effect ensuring a chain reaction among group participants to contribute opinions and ideas;
- **Stimulation**: the participants are enthused by group interaction after some time;
- **Security**: group participants feel comfortable to contribute as the opinions and ideas expressed are common to all. Authors appear to ignore the diversity within a group and the likelihood of participants expressing different opinions on a common issue;
- **Spontaneity**: given that the group participants are not required to answer all questions, contributions become spontaneous which are generally accurate;
- **Serendipity**: the ideas are generated more easily in a group situation than in an individual interview;
- **Structure**: group interviews allows flexibility in the topics covered and the depth in which they are treated;
- **Speed**: data collection is quicker given that a number of individuals participate in the discussion at the same time as the focus is on the collective output of the group.

Some of the disadvantages highlighted are:

- **Misuse**: researchers can misuse the data collected in focus groups by treating them as conclusive rather than exploratory;
- **Misjudge**: the results are often misjudged given that focus groups are susceptible to client and researcher biases;
- **Moderation**: focus groups are difficult to moderate. This will have an effect on the final results. Moreover the participants' views can be influenced by the arguments of other members of the group, particularly in the event of the presence of a member who dominates the discussion. The validity of the results becomes an issue in these circumstances.
- **Messy**: the unstructured nature of the responses makes coding, analysis, and interpretation difficult and messy.
Misrepresentation: focus groups are not representative of the general population and the results cannot be used exclusively for decision-making (Malhotra et al, 2002, pp. 197-198)

4.5.2.2. Number and composition of groups

The number of groups to be interviewed depends on the nature and objectives of the research in terms of the input required for evaluation (Hurworth 1996). According to Hurworth (1996), at least three groups are needed to detect trends and to avoid atypicality and any more than 20 would become unmanageable and begin to involve survey-type numbers of subjects.

The industry standard for the number of participants in each focus group is between 4-12 persons (Kinneer and Taylor 1996; Hussey and Hussey 1997; Malhotra, 1999; Churchill and Iacobucci, 2002). Four or over is large enough for diversity of perception while 12 or less is small enough for the participants to contribute freely towards the discussion (Hurworth 1996). In addition, the general guidelines recommended for these discussions were followed and participants of both sexes representing different stages of their course programs were included the focus groups. However, given the need to ascertain the expectations of students of a university as a study destination, effort was made to include as many students as possible in their first semester of the course. This was to minimise the ‘contamination effect’ of student responses with current experience (Carmon, 1990; Getty and Thompson, 1994).

As noted earlier, the primary purpose of the focus group discussions was to verify and refine the variables identified by earlier research in terms of exploring the relationships among variables influencing the pre and post-choice behaviour of students, and their relevance to measure post-choice satisfaction and dissatisfaction.

The opportunity was also used to develop the hypothesis based on the research objectives. Most of the earlier research focussed on the choice of study destinations as outlined in chapter 2, and it was necessary to ascertain whether these choice variables could be justified as input variables in modelling post-choice satisfaction and dissatisfaction. They were also aimed at identifying additional factors with regard to student expectations of studying in Australia, examining the importance of factors
influencing choice of destination and the differences in the ranking of these factors by the target students.

4.5.2.3. The approach
Given the above circumstances, three focus group interviews involving 31 students with each discussion lasting 1.5 to 2 hours, were conducted in Melbourne over a period of three weeks with post-graduate international students from three university campuses – Victoria, RMIT and Deakin universities. This was necessary because of the difficulty in assembling all students in one location at a given time, and the need to provide a familiar and a comfortable environment (Stewart and Shamdasani, 1990). The selection of students for focus group interviews was based on a non probability cross sectional convenience sampling method to ensure diversity of opinion on matters of concern to students and a greater insight into the research question. This is similar to the ‘purposive’ sampling strategy introduced by Frankel and Devers (2000), which “enhances understandings of selected individuals or groups’ experience or for developing theories and concepts” (Frankel and Devers, 2000, p. 264). The subjects are the ‘typical cases’ of those who are ‘normal’ or ‘average’ for those being studied” (Miles and Huberman, 1994, p. 34).

The participants, besides being a homogeneous group, were representative of the four student groups, in terms of gender and, age as shown in the Table 4.1 below. The group identified as ‘other’ were international postgraduate students from other Asian countries who assisted in a comparative evaluation of factors relating to university choice.

Table 4.1: Composition of focus groups

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>India</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Thailand</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
The first group discussion comprised 16 participants and involved two moderators (including the researcher). The researcher moderated the other two discussions with 9 and 6 participants, respectively. Though the first group exceeded the desirable number of participants in one group discussion, the involvement of two moderators and the keen interest shown by the participants with the area of investigation, facilitated a very productive session.

The discussions were conducted in a semi-structured fashion (Esterby-Smith et al, 1991) with a prepared guide as outlined in Appendix 5. The process included opening questions, transition questions, which were then followed by the key questions.

Towards the end of each focus group discussion, a short questionnaire was distributed among the participants to obtain additional comments and further confirmation of students’ views in regard to the choice variables and the potential areas of student’s concern for further analysis.

4.5.2.4. Focus Groups Findings

This section concentrates only on the findings related to the choice of factors/variables for the model of post-choice satisfaction. The focus group discussions confirmed the relevance of most of the choice variables/factors, identified in earlier studies, to measure post-choice satisfaction. Student’s concerns were more profound issues such as prestige of the university, recognition of qualifications, course completion time-frame, competitive fees, value for money, university facilities including computer labs, library, accommodation, social activities, counselling, complaint process and teaching quality. The feedback from these discussions was incorporated in the questionnaire and in order to ensure deeper analysis of the important issues, multiple statements on some single issues were introduced as shown in Table 4.2 below.

For example, student responses were sought on two aspects in regard to library and computer facilities (‘modern and adequate’ and ‘access’), two aspects in regard to student accommodation (‘cost’ and ‘quality’) three aspects of the image and prestige of the university (‘within Australia’, ‘internationally’ and ‘in my home country’), four
aspects in relation to availability of information to students (‘through overseas agents’, ‘Australian embassies and other official representatives’, ‘via the internet’, ‘compared to other universities’ and, four aspects of the academic courses (‘appropriate to my needs and aspirations’, ‘recognised in my home country’, ‘completion times suited to my needs and aspirations’, ‘relevant to future job and career prospects’).

It was clear from the findings that the importance of the choice variables differed between student groups. Indian participants were more vocal on issues with regard to the ‘high image and prestige’ of the university, ‘tuition costs’, ‘standard of teaching’, ‘library facilities’, ‘computer facilities’, and the ‘information and guidance from overseas agents’, ‘information and guidance from Australian diplomatic missions and other official representatives’, and ‘the process to deal with complaints’ than the other student groups. An Australian university was not the first preference as a study destination for almost all Indian students, some Thai and Chinese students. Indonesian students were unique in identifying an Australian university as their first preference.

Table 4.2: Multiple statements related to student issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library facilities</td>
<td>- Modern and adequate library facilities</td>
</tr>
<tr>
<td></td>
<td>- Good operating hours for library access</td>
</tr>
<tr>
<td>Computer facilities</td>
<td>- Modern and adequate computer facilities</td>
</tr>
<tr>
<td></td>
<td>- Good access to computer labs</td>
</tr>
<tr>
<td>Student accommodation</td>
<td>- Accommodation of a good standard</td>
</tr>
<tr>
<td></td>
<td>- Accommodation at reasonable cost</td>
</tr>
<tr>
<td>Image and prestige of university</td>
<td>- High image and prestige within Australia</td>
</tr>
<tr>
<td></td>
<td>- High image and prestige internationally</td>
</tr>
<tr>
<td></td>
<td>- High image and prestige in home country.</td>
</tr>
<tr>
<td>Information and guidance</td>
<td>- Through overseas agents and consultants</td>
</tr>
<tr>
<td></td>
<td>- Through diplomatic representatives</td>
</tr>
<tr>
<td></td>
<td>- Via the internet</td>
</tr>
<tr>
<td></td>
<td>- Compared to other universities.</td>
</tr>
<tr>
<td>Academic courses and content</td>
<td>- Appropriate to my needs and aspirations</td>
</tr>
<tr>
<td></td>
<td>- Recognised in my home country</td>
</tr>
<tr>
<td></td>
<td>- Completion times suited to my needs</td>
</tr>
<tr>
<td></td>
<td>- Relevant to future job and career prospects</td>
</tr>
</tbody>
</table>
For Indian students, Australian university was the third preferred destination after universities in the USA and UK. An Indian student commented: "I could not gain admission to a university in USA or UK and then I applied to Australia. First I got a place in Sydney but I wanted to come to Melbourne".

Several Indian students commented that the absence of the GMAT test and low fees were two of the major considerations for choosing Australia. Compared to other student groups, Indian students appeared to be more aware of the university structure and facilities and were prepared to discuss the issues more openly than the other groups.

Some Thai students, however, favoured studying in a university in the United Kingdom in preference to an Australian university. "My mother studied in Melbourne. She and my aunt, who is a university professor, wanted me to come to Australia, though I wanted to go the UK. I stayed in the UK for six months" was the comment of a Thai student.

Indian and Thai students did not consider ‘presence of students of my own country’ a strong influence to study in an Australian university. The company of students of one’s own nationality was seen as a pleasant coincidence but the yearning for greater interaction among other student groups was considered as more satisfying experience by students from India and Thailand. The opposite was found in regard to students from China and Indonesia.

Further elaboration of the key findings will continue in section 4.3 below, where all key choice variables are discussed.

4.5.3. Depth interviews

Thirteen depth interviews were conducted both prior to and after the survey procedure, 3 overseas and 10 in Australia, as outlined in Table 4.3 below. This section will focus on the interviews conducted prior to the survey procedure.

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1 The student was on holiday and was not studying in the United Kingdom.
Table 4.3: Composition and timing of depth interviews

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Prior to survey procedure</th>
<th>After survey procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>University Administration</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Overseas Institution/Agents</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

The objectives of the depth interviews were the same as those of the focus group discussions. The advantage of the depth interviews was the ability to achieve a deeper insight into the issues related to students’ post-choice satisfaction. It was also an opportunity to discuss issues on an individual basis and to ascertain the nature of variables associated with post-choice satisfaction. With regard to students it was necessary to find out whether or not there were any differences in the understanding and interpretation of the different factors/variables, given different cultural backgrounds.

4.5.3.1. The approach

As in the case of focus group discussions, the approach was a semi-structured interview technique but the difference was that in depth interviews the subjects were able to talk more freely and deeply on the issues raised. Further this technique allowed probing on certain issues.

A non-probability cross sectional convenience sampling method was used to select subjects for interviews thus ensuring a diversity of opinion on matters of concern to students and a greater insight into the research question.

The depth interviews were conducted prior to the survey with four students (2 Indian, 1 Chinese and 1 Thai), one university administrator in Melbourne and one overseas Australian government institution (Diplomatic mission) and two university agents/representatives. Another four students and one university administrator were interviewed in Melbourne after the survey. Each interview lasted between 20 to 45 minutes.
The interviews conducted prior to the survey were aimed at ascertaining the appropriateness of the variables to examine issues related to post-choice satisfaction and to verify the understanding and the interpretation of these variables, recognising the differences in the cultural backgrounds of students. Another objective was to verify whether or not the feedback received from focus group discussions conducted earlier was comparable with the opinions expressed at depth interviews. The rationale for the depth interviews after the survey was to further verify and substantiate the relevance of the issues and variables that were examined by the survey. This process was followed to ensure the quality of the results reported. The questions and issues taken up for discussion before and after the survey were same, though there was a difference in their emphasis during the discussions.

The inclusion of individuals other than students provided different viewpoints on issues, which served as useful inputs to the research process prior to the questionnaire development and survey procedure as well as providing an opportunity to rationalise the findings from different stakeholders.

4.5.3.2. Depth Interview findings
The feedback from students was comparable to the feedback received from the focus group discussions. Insight into some issues were however greater in the depth interview responses.

All students expressed high expectations with regard to the quality of lecturers, university facilities, course content and duration, administrative matters, and student support facilities. The comments varied between student groups in terms of emphasis placed on issues. Indian students identified teaching quality, cost of living, university facilities, course relevance and employability as most important factors of their study outcomes. They also appeared more demanding than other students. The focus of Chinese and Thai students was related to student support facilities and cost of accommodation.

The general comments from the depth interviews were:
"The university should provide avenues for international students to gain professional experience after the course. This should be part of the program" (Indian student)

"The student administration should be student friendly and more understanding of the students from different cultural backgrounds" (Indian student)

"The student facilities (library and computer labs) should be in keeping with the increasing numbers of international students" (Indian, Thai and Chinese students)

"The university should assist students with visas" (Indian and Chinese students)

The student feedback from the focus group discussions and the depth interviews, helped to identify a number of variables that would have an impact on post-choice satisfaction and were included in the questionnaire used in the main survey.

Further analysis of the findings of the focus group discussions and the depth interviews will be conducted in association with the quantitative data analysis in chapter 5.

4.6. Description of variables

A list of the variables identified during exploratory phase of this study is given below followed by a description of the variables. No order of importance of the variables is assumed, as it will be established after the survey.

1. Efficient enrolment processing system
2. Efficient system to assist with student visas
3. Recognition for prior learning
4. Presence of students of own nationality
5. Opportunities for interaction with other student groups
6. High image and prestige as a university in Australia
7. High image and prestige as a university internationally
8. High image and prestige as a university in the home country
9. Academic courses and content appropriate to needs and aspirations
10. Appropriate academic courses and content recognized in home country
11. Course completion times appropriate to one's needs and aspirations
12. Academic courses and training relevant to future job and career prospects.
13. Flexible timetables
14. Competitive fees compared to other universities
15. Fees that offer good value for money for services provided
16. High standard of teaching with quality lecturers
17. Good access to lecturers
18. Lecturers providing valuable feedback
19. Availability of high standard lecture material to students
20. Appropriate and manageable class sizes
21. Modern and adequate library facilities
22. Good operating hours for library access
23. Modern and adequate computer facilities
24. Good access to computer labs
25. Campus well located with easy access
26. Good standard of student accommodation
27. Student accommodation at reasonable cost
28. Provision of information and guidance by overseas agents and consultants
29. Adequate information and guidance through Australian diplomatic missions or other official representatives (IDP)
30. Availability of adequate information via Internet
31. Availability of adequate information on the Internet compared to other Australian universities
32. Availability of international student orientation programs as part of student support services
33. Availability of counselling services as part of student support services
34. Availability of other social services as part of student support
35. Encourage close working relationship between students and international student advisers to ensure appropriate solutions to student problems
36. Availability of a process to deal with complaints about adequacy of services and facilities.
4.6.1. Efficient enrolment processing system

The enrolment in a course of study is the first formal step in gaining admission to a university. Students expect the initial enrolment process to be quick and efficient as subsequent arrangements such as obtaining student visas are dependent on the timeliness of this process. University’s confirmation of the student enrolment in a course of study is pre-requisite to the granting of a student visa by the Australian Immigration. University enrolment is also an ongoing process as students are expected to re-enroll each semester and year to confirm the continuation of their studies in a university. A delay in the process or an incorrect enrolment can cause dissatisfaction among students.

Burke (1986) in his study on International undergraduate student experiences at the University of NSW found this factor to be significant in shaping student’s experiences of the university. The feedback from exploratory research indicates that students expect the enrolment to be routine process as long as appropriate documentation and fees are lodged with respective universities.

4.6.2. Efficient system to assist with student visas

Although universities are not directly involved with student visa formalities in their home country, the local agents or consultants associated with universities facilitate the visa application process. The delays involved in obtaining an Australian student visa and the rigorous application procedures applicable to Asian students and particularly those from “high risk countries” (countries that have a history of having students overstaying their visas) exert enormous pressures-economical and psychological-on prospective students even before they commence studies. Most students who participated in this study complained about their inability to obtain their visas on time and consequently missing out on the orientation programs of the university. China and India are in this category, but a recent amendment to the regulation has exempted Chinese students from going through the tough visa formalities, in view of the long-term market potential it offers to Australia.
The student feedback also indicates that students expect the universities to assist them with the renewal of their visas when due. Recent amendments to overseas student visa regulations have placed universities in an unenviable position with the student population in implementing changes to student visas and, are at the receiving end of students’ displeasure. This variable therefore has an important effect on students’ satisfaction in Australia.

The impact of this variable on choice of a study destination was examined by Lawley (1997) and was found to be statistically insignificant. Her research was on students from Malaysia and Hong Kong where student visa procedures are much more relaxed. On the other hand, Vicziany (1995) found that student visa restrictions in South Asian countries have a negative impact on Australia’s expansion of international education.

### 4.6.3. Recognition for prior learning

Credit transfers or subject exemptions are normal expectations of students at the postgraduate level. These originate mainly from students who have had prior graduate qualifications from universities where English is the language of instruction. Indian students were a dominant group in seeking recognition for prior learning with the objective of minimizing the duration of the course of study in Australia. A study by IDP (1995) commissioned through their 11 overseas offices, found that the recognition of prior learning was one of the seven major reasons influencing a study destination. Lawley (1997); Duan (1997); Smart and Ang (1993) also found this factor to be significant in the choice of a study destination.

### 4.6.4. Presence of students of own nationality

Students view the presence of other students of their own nationality in the university differently from the presence of family and friends in Australia. Chinese and Indonesian students found such a presence to be useful, which is not shared by Indian or Thai students. This was quite evident from the comment made by a Thai student: “In my class I have three Thais and I have to do a report with them. I wonder why I have to do an assignment with them. Why have I come here to do a report with a group of my own people.” Duan (1997); Asia Pacific
Access (1995); Nesdale et al (1995); and Radford et al (1984); have identified this variable as an important factor of choice of study destination.

4.6.5. Opportunities for interaction with other student groups

Postgraduate students work within a tight timeframe to complete studies due to other commitments (e.g. family, job). The time available for social interaction is therefore very limited. Most students however, expect universities to provide opportunities, within their limited available time, to interact with students other than those in their courses or classes. Such interaction extends beyond students in the universities to the wider Australian community, as students seek to experience in the Australian way of life as part of their learning. Geall (2000) examined student interaction with fellow students and the local community as a factor contributing to positive student experience among undergraduates in a Hong Kong university. Burke (1986) commented on the positive influence of interaction with other student groups in his study on the experience of undergraduate students.

4.6.6. High image and prestige as a university in Australia

The choice of an Australian university is influenced by its image and prestige as an academic institution in the country itself. The expectations formed are based on the information gathered on the university, its courses, teachers and comparative ranking with other universities. Some universities have built up a reputation for certain academic disciplines which impacts on its image and prestige. Mazzarol et al (2001); Mullins et al (1995); Nesdale et al (1995) and the Bureau of Industry Economics (1989) identified this variable as a key factor of choice.

4.6.7. High image and prestige as a university internationally

High international image and prestige of a university is an attraction to postgraduate students as it is expected that such image and prestige would open up better career opportunities for them. Gaining international image and prestige as an educational institution is a long and arduous process requiring a commitment to excellence in the delivery of education, and quality research output.
Most students believe some Australian universities enjoy high image and prestige among Asian countries. Mullins et al (1995); Nesdale et al (1995) and Bureau of Industry Economics (1989) discussed this factor in their studies investigating choice of study destination by international students.

4.6.8. High image and prestige as a university in the home country

This factor is closely related to the two factors previously discussed. As Mullins et al (1995); Nesdale et al (1995); and Bureau of Industry Economics (1989) pointed out in their studies, the attraction of a university lies with its reputation in the home country as a recognized institution. Opinions of students differ as the recognition of an institution is partly based on the strength and capacity of the university to deliver what is expected. The diversity of courses, reputation of its teachers and the strength of the alumni population in the home country of a given university are some of the factors contributing to image and prestige of an institution.

4.6.9. Academic courses and content appropriate to needs and aspirations

Students choice of a university is influenced by the type of courses offered that would satisfy their own personal requirements. This choice is made with the information available to them at the time of their selection of the educational institution. Duan (1997); Wilkinson et al (1996); IDP (1995); Lawley (1993); and Gardiner and Hurst (1990) discussed the quality and content of the university courses as a factor influencing choice. However, the aspect of the suitability of the course for one’s individual requirements was identified in the focus group discussions conducted for this study.

4.6.10. Appropriate academic courses and content recognized in home country

Students agree that the selection of a university is influenced by the nature of courses that have ready recognition in their home country. Postgraduate students make an extra effort to link up these two attributes with the expectation that it will enhance the opportunities for career prospects once they return to their home country. Duan
(1997); Wilkinson et al (1996); IDP (1995); Lawley (1993); and, Gardiner and Hurst (1990) have provided evidence on the importance of this factor.

4.6.11. Course completion times appropriate to needs and aspirations

Due to the pressure on escalating living costs and university fees, most of the International students are keen to complete their courses as early as possible. Even the scholarship holders or those sponsored by their employers have a strong desire to complete their courses quickly and to return to their home country or their employer. Lawley and Blight (1997), identified timing of completion as a factor of significant importance to students as they try to reduce the opportunity loss and overall cost of education.

4.6.12. Academic courses and training relevant to future job and career prospects

Most of the postgraduate students have prior work experience and the selection of courses is based on their evaluation of the program in terms of enhancing career prospects once they return to their homeland. The expectation therefore is that the university would provide academic courses and training necessary to fulfill such ambitions. Duan (1997); Wilkinson et al (1996), IDP (1995), Lawley (1993); and, Gardiner and Hurst (1990) provided evidence of the relevance of the content of the course in influencing the choice of a study destination. How relevant are the courses to enhance job and career prospects is of critical importance to postgraduate students as evidenced by the feedback from the focus group discussions.

4.6.13. Flexible timetables

Driven by the need to complete their study in the shortest possible time for a variety of reasons including visa restrictions and obligations to the employer, students expect certain flexibility in choosing the subjects within a semester. Summer programs are popular among such students. Burke (1986) identified this factor to be of significance among undergraduate students. The feedback from focus group discussions revealed that Asian postgraduate students consider flexibility of timetables in terms of allowing
them to organize their study periods, research activities and also part-time employment as extremely important.

4.6.14. Competitive fees compared to other universities

Tuition fees play a significant role in the selection of a study destination as highlighted by many studies (Wu 1989; Steadman and Dagwell 1990; Andressen 1993; Harris and Rhall 1993; Lawley 1997) The notion of competitive fees is interpreted differently, some as lower fees compared to other universities and, others as fees comparable to the study outcomes and the facilities offered to students. The prestige and recognition of the university plays an important role in the comparison of fees between universities.

4.6.15. Fees that offer good value for money for services provided

This is a new variable that emerged from the focus group discussions and the depth interviews. Full fee paying postgraduate students are conscious of how much value is received for the price paid by them. According to Kotler and Fox (1995) the value received is a matter of customer perception and judgment, not of the monetary price paid or the monetary costs alone. From a students’ perspective the comparison standard becomes the amount of tuition fees paid to the university, though in the evaluation process, the variable would encompass a broad range of views with regard to the services provided by the university.

4.6.16. High standard of teaching with quality lecturers

Many researchers in the past (Townley 2001; Lawley 1993 and 1997; Bureau of Industry Economics 1989; Austin 1988; Burke 1986; and Rao 1979) have presented this variable in different interpretations such as the quality of the course, academic quality and, high standard of course. Geall (2000) interprets and discusses the variable under three sub categories: teaching staff, teaching methods, and degree programs, thereby confirming its importance to student satisfaction.
4.6.17. Good access to lecturers

In their academic life, lecturers remain the regular point of contact for all international students. The interaction with lecturers is therefore considered an important part of the study process and experience. Students therefore expect regular access to lecturers to discuss not only their academic issues but also (sometimes) personal problems even before they consult a student counselor. Gatfield et al (1999) and Purdy (1992) found the access to lecturers to be of significant importance to students in terms of enriching their academic experience in a university.

4.6.18. Lecturers providing valuable feedback

International students consider feedback from lecturers, on their academic progress, as an important part of their learning experience, which would pave the way for successful study outcomes. Geall (2000) notes that providing feedback to students is an important variable influencing student satisfaction. Harvey (2001) provides evidence of how feedback to students would assist universities to increase the satisfaction levels among the student population.

4.6.19. Availability of high standard lecture material to students

It is a common expectation of international students to have good lecture material from lecturers. This could include lecture notes, guidelines on references and other learning support material. Their judgment of the quality of lectures and the lecturers are largely based on such material supplied to them. Several researchers including Harvey (2001); Townley (2001); Geall (2000) discussed teaching quality and teaching methods as important factors contributing to student satisfaction. The reference to lecture material, however, was feedback received during the focus group discussions conducted for this study.

4.6.20. Appropriate and manageable class sizes

This variable relates to the number of students in a class to ensure adequate interaction among class participants and the maximum number to prevent

4.6.21. Modern and adequate library facilities

The library is an essential facility provided by the university to all students. The size, external appearance, number of books, resources, facilities and services available are features expected and valued by students. The use of the library by most of the international students is directed towards borrowing books and research work. The students expect their university to have adequate books, reference publications and other resources to facilitate their studies. A common observation is that international students regularly use the library as a venue to conduct their normal studies and therefore expect the library to have adequate private and group study rooms to cater to the increasing number of overseas students. Several authors, notably Townley (2001); Harvey (2001); and Lawley, (1997 and 1993), who discussed library facilities under the generic label, provision of facilities and services in universities, have provided evidence in regard to the importance of this facility in influencing students' choice as well as satisfaction.

4.6.22. Good operating hours for library access

The operating hours of the library is of great interest to international students. Access during weeknights and weekends are favoured by most of the students. Harvey (2001); and Townley (2001) highlighted library access as a factor contributing to student satisfaction, which they discussed under facilities and services offered to students by universities.

4.6.23. Modern and adequate computer facilities

Most postgraduate courses require constant use of computers. Some subjects require computer applications and analysis, and the presence of modern and adequate
computer facilities enhances the attractiveness of universities among students. International students expect reasonably modern computer equipment, in adequate quantities to be made available for their use when required. High expectations are formed by students, given the promises made by universities through their promotional material and local agents or consultants in regard to the availability of core facilities such as computer equipment. Harvey (2001) considers this variable to be important in the formation of student satisfaction.

4.6.24. Good access to computer labs

The access to computer laboratories as and when required by students is also another key expectation. This is related to the previous factor and plays a key role in the satisfaction formation of students (Harvey, 2001). One of the key recommendation of the Dearing Committee in the United Kingdom and the West Committee in Australia in 1997 is the introduction of technology in teaching termed as ‘resource based learning’ in which ‘access’ to resources is a pre-requisite. This recommendation is part of the reforms discussed in university structure, teaching strategies and other academic activities to enable the institutions to cope with new challenges in the UK and in Australia. The easy access to computer labs, therefore, becomes a service expected by students enrolled at universities.

4.6.25. Campus well located with easy access

The location of the campus with easy access by public transportation is a feature highly appreciated by international students. This variable has an impact on the choice of an institution.

This issue has not been identified in earlier research, although some studies referred to proximity of study destination as a factor of choice (Purdy, 1992; Goldring, 1984). Proximity, in these studies, is more associated with the distance from the source country to the study destination. The feedback from the focus group discussions, conducted for this study, indicated that the location of a university campus is a contributory factor to choice of a university. It is also considered as a facility provided
by the university for convenience of students. The establishment of university campuses in city locations is associated with this need.


International students expect student accommodation made available by universities or by private agencies to comply with minimum standards of comfort. It is also an expectation that such student accommodation is available when required. Few studies make direct reference to accommodation as a factor. Townley (2001) identifies accommodation with food and not as a separate factor while Harvey (2001) rates it as an important factor influencing student satisfaction. It is believed that other studies have considered accommodation as part of the overall facilities provided by the university.

4.6.27. Student accommodation at reasonable cost

There appears to be a general consensus of opinion among international students that the cost of accommodation is extremely high in developed countries compared to their own and hence Australia is no exception. While students are prepared to accept higher costs, they would expect the costs to be reasonable. One of the key comparative standards they use is the cost incurred by past students. Harvey (2001) in his satisfaction approach model includes student perceptions on cost of accommodation.

4.6.28. Provision of information and guidance by overseas agents and consultants

International students rely heavily on third party information in making their choice of study institution. Australian universities maintain a network of private agents, consultants or representatives to promote their respective institutions in Asian countries. Part of their charter is to provide information and advice to prospective students on matters ranging from courses, fees to visa requirements. For most of the international students these agents and consultants or representatives remain the first and only contact point until they join an Australian institution. Students expect accurate and independent information, advice and guidance from these agents.
Mazzarol et al (2001) found the ‘availability of information’ as a factor influencing choice of a study destination, while Zikopoulos and Barber (1986) have discussed the role played by the overseas agents in providing information to prospective students. Vicziany (1995), on the other hand, provided evidence of the unethical behaviour of overseas agents in India when recruiting students for universities.

4.6.29. Adequate information and guidance through Australian diplomatic and other official representatives (IDP)

In pursuit of independent information and guidance, international students turn to Australian diplomatic missions or other government-sponsored agencies such as the IDP. The latter, in particular, plays a major role in promoting Australia as a study destination.

As pointed out in the earlier paragraph, several studies (Mazzarol et al 2001; Zikopoulos and Barber, 1986) have acknowledged the ‘availability of information to students’ as an important factor influencing choice. Students expect the Australian diplomatic missions, and IDP offices in source countries to provide information on universities, courses and support facilities to assist their decision-making. Once in Australia, many students continue to use the resources of IDP in particular to enhance their learning experience.

4.6.30. Availability of adequate information via the Internet

The Internet is an important source of information to international students and has become part of the computer based learning system in universities. Many commentators both inside and outside higher education have seen technology as a solution to the unsustainability of current university teaching strategies. More flexible learning systems supported by the emerging educational technologies are seen as holding the promise of improved quality and reduced costs (Lindsay, 1997).

Through the use of information technology, universities are now able to produce ‘resource-based learning’ to allow increased flexibility in time, place, objectives and
learning style. Flexible learning strategies are designed to reduce the requirements for attendance at a specific place at a specific time by using such techniques as asynchronous communication as well as conventional print-based learning packages/materials (Lindsay, 1997)

The Internet therefore remains a decisive source of information to many international students. Tinley (2001) and Harvey (2001) identify the Internet as a key resource provided by the universities to students.

4.6.31. Availability of adequate information on the Internet compared to other Australian universities

Given the important role of the Internet as an information source and an educational tool, the breadth and depth of information provided via respective web pages, become critical to many students. Given the focus on ‘flexible learning system’, the Internet is an indispensable education tool for all university students (Lindsay, 1997). Universities adopt IT technology for a variety of services, such as delivery of lectures, library services, information databases, international programs, and administrative tasks including assessments.

4.6.32. Availability of international student orientation programs as part of student support services

Student orientation programs are high on the agenda of student support activities of Australian universities. Some universities run special international student orientation programs at least once a year before the academic year begins. Kohut (1997) discusses a number of programs that are aimed at enhancing educational outcomes and contribute to students’ university experience. Some of these programs are run throughout the year providing students with skills and support to participate effectively in their courses. Most of the international students from Asia consider such programs to be of value and are eager to participate, given the opportunity.
4.6.33. Availability of counselling services as part of student support services

Many Asian international students go through stress and adjustment difficulties during the initial period of their enrolment at a university. This could be due to various reasons including cultural differences. During the initial period at the university, students are likely to face a 'culture shock' given the new environment in the university chosen (Dunn, 2001). There is evidence of postgraduate students going through adjustment problems related to both living support and language (Houston and Rees, 1999). A major observation is that most students go through academic stress (Rautopuro and Vaisanen, 2001).

Although university counsellors may not be the first port of call in the event of a crisis (friends, relatives and in most cases the lecturer or tutors are consulted first) students expect universities to provide counseling facilities should the need arise.

4.6.34. Availability of other social services as part of student support

Postgraduate students appear unwilling to spend much time on social activities unless they provide a valuable learning experience. Many international students consider interaction with students of other nationalities, including Australian, university lecturers, administrators, and the local community as part of their learning experience. The nature of the social activity and the timing are important considerations, in view of the time constraints. Kohut (1997) conducted an audit of all student support programs of a university in Victoria and identified a number of initiatives that would allow international students to interact socially with peers as well as the society at large with a view to enrich student experience.

4.6.35. Encourage close working relationship between students and international student advisers to ensure appropriate solutions to student problems

Universities recognize the fact that a closer working relationship between the university and students is essential to facilitate satisfactory solutions to student problems. Such interaction builds trust and confidence. Student advisors as
representatives of the university are given the responsibility to build this relationship. Students expect student advisers to be very impartial, understanding and accessible when advice is required. The interaction between international students and the university student advisers are considered, in general, to be a normal feature within a university environment, Houston and Rees (1999), however, found the relationship between postgraduate student and the university to be very complex, which requires greater attention of universities. This complexity is based on the fact that postgraduates are considered both co-producers and customers of the university at various points of time. They have recommended that in order to provide better support, the precise nature of the relationship needs to be further clarified.

4.6.36. Availability of a process to deal with complaints about adequacy of services and facilities

Durvasula et al (2001) found that successful handling of customer complaints is an important driver of customer satisfaction. Moreover, the study by Society of Consumer Affairs Professionals (1995) on consumer complaint behaviour concluded that a high level of customer satisfaction is produced when customer complaints are dealt with immediately.

International students expect the university to have a simple but trustworthy process to lodge any complaints when required. They also expect the university to act on such complaints and to provide feedback. Students are very concerned about confidentiality in such a process.

4.7. Questionnaire design

Churchill and Iacobucci, (2002); and Malhotra et al (2002) have suggested that the following criteria should be considered in designing a questionnaire.

(1) ability to identify the differences in variables;
(2) ability to obtain a description of individual or group characteristics;
(3) reliability and validity of the instrument;
(4) economy in terms of cost, time and effort;
(5) conciseness of the instrument to avoid reluctance from respondents;
(6) ability to be easily understood by the respondents; and
(7) ability to be easily scored and interpreted.

The above criteria were considered in developing the questionnaire for the study. The first stage of the process was to determine the research objectives that would influence the structure of the questionnaire, the information sought and the sources of such information (Malhotra, 1999; Hussey and Hussey, 1997; Kinnear and Taylor, 1996). Having identified the key variables that would be included in the questionnaire, as discussed earlier in section 4.6, the next step was to design a questionnaire appropriate for gathering data to measure the relative satisfaction level of the student groups in relation to the university as a study destination. The student groups - Chinese, Indian, Indonesian and Thai - would be the source of information, chosen on the basis of geographical segmentation (for example, North, South and South East Asian), differences in terms of nationality and the importance of the groups in terms of the current strength in numbers and the potential of these countries as sources of international students for Australian universities in the future. As shown in Table 1.1, these student groups accounted for 62% of the total international postgraduate students and group wise had the highest percentage of postgraduate students compared to the total intake. The measurement scales (for example, multi-measure bi-polar (continuous) scale, similar to SERVQUAL), and the communication media to be used (for example, mail survey administered by the respective international offices) were also specified at this stage.

The second stage involved determining the question content, type and the interview process. Despite the cultural differences, the major advantage of the respondents was the relative homogeneity given that all were postgraduate students studying in Victorian universities. Compared to undergraduate students, they were mature and experienced and likely to be receptive to research initiatives that would not over tax their time availability. It was necessary therefore that the design of the questionnaire and the type of questions minimize any potential bias and errors in responses arising from cultural, linguistic and other differences among respondents.
As stated earlier, the questionnaire was designed for a mail survey of students administered through the International Offices of the respective universities. Extreme care was taken to make the format and content as simple as possible. It comprised three parts. The first part of the questionnaire was aimed at obtaining student responses with regard to the expectations and perceptions of the university as a study destination, the second part was aimed at eliciting the overall impressions of students in the form of their ‘most satisfactory’ and ‘most unsatisfactory’ experience at the university. The final part was used to gather demographic, classificatory, and other information regarding the status of the students.

The format of the questionnaire is an adaptation of the SERVQUAL instrument developed by Parasuraman, Zeithaml and Berry (1988, 1991, and 1994) to measure service quality. The construct of service quality is defined in terms of “perceived” quality - a customers’ judgement on entity’s overall excellence or superiority. Originally intended for measuring service quality in retail organisations, the instrument and its variants were widely used in many other service industries including banks, healthcare, fast food, entertainment, long distance communications, sporting events and education (Cronin et al, 2000; Bitner and Brown, 2000, Ueltsch, et al, 2001; Gagliano and Hathcote, 1994; O’Conner and Bowers, 1990; Voss et al, 1998; Boulding et al, 1993).

The first part of the questionnaire contained 36 questions in the form of statements comprising the selected variables presented in two sections under expectations and perceptions of the university as a study destination. The responses to expectations were based on desired (ideal) expectations of choice with the introductory phrase reading, "The university of my choice would have .....", followed by the list of 36 statements. The desired expectations are considered to have a better explanatory power than the predictive expectations used by some researchers (Spreng et al, 1996). The same statements were repeated with the post-choice perceptions of performance with the introductory phrase, "The university of my choice has ....." followed by the same list of 36 statements.

The statements covered a wide range of issues related to student satisfaction and to reflect a “total student experience” of their postgraduate studies. The use of focus
group discussions assisted in identifying those issues that were relevant and have a
direct bearing on their satisfaction levels. These included issues related to
administration, benefits of university education, teaching staff, teaching methods and
quality, cost factors, university facilities and services. The recognition of the “total
student experience” is apparent in much of the literature relating to student feedback
(Geall, 2000). As Harvey et al (1997, p.11) point out “students as participants in a
process of education consider that the student satisfaction approach should assess
what is important to students, rather than those aspects that the producers think are
of concern”. The present study therefore has made an attempt, following exploratory
studies, to identify and include in its analysis, issues of concern to students in addition
to those already identified by earlier researchers.

The second part of the questionnaire comprised two key statements seeking student’s
comments on the “most satisfactory” and “most unsatisfactory” experience or
experiences in regard to the university as a study destination. The questions were
open-ended and the objective of this part of the questionnaire was to provide an
opportunity for respondents to comment on any issue that was of concern to them.
Very simple wording was used in these statements as it has been found that
international students have difficulties with open-ended questions, particularly
students from South East Asia (Jones, 1989).

These comments are considered as additional confirmation of the responses and
additional inputs that would be useful in the analysis of the satisfaction levels of
students.

The third part of the questionnaire contains classificatory questions aimed at
gathering demographic data (age, sex, marital status) and functional data on the
diversity of the sample in terms of university attended, faculty, course type, stage of
completion and, source of funding of studies.

4.8. Response format

The questions were direct and responses were expected on a multi-measure bi-polar
(continuous) scale, similar to SERVQUAL, which has been well validated (Bearden
and Netemeyer, 1999; Oliver 1981; Westbrook, 1980; and Oliver 1996). The scale has been adapted to a number of service industries, including retailing (Baker, Grewal, Parasuraman, 1994; Finn and Lam, 1986), Health Care (Reidenbach and Sandifer-Smallwood, 1990; Jones, 1993; Brown and Swartz, 1989), and higher education (Davis and Allen, 1990; Hampton, 1993, Tomovick et al, 1996). Given the strong arguments for the validity of the scale, along with the scale's acceptance and use by many researchers, an adaptation of the refined SERVQUAL scale was considered appropriate for this study.

The scale comprised of two matched sets of 36 items, each describing expectations and perceptions of the services provided by the university as a study destination. Both sets of items are operationalised using 7 point bipolar scales labelled “1= strongly disagree to 7= strongly agree”. The respondents were expected to indicate their choice by circling a number along this scale. If the respondents consider that the item was not relevant, they were requested to circle the number 9 (for example, 9=not applicable), which was inserted at the right end of the scale in the pilot questionnaire.

According to Oliver (1996), a 5 - 7 point scale is more popular with researchers in view of its ability to minimise skewed responses. Consumers, in general, tend to rate products and services positively, with bulk of the responses in the positive half of the scale. “This tendency is more pronounced for scales with a smaller number of points such as 3 and 4” (Oliver, 1996, p. 53). The 7 point scale also provides a midpoint, which can be used by respondents if they remain undecided and wishes to express neutrality. Rejecting claims by opponents that ‘fence sitting’ provides no information, Oliver (1996) asserts that degree of neutrality is information, and the number of respondents who fall into this category would provide additional insight.

The instrument used in the study, as pointed out earlier, is an adaptation of the SERVQUAL instrument with the inclusion of a variety of variables that need to be measured. This was consistent with the rationale presented by the authors of SERVQUAL that “while SERVQUAL can be used in its present form to assess and compare quality across a wide variety of firms, appropriate adaptation of the instrument may be desirable when only a single service is investigated” (Parasuraman et al, 1988, pp. 27-28). The use of this scale was also based on its reliability as
evidenced by the tests in different service settings, including a business school placement centre by Carmen (1990).

There was evidence on the need to vary item wording across settings and the questions to suit different service settings. For example, the study by Finn and Lamb (1991) using the responses from a telephone survey involving retail shopping experiences did not provide support for the multidimensional (for example, five correlated factors) measurement model implied by the SERVQUAL scale, though the individual factor reliabilities were found to be acceptable. This research also found that the five dimensions of SERVQUAL, in its original form and labels were inappropriate to incorporate the variety of variables (attributes) chosen for measurement. The variables were constructed with input from the literature and focus group discussions. The factors generated from factor analysis were considered as constructs for measurement in this study.

4.9. Pre-testing of the questionnaire

The questionnaire was pre-tested on 12 international postgraduate students representing all of the countries under investigation in this study to identify any flaws in the design and correct them prior to its administration (Malhotra et al, 2002; Churchill and Iacobucci, 2002). Pre-testing was done at two university locations: Victoria University of Technology and the RMIT University.

The objectives of the pre-testing were to:

- test that the questions are clear and understandable;
- test the wording, sequence, form and layout, question difficulty, question and survey instructions;
- estimate the time involved in filling out the questionnaire.

The draft questionnaires were distributed to each of the participants to complete followed by a discussion of the questionnaire as a group and on individual basis.
4.10. Revision of the questionnaire

A number of possible amendments were identified during the pre-testing phase towards improving the format, content and appearance of the questionnaire.

While the students did not have a problem with a seven point scale, they found the introduction of a number 9, at the end of the scale to record a ‘non applicable’ response confusing. This was rectified in the revised questionnaire by separating the “not applicable” response from the 7-point scale with the letters ‘NA’. Use of this non-response was clearly explained in the instruction section of the final form.

Another important feedback was with regard to the absence of other nationalities being mentioned in the questionnaire. The pilot questionnaire listed only the target four countries. Given that the administration of the questionnaire were to be undertaken through the International Offices of the respective universities, it was considered necessary to have another box against ‘Other (Please specify)’ in the event that the questionnaire is responded to by students of other nationalities. Though this risk was small as International offices were instructed to distribute the questionnaire only among the targeted nationalities, it was considered an appropriate strategy.

Another critical comment was related to the response rate as the majority of the students indicated that an incentive should be offered to respondents.

“We are hard pressed for time. Unless you provide us a good incentive to complete the questionnaire, it will be difficult to expect a good response rate”

Malhotra et al, 2002, have discussed the effectiveness of providing incentives to increase the response rates in surveys. This suggestion was taken into consideration and two return air-tickets to an Asian destination from Australia were offered as an incentive. The incentive was based on a lottery system whereby all respondents would be eligible to enter the draw. The incentive was displayed on the front page of the questionnaire and a special promotional flyer was inserted explaining details of the
draw together with “how to enter” instructions. Entry to the draw was not mandatory. The draw was held and the award presented to the winner at Victoria University of Technology.

4.11. Reliability of the Instrument

Several strategies were followed to ensure the reliability of the instrument. These included the development of an appropriate scale, the development of theoretical concepts, which are uniform for measurement with inputs from literature and exploratory research, pre-testing of the questionnaire, factor analysis, calculation of Cronbach’s alpha and factor correlation. A number of international educational administrators and experts in the field also read and commented on the questions. The details of the reliability analysis are discussed in section 5.3.3.

4.12. Sampling Issues

As pointed out in section 4.7 above, the questionnaire was designed to be administered via a mail survey. Given the focus on fee paying postgraduate students from China, India, Indonesia and Thailand studying in universities in Victoria, and the difficulty in reaching the students without contact addresses, the option available for the study was to administer the questionnaire through the respective universities. This was necessary as students’ addresses were treated as highly confidential information. The objective of going through the university administration was also to achieve a maximum response rate to ensure a sample size that would be statistically adequate.

The major obstacle, however, was the difficulty in obtaining the permission from universities to administer the survey. Following an informal approach to all universities in Victoria, through the international branch of the researcher’s home university, an official request signed by the Principal Supervisor was sent to all Victorian Universities seeking their support for the survey. Two universities declined to participate on the basis that their students are ‘over surveyed’. This process of obtaining permission to mail the survey took several months. Four universities agreed to mail the questionnaire through their internal mail, while one university allowed
access to the classrooms to distribute the questionnaires with the knowledge and permission of the lecturer in charge.

4.12.1. Sample strategy

The target population for the study was defined as fee paying international postgraduate students from China, India, Indonesia and Thailand in the selected five universities in Victoria.

Apart from having a sample representative of the population, the objective of the sampling strategy was to achieve sampling equivalence between the student groups and the universities. Hair et al (1995) cautions that in analysing data it is important to consider not only the statistical significance but also the practical significance of the results for managerial application. When a sample size exceeds 200 to 300 respondents, the statistical significance increases and it is incumbent upon the researcher to examine all significant results to find out whether they provide practical significance as well. In this context, he cautions that unequal sample sizes between groups can also influence the results. Hair et al (1995) point out that the equality of variance among groups can be best achieved with groups of approximately equal size (if the largest group size divided by the smallest group size is less than 1.5).

Given the present study deals with four student groups studying in five universities in Victoria the equality of sample size is computed in regard to the responses from both the universities and the student groups employing a random sampling approach.

4.12.2. Sample frame

Churchill and Iacobucci (2002) describe the sampling frame as a list of sampling units from which a sample is drawn and the list could consist of geographic areas, institutions, individuals or other units. The sampling frame for this study was the student lists held by universities in Victoria, which agreed to participate in the study. The issues that were considered in constructing the sampling frame were the accessibility, duplication of student names and errors in mailing addresses, time and resource constraints.
As indicated in section 4.12 above, accessibility to students was limited to 5 universities. Given that the databases were confidential, the mail outs were undertaken directly by the international offices of the universities, with the exception of one university, where the survey was administered in classrooms. The researcher had no control over the accuracy of the mailing addresses. The dependence of the international offices to administer the survey was considered the best option in terms of time and resource constraints.

4.12.3. Sampling method

The sampling method adopted for the study involved two techniques in two stages. The first stage involved a form of judgemental sampling based on the fact that a representative sample from each university selected for the study was extracted. The target population and the number of questionnaires mailed or distributed through the universities were dictated by the number of postgraduate students registered with each institution from the Asian countries selected for the study. An attempt was made therefore to reach every student satisfying the minimum characteristic of one of these nationalities.

The second stage involved random sampling to produce a sample of approximately equal size from each country and university, as explained under sampling strategy above.

4.12.4. Sample size

Malhotra et al (2002) note that determining the sample size is complex and involves several qualitative and quantitative considerations. Important qualitative factors to be considered are:

- the importance of the decision;
- the nature of research;
- the number of variables;
- the nature of the analysis;
- the sample sizes used in similar studies;
- incidence rates;
- completion rates; and
- resource constraints.

Given the importance of the research study in terms of measuring the relative satisfaction of the target student groups and the fact that the study included a large number of variables and was subject to a multivariate analysis of data, a reasonably large sample was expected to be derived. Duan (1997) notes that similar independent (un-sponsored) studies have attracted between 200-400 responses. It was clear that the constraints imposed by the processes involved in accessing the university database and other bureaucratic controls would influence the sample size for this study.

The main strategy used to select the sample was to request the international offices of the respective universities to extract all fee paying postgraduate international students belonging to the targeted nationalities from its student database. The questionnaire was then sent to each of these students directly by the respective universities.

4.13. Questionnaire administration

Following agreement with the International Offices of the respective universities to administer the questionnaire among their students, a mailing kit including the copy of the questionnaire, a covering letter from the researcher, the promotional flyer for the incentive and a self addressed reply paid envelope (researcher's home university) was prepared. The copy of the questionnaire is given in appendix 6. Upon confirmation of the numbers required by each university (based on the number of students representing the target student groups) the kits were delivered to each International office by the researcher. These kits were then mailed through their own university mail system, using the address labels prepared by them. A covering letter from the Director of the International Office inviting the cooperation of students to participate in the survey was also sent with the kit. Where permission was granted to reach students in the classroom, the survey kits were distributed to students by the course coordinator of its Graduate School.
The returned completed questionnaires were progressively recorded and the data was entered into a SPSS file. The returned questionnaires, due to errors in mailing addresses, were also recorded and filed.
4.14. **Quantitative Research Methods and Analysis**

This part of the chapter will discuss the quantitative data analysis strategy employed in the study. The source of quantitative data is the student responses to the questionnaire discussed in the earlier section. The strategies employed to ensure the gathering of quality data for statistical analysis were also discussed in the previous section. These included questionnaire design, selection of sample, and questionnaire administration. This section will build on this background to discuss the quantitative methods used to analyse the data.

4.14.1. **Data Analysis strategy**

Prior to undertaking the quantitative analysis, a three-stage process was followed to prepare the data for analysis, which included (a) editing the completed questionnaires, (b) coding of responses, and (c) cleaning and screening data.

(a) **Editing of completed questionnaires**

The editing comprised of checks to ensure that the data received through returned questionnaires were complete, and free of inconsistencies. Where significant errors in filling out the questionnaire were identified, or partly completed questionnaires were found, questionnaires were rejected.

Another process was the identification of responses from students of other countries of origin. As discussed in section 4.10, given the possibility of the questionnaires being distributed to students other than from the target countries, the responses received from “other” countries were eliminated from the data used for the analysis.
(b) Coding of responses

The questionnaire was appropriately pre-coded prior to administration, and there was no additional coding of responses that was necessary except for the “open ended” qualitative responses in the second part of the questionnaire. The post coding was essentially a rearrangement of the responses into different themes or categories to suit the analysis. This was required as the responses were varied and most often combined with several themes, similar to any focus group discussion or depth interview. To facilitate the analysis of this data, the responses were categorised under the four constructs generated from the factor analysis.

(c) Cleaning and screening data

This process involved checking for inconsistencies and missing data. Using the SPSS statistical package, the frequencies procedure was run for every variable to check for errors in data entry. Checking with the individual responses of each questionnaire, any detected errors were rectified. In order to ensure accuracy of the data, the original questionnaire were randomly checked for any possible incorrect entries.

The above process was a pre-requisite to a robust analysis of the data, which was also influenced by the logical selection of the data analysis techniques. The following section discusses the procedure followed and rationale of the techniques used.

The quantitative data analysis techniques selected are consistent with the research aims and objectives, the research questions, characteristics of the data and the properties of the statistical techniques (Malhotra et al, 2002) These included factor analysis, ANOVA, Logistic and Linear regression. The use of multiple techniques for data analysis is aimed at achieving the objectivity, rigor and logical reasoning in examining the research problems.

Figure 4.2 shows the stages involved in the data analysis procedure followed in this study.
Recalling the main research question investigated in the study: "Are there differences in the customer satisfaction and dissatisfaction (CS/D) between international postgraduate students from Asia studying in Victorian universities?", the aim of the study is to determine the relative satisfaction (or dissatisfaction) levels of students measured on the basis of several variables and aggregated constructs. Given the multi-dimensional nature of the study, it was considered appropriate to use multivariate analysis involving a series of techniques.

The data analysis process and its stages are described below.

4.14.2. Factor analysis

Factor analysis is a data reduction methodology, which serves to define the underlying structure in a data matrix (Hair et al, 1995). This technique is used to
reduce a large number of variables to a smaller set of underlying factors that summarise the essential information contained in the variables. These factors are then used for further analysis.

Factor extractions were conducted using the 36 items related to University as a study destination. In terms of the number of cases required to conduct factor analysis, methodologists vary in their interpretations. Hatcher (1994) contends that the number of subjects should be the larger of 5 times the number of variables or 100. On the other hand, Hutcheson and Sofroniou (1999) recommend at least 150-300 cases. Gorsuch (1974), and Kline (1998) propose 5:1 and 2:1 ratio respectively of subjects per variable up to a total of 200 and 100 respectively. Another interpretation is by Lawley and Maxwell (1971) who say that there should be 51 more cases than the number of variables, to support chi-square testing. Hair et al (1995), confirm that a sample size of 100 is adequate to calculate the correlation between variables. The total number of subjects in the present study is 371, and therefore conforms to the required ratio of subjects per variable.

4.14.3. Satisfaction Scores

As discussed earlier, the measurement of customer satisfaction is a highly contentious issue and the measurement of relative satisfaction is clouded with controversy. Drawing on past studies, Yuksel and Remmington (1998) have discussed six alternate ways of measuring customer satisfaction of a product or service. These refer to (a) the performance only approach (b) the performance weighted by importance, (c) importance minus performance, (d) direct confirmation-disconfirmation, (e) confirmation-disconfirmation weighted by importance, and (f) performance minus predictive expectations.

As outlined in chapter one, the measurement approach followed in the present study is an adaptation of the seminal expectancy disconfirmation paradigm (Oliver, 1996), and of the difference (gap) scores to measure CS/D (Parasuraman et al, 1991 and 1985). The key requirement is to ensure that the measurement should be able to encapsulate the relativity of the information presented in the data on a comparative basis. To this end, the present study supplements the gap scores with satisfaction scores derived
from using the ratio method of calculation. The measurement criteria in this study is therefore based on three different satisfaction scores namely, (a) the raw difference (gap) score (b) the arithmetic average of the ratio score, and (c) the geometric average of the ratio score, following the weighted average concept of SERVQUAL measurement approach (Parasuraman et al, 1991 and 1985).

Outlined below are the approaches used to calculate the difference (gap) score, the arithmetic average of the ratio score, and the geometric average of the ratio score, which were used in regression analysis. The first approach describes the process followed to calculate the difference (gap) score, while the second approach explains the method used to compute the two variants of the ratio scores, for example, arithmetic average, and the geometric average.

(a) First approach

The first approach was used to calculate the difference (gap) between perceptions (P) and expectations (E) as an aggregated score. One major problem with the difference score, calculated on a direct P-E basis (as a raw score), is the presence of negative values, which would make data transformation involved in logs difficult. Furthermore, these raw scores pose the problem of information loss due to minus and plus cancelling out each other when averaging. In order to eliminate this problem a simple arithmetic formula was used in calculating the difference scores, as shown below.

Satisfaction score = 6+P-E.

The formula uses the value 6 as the standard where >6 would correspond to a satisfied student, and <6 to a dissatisfied student, and the score of 6 would represent “just satisfied”. The rationale for the use of 6 is because minus 6 (-6) is the largest possible negative for the satisfaction score given the interval of scale 1 to 7. For example 7-1 = 6 or 1-6 = -1. The number 6 will replace 0 as the mid point of the satisfaction score and will eliminate all negative scores. The scores produced in this process would range from 0-12, where the score of 12 would represent “most satisfied” or “delighted”.

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These scores are then used to classify respondents as: satisfied or dissatisfied with scores $\geq 6$ representing those satisfied and scores $< 6$ indicating those dissatisfied. The score of 6 represents ‘just satisfied’.

(b) Second approach

The second approach was used to calculate satisfaction scores as a ratio. The ratio is expressed in terms of (a) arithmetic average of the ratio and (b) the geometric average of the ratio. The formula used in this instance is:

$$\text{Satisfaction score} = \frac{P}{E} \text{ (with range of 1/7 to 7)}$$

These scores are then used to classify respondents as satisfied (score $\geq 1$) or dissatisfied (score $< 1$), and are subject to statistical tests to determine whether there are any significant differences in the scores and the classifications.

4.14.4. ANOVA

ANOVA is a statistical technique used to determine, on the basis of one dependent measure, whether samples are from populations with equal means (Hair et al, 1995). It is used to assess group differences on a single metric dependent variable. In this study, ANOVA is employed to estimate the variance between the dependent variable, for example, student satisfaction (represented by three scores) and the independent groups - universities and the countries of origin. This entails estimates of between-groups variance (measuring the effect of the independent variable combined with error variance), and the within-groups variance, which is the error variance itself (Coakes and Steed, 2001). The statistical significance of the differences between groups is assessed, and null hypotheses for example, the samples in the test come from populations with equal means for a dependent variable, is tested using this procedure. The null hypotheses, $H_0$ in this study is interpreted as the satisfaction levels (means) are identical across student groups by country of origin and university,
and the interpretation of the alternative hypothesis $H_1$ is that the satisfaction levels (means) are different across student groups by country of origin and university.

Two ANOVA models are used in the present analysis, which are given below.

Model 1: $\text{Satisfaction} = f(\text{Country})$
Model 2: $\text{Satisfaction} = f(\text{University})$.

The first model tests the differences in student satisfaction between countries of origin – China, India, Indonesia and Thailand. The three categories of satisfaction scores (for example. Difference score, Arithmetic average of the ratio score, and Geometric average of the ratio score), are cross tabulated with individual groups to determine (a) the total number of students satisfied/dissatisfied within each group, (b) the variance between the groups, and (c) the level of significance of the variances represented by a $p$-value of $<0.05$.

The second model tests the variances in student satisfaction between the five universities selected for the study. As in the case of the first model, the three categories of satisfaction scores are cross tabulated with student groups in each university to determine the variance in student satisfaction levels between the universities, and the level of significance of these variances, with a $p$-value of $<0.05$.

The results are presented with written evaluations supported by tables, charts and statistical models.

4.14.5. Regression Analysis

Regression analysis is a multivariate technique to explain the relationship between a single dependent and a set of independent variables. It provides an objective means of assessing the predictive power of asset of independent variables (Hair et al, 1995). Studenmund (1997) describes it as a statistical technique that explains the movements of one variable, the dependent variable as a function of movements in a set of other independent or explanatory variables.
This study uses two types of regression analysis - Logistic and General Linear modelling. The former is used to predict the probability of students being satisfied or not (using student satisfaction as a dichotomous dependent variable) and to test the global null hypotheses using Likelihood ratio and Wald statistic, which provides the statistical significance for each estimated coefficient. The latter, is employed to assess the degree and character of the relationship between student satisfaction and independent variables, and their statistical significance.

4.14.5.1. Logistic Regression

The logistic regression modelling is used to analyse student satisfaction in relation to (a) the importance of the factors using factor scores, (b) significance of the demographic and functional variables expressed by the maximum likelihood estimates.

(a) Analysis of Importance of the factors using factor scores

Factor scores are composite measure for each factor representing the characteristics of each subject, and have the advantage of representing a composite of all variables loading on the factor (Hair et al, 1995). The scores are generated, using the pairwise regression method, during the factor analysis process, which were then used in a logistic regression procedure to cross tabulate factor scores with the three satisfaction scores, as discussed in section 4.14.3, to ascertain the importance of the factors in explaining satisfaction.

Three models, representing each of the satisfaction scores, are tested in this process using the following equations. UNISAT is an abbreviation used to identify the factors.

(1) Difference score (SD)
\[ S_D = \beta_0 + \beta \text{UNISAT1} + \beta \text{UNISAT2} + \beta \text{UNISAT3} + \beta \text{UNISAT4} \]

(2) Arithmetic average of the ratio score (SA)
\[ S_A = \beta_0 + \beta \text{UNISAT1} + \beta \text{UNISAT2} + \beta \text{UNISAT3} + \beta \text{UNISAT4} \]
Factor analysis was conducted to establish the communality of variables, and as a data reduction measure. Three types of aggregated satisfaction scores were calculated for subsequent use in cross tabulations with theoretical constructs and the independent variables. ANOVA, logistic and general linear regression modelling were used to analyse data, as depicted in the final model of post-choice satisfaction of postgraduate students from Asia in figure 4.3 presented below.
Figure 4.3: Final model of post-choice satisfaction

Legend:  
P = Perception, E = Expectation  
RD score = Raw difference (gap) score  
AR score = Arithmetic average of the ratio score  
GR score = Geometric average of the ratio score