CHAPTER THREE
RESEARCH METHODOLOGY

3.1: Introduction

Quality assurance policy is important for the development and improvement of Oman's higher education system because it sets the standards or criteria for quality that are agreed upon by different stakeholders, assists in reform efforts, provides a basis for future planning, and provides a structure for educational improvement. As such, a study on quality assurance and accreditation would generate important findings for those ends.

This study was significant for the Ministry of Higher Education of Oman in tracking and monitoring the extent of implementation of quality assurance for accreditation policy by selected private colleges and universities. The findings of this study would enable the said Ministry to determine the quality of the private institutions from the vantage point of their main customer, namely the students, and to obtain feedbacks from the college and university managers regarding their initiatives, the constraints, and issues in implementing the policy.

The main purpose of this study was to investigate the extent private higher education institutions in the Sultanate of Oman implemented the quality assurance policy, as annunciated by the Royal Decree No 42/99. The implementation process was reflected by the practices and activities performed by the institution in pursuing quality assurance for getting accreditation. Ten aspects of quality assurance aspects were investigated in this study, such as mission, governance, academic programs, teaching staff, learning resources, study program evaluation, student selection and support services, library and learning resources, physical and technology resources, and financial resources.

Apart from that, the other purposes of this study were to identify the main factors in student QA assessment model of study programs in private colleges and universities in Oman, and to examine the management practices, approaches, and actions by the private colleges and universities in Oman in implementing quality assurance for institutional accreditation.

The overall design of this study is summarized by Table 3.1 next page.

Table 3.1: General Research Design

Research Objective	Research Question	Data Collection Method
1. Assessment of QA by students	What are students' perceptions on the quality of study programs and infrastructure of private colleges and universities in Oman?	**QA student survey questionnaire** on the quality of facilities, services, teaching, and study programs
2. Main factors in the quality assurance process model	Based on students' survey responses, what are the main factors to be considered and their interrelations in the QA assessment model for private higher education institutions in Oman?	**QA student survey questionnaire** on the quality of facilities, services, teaching, and study programs
3. Extent and Level of ten aspects of QA implementation in private colleges and universities in Oman	What are the extents and levels of implementation in ten QA aspects by private colleges and universities in the Sultanate of Oman?	**QA survey questionnaire to college and university managers** in implementing quality assurance in ten aspects
4. Responses and actions by college/ university managers on the ten QA aspects	In terms of college or university management, what are the managers of private colleges/ universities responses in carrying out the ten aspects of quality assurance in Oman?	Interviews with some college and university managers, document analysis, and institutional observation
5. QA implementation approaches and techniques	Based on the college or university managers' experience as policy implementers, what are the approaches and techniques in implementing quality assurance in Oman?	Interviews with some college and university managers, document analysis, and institutional observation

The employment of the three methods is in line with King, Keohane, and Verba's (1994) contention that most research does not fit clearly into one category or another. They assert that the best method of data collection suits the need for understanding the rapidly changing social world, which requires information that cannot be easily quantified as well as that which can." Each of the three methods has complementary strengths and limitations (Micheal, 2002).

Henceforth, the researcher used both quantitative and qualitative methods in this study in order (1) to provide a more complete picture of the issue being studied, the target audience, and the effectiveness of the program itself, (2) to cross-validate data from the two methods. The combination of approaches is necessary because of the wide range of data needed to develop an effective understanding of the quality assurance for accreditation of private higher education institutions in the Sultanate of Oman.

3.2: Construction of the Survey Instrument

This study used the survey method to collect quantitative data from the respondents. Two sets of survey questionnaire were developed, one set for college student respondents and the other set for the private college/ university manager respondents. The survey data catered for answering research questions 1, 2, and 3. Apart from that, this study also used interviews with college/ university managers, observations of the quality of facilities and services of the private colleges/ universities, and document analysis available at the management offices of the

private colleges and universities. The qualitative part was to answer research questions 4 and 5, regarding the responses, approaches, and techniques involved in implementing the QA process.

The QA survey questionnaires for this study were developed from documents obtained from the National Accreditation Board of Malaysia (or LAN of Malaysia, 2006), the checklist on Accreditation Standards in the U.S.A. (used in the research by Al-Bulushi, 2003), the document by Oman's System of QA in Higher Education (2006), and the INQAAHE (International Network of Quality Assurance Agencies of Higher Education, 2007) questionnaire. References were also made to research works and conference papers by Shaker & Alziadet (2008), Al-Bulushi, (2003), and Rabehy (2004). The finalized research instruments are as attached in the appendices at the back of this thesis.

The suitability and content validity of the instruments were cross-checked with some officers of the Malaysian National Accreditation Board, Oman's Accreditation Board, and university professors. The Malaysian QA model was used because of its detailed documentation and assessment aspects and this facilitated the construction of the QA survey instrument and provided the content validity.

The face validity of the survey instruments was determined by the supervisory committee members at the Faculty of Education, University of Malaya. The face validity is whether the measurement of the instruments was relevant to the study's purpose and to the subjects that were being measured. On the other hand, the

content validity was determined by the expressed opinions of experts in the field of private higher education institutions. However, both reliability and validity were required for accurate measurement.

The student survey questionnaire consisted of 25 items and was initially categorized into six categories, as in Table 3.2 below.

Table 3.2: Item Category for the Student Survey Questionnaire

Item Category	Item No.
Students' light workload	Items 1, 9, 10
Lecturer-student rapport & assistance	Items 8, 11, 12, 13
Ample learning Facilities	Items 14, 15, 16
High Learning Outcomes	Items 17, 18, 19, 20, 21, 22, 23
Quality of Program in General	Items 3, 24
Relevancy of the Curriculum with work	Items 2, 4, 5, 6, 7, 25

[Sources: Shaker & Alziadet (2008), Oman Accreditation Board (2006), Malaysia National Accreditation Board, (2006), Al-Bulushi, (2003), Rabehy (2004).

Table 3.3 next page shows an excerpt of the student survey questionnaire with five examples of the survey items and the method of scoring. Responses were scored on a Likert scale of 1 to 5, ranging from 1 (strongly disagree) to 5 (strongly agree), and some questionnaire items were of the negative type. The student survey

was to answer research question 1: *What were the students' perceptions of the quality of study programmes and facilities at their college?*

Table 3.3: Examples of Student Survey Items Regarding the Rigor and Quality of Study Programmes in Eight Private Colleges in Oman

Item No	Item Description	Response score					Mean Score
		1	2	3	4	5	
1	The study workload for my programme was not heavy enough						
2	The programme was too theoretical and abstract						
3	Overall, the quality of the programme was satisfactory.						
4	The choice of modules was limited.						
5	The programme included too little interaction with other disciplines.						

On the other hand, the manager questionnaire comprised ten aspects of QA with 166 items altogether. At least 7 to 41 items were used to measure each component. For example, 7 items were used to assess the appropriateness of the private higher education institutions' mission and objective, while 25 items were used to measure the governance of the institutions. Interestingly, 41 meaningful items were used to investigate instructional program, 12 items to examine effective management, 17 items to examine students support services, 11 items for library and learning support services, while 25 items were used to examine human resources components. Moreover, 11 relevant items were used to investigate physical resources factors, 8 items for technology resources, and finally, 9 meaningful items was employed to assess financial resources dimension. Table 3.4 next page shows a summary of category of survey items for manager respondents.

Table 3.4: Summary of items used for the Manager Survey Questionnaire

Dimension	**Number of items**
Mission and Objective	7
Governance	25
Effective Management	12
Instructional Programs	41
Student Support Services	17
Library and Learning Support Services	11
Human Resources	25
Physical Resources	11
Technology Resources	8
Financial resources	9
Total	161

[Sources: Shaker & Alziadet (2008), Oman Accreditation Board (2006), Malaysia National Accreditation Board, (2006), Al-Bulushi, (2003), Rabehy (2004), INQAAHE, 2007.

It is worth mentioning that both sets of instrument were translated into Arabic language since the instruments were used in Oman, an Arabic speaking country. Both sets of instrument were given to two language professors for translation and back-translation to be sure that the translated copy carried the same meaning as the original copy.

Examples of the manager survey items and method of scoring are as shown in Table 3.5 below. The researcher visited each college to seek the co-operation of college managers and to personally administer the survey questionnaire in three sessions within two days; this was to reduce anxiety and fatigue in answering the questionnaire, and thus to increase the truthfulness in answering the questionnaire. The 5-point ordinal rank scale for implementation was rated as follows:

1 : Poor 2 : Fair 3 : Good

4 : Very Good 5 : Excellent

Table 3.5: Examples of Survey Items for College Managers Regarding the Implementation Extent of Quality Assurance Policy on College Mission by Private Colleges in Oman

College Mission Statement	Quality Assurance Implementation Extent					Mean score
	1	2	3	4	5	
1-The mission statement of this institution has been designed collectively by the management and academic staff.						
2- The mission statement of the institution clearly expresses quality instruction and learning.						
3-The mission statement of the institution clearly expresses the curriculum content appropriate for higher education standard.						
4-The mission statement of this institution is directed at achieving world-class benchmark.						
5-The mission statement of this institution expresses it commitment to excellence student learning.						

3.2.1: Validity and Reliability of the Survey Instruments

For an instrument to attain credibility, it must be certain that it measures what phenomenon it is supposed to measure, this is referred to as validity (Pedhazur & Schmelkin, 1991). In other words**,** validity refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from the test scores that are measured. The inferences regarding specific use of a test are validated, not the test itself (American Psychological Association, 1985, p.9). Kramer and Conoley (1992) propose two types of validity: (1) construct validity, the degree to which a test measures an intended hypothetical construct. It determines the extent to which certain explanatory concepts or constructs account for performance on the test. This type of validity is more commonly reported. (2). content validity, the extent to which a data collection process measures a representative sample of the subject matter or behavior that should be encompassed by the operational definition (Kramer & Conoley, 1992).

On the other hand, reliability refers to the process of getting consistent results over several repeated trials. There are several types of reliability tests but the most commonly used one is Cronbach's alpha, which measures the inner stability of the instrument. The measurement is to indicate and determine the impact of the instability errors on the scores, assuming that the test scores are perfectly consistent. Therefore, the closer the value is to 1 (one), the higher the reliability coefficient of the item and the smaller the impact of measurement error of the test scores.

According to Pedhazur and Schmelkin (1991), the value of Cronbach's alpha depends on the correlation between items, as the number of items involved in an instrument increases, the Cronbach's alpha increases as well. Historically, most researchers had defined validity in terms of the extent to which a test actually measured what it claimed to measure. The reliability of the responses to quality of private higher education institutions was measured using Cronbach's alpha which compute the internal consistency of the questionnaires in the pilot study for both students and administrators (see detail in the pilot study section). The results of the pilot-survey indicated that the quality of questionnaires designed overall had a strong reliability.

3.2.2: Pilot study

In order to establish the content and construct validity and the survey instrument reliability, a pilot study was necessary. A pilot study was therefore conducted by selecting more than 100 respondents from the same population (private universities and colleges across the Sultanate of Oman). The respondents involved were students in some private institutions of higher education and who voluntarily answered the questionnaires. As aforementioned, the researcher conducted the pilot study (a) to determine the appropriateness of the self-constructed questionnaire and (b) investigate the underlying dimensions of the instrument.

Basically there were two sets of research instruments, a set of instrument for students and another separated set for managers. The data collection was done in

two phases. The first phase was the distribution of questionnaires to the students from different private higher education institutions. During this exercise, the researcher went in person and delivered the questionnaires to the respondents personally to maintain a high response rate. For the managers, the questionnaire was then given to individual managers personally or through their staff (e.g. personal assistants). The researcher was given the names of all the managers concerned and their e-mail addresses.

The next stage was a follow-up by the researcher through e-mailing respondents and personally walking into the managers' offices. The pilot study data collection process lasted for about three weeks. The students were very cooperative in responding to the questionnaire. On the other hand, some of managers were fairly cooperative.

3.2.3: Results of the Pilot Study

Analysis of the pilot study data of student survey

The pilot study had the objectives of establishing the reliability of the two survey instruments, which were developed by adaptation, and to fine-tune or correct any mistakes in the instruments before collecting the final data.

As for the student survey questionnaire, the underlying factors or dimensions were statistically analyzed. A Principal Components Analysis (PCA) with varimax

rotation was run to categorize the structural dimensions of the items. In this process, the factor loadings for each dimension were estimated during the analysis. In order to increase the interpretability of the dimensions, the factors concerned were subjected to varimax rotation.

This method was in line with the assumption that underlying constructs were theoretically related and thus it was needed to get the simplest factor structure (Tabachnick & Fidell, 1996). Items were assigned to factors based on the highest loadings (minimum acceptable loading of item for this study was 0.50). Only those factors with 0.50 and above were retained. The interpretability of the extracted factors was used to decide on the number of dimensions to be maintained. 16 out of 24 items loaded substantially on 4 separate factors, and the factors were interpretable. Overall, the analysis produced a total of 4 interpretable factors with eigen values greater than 1.0, which accounted for (62.128%) of the total variance. The degree of intercorrelation among items turned out to be at an acceptable level, for the Bartlett's Test of Sphericity was statistically significant at X (747.415), KMO =0. 869, P = 0.001.

For the student survey questionnaire, there were four identified factors based on PCA. The first factor was *'general evaluation of the program'*, the second factor was related to '*students' experience'* in attending private higher education institutions. The third factor was *'program evaluation'*, while the last factor was related to the students' *'personal development*'.

The four–factor matrix obtained from the Principal Components Analysis with varimax rotation accounted for 62% of the variance in the private higher education institution assessment items. The first factor consisted of 5 items with items loadings exceeding 0.50 and explained 38.82% of the variance. The items were all describing the contribution of the program into personal development of the students such ability to plan, communicate both in oral and written form and social responsibility. Thus, the factor was labeled personal development.

The second factor included 3 items with loadings exceeding 0.70, and accounted for 9.27% of the variance. These items clearly describe the students experience and motivation during the program process and this factor was called experience.

The third factor comprised of 5 items with two items highly loaded (0.51-0.72) and all accounted for 7.14% of the variance. The items evaluated the program on aspects such as objective, program advancement, library, availability of the internet reality of the program and the factor was named general evaluation. The fourth and the last factor contained 3 items with loadings exceeding 0.60, and explained 6.9% of the variance. The main elements described by these items include program evaluation, and lecturers' evaluation and the factor was labeled program evaluation.

The rotated factor solutions were fit with 2, 3, and 4 factors. The 4-factor solution had inconsistent loadings (i.e., multiple items loaded on more than one factor), and was not considered further (Greg, et al 2004). Hair et al (1998) illustrated an example in naming factors, during which one of the two factors has only two items that was loaded significantly, the items could be retained as a factor (Hair, et. al, 1998, pp. 126-127). The items were retained because of the significant loadings 0.00. Table 3.6 shows the factor loading values.

Summary of factor loadings of student survey in pilot study

Factor loading is the factor pattern coefficients or structure coefficients of the items or variables. It can also be defined as "a collection of statistical techniques for creating homogeneous groups of cases or variables. The factor loadings on each of the item were practically significant. For a factor to be practically significant the loading must be 0.50 or greater. Examining the factor loadings in Table 3.6 next page, most of the loadings exceeded 0.50. In more simple and direct words, most of the factor loadings accounted for more than 50 percent of the variance which was also statistically significant. For example, in a sample of 100 respondents, an overall factor loading of greater than 0.50 was significant enough to determine the meaningfulness of the instrument (Hair et al., 1998).

In short, the appropriateness of this factor analysis was indicated by three main elements, as far as this study is concerned: 1) the overall the correlation matrix indicated a significant level at (0.001). The correlation matrix in Table 3.7 shows the interrelationships among all the variables or items, 2) The Measure of Sampling Adequacy (MSA) (0.869), which is a mathematical calculation for both the entire correlation matrix and each individual variable or item. A value above 0.50 indicates the appropriateness of the application of the factor analysis. 3) The Bartlett's Test of Sphericity was 0.001. This shows an overall significance of all correlations within a correlation matrix. All the above indicators show that the factor analysis was appropriate.

3.2.4: Manager Survey Instrument Reliability

The reliability coefficients for each item of the managers' instrument are presented in Table 3.8 next page. The reliability values were very high in all the components of the instrument, which suggested that the items maintained the internal consistency and consequently could be used in any empirical study. The researcher did not run the factor analysis to determine the underlying dimensions of the items or factors. This was because the sample size did not meet the requirement for running factor analysis. In other words, the sample size was only manager 24 respondents, three from each private institution included in the study. Whereas for Principal Component analysis and factor analysis it is required at least 100 respondents if one wants to run a meaningful analysis.

However, the reliability of the items was assessed by applying Cronbach's Alpha. All alpha coefficients for each item were more than satisfactory, i.e all above 0.97. The inter-correlation among the items ranged between 0.07 and 0.79. This results implied that the estimate of reliability and correlations between items were internally consistent, and very high. The overall reliability of the items measures and the reliability per factor were summarized in the following Table 3.8.

Table 3.8: Overall Reliability of the Items and Factors for
The Manager Survey Questionnaire

Dimensions	**Number of the items**	**Reliability α**
Mission and Objective	7	0.940
Governance	25	0.965
Effective Management	12	0.966
Instructional Programs	41	0.973
Student Support Services	17	0.977
Library and Learning Support Services	11	0.899
Human Resources	25	0.987
Physical Resources	11	0.965
Technology Resources	8	0.983
Financial resources	9	0.957
Overall reliability of items	**166**	**0.977**

Appendices 1 and 2 at the back of this thesis show the student survey questionnaire and manager survey questionnaire respectively. Both were translated into Arabic by two linguistic professors at Sultan Qaboos University who were conversant in Arabic and English languages.

3.3: Respondents of the Study

This study initially had identified 19 private higher education institutions to be involved in this study, but unfortunately due to the lack of cooperation from 11 of the institutions, this study was conducted on the remaining eight (8) institutions. Table 3.9 lists the names of the eight private institutions involved in this study. The private institutions had been granted license to practice their academic enterprises in the Sultanate of Oman. These institutions were established between the years 1996 to 2005. The student respondents were selected using stratified random sampling, i.e. the sample was selected as representatives by type of institutions, degree levels, and study programmes.

Table 3.9: The Eight Private Higher Education Institutions in the Sultanate of Oman Involved in This Study

Institution	**Academic Year Established**
Sohar University	2001-2002
Nizwa University	2004-2005
Dhofar University	2004-2005
Oman College of Management & Technology	2004-2005
Modern College of Business& Science	1996-1997
Sur University College	2001-2002
Middle East College of Information Technology	2002-2003
Mazon College	1999-2000

3.3.1: Student Respondents

The student respondents of this study included both male and female students who were enrolled as students in the eight selected private higher education institutions in the Sultanate of Oman. They were all low and medium achievers who could not secure places in the public institutions of higher education (such as Sultan Qaboos University, Rustaq College of Education, and the Colleges of Applied Sciences in the cities of Ibri, Nizwa, Salalah, Sohar and Sur). It is worth pointing out, however, that the description of these undergraduates as low or medium achievers did not carry any pejorative connotations. Least of all, this qualification did not suggest that they were intellectually limited. The issue had to do with the extremely limited number of seats at offer, as Oman has only one public university (Sultan Qaboos University), one College of Education and five Colleges of Applied Sciences. These institutions together could absorb around 5,000 candidates out of a GCSE (General Certificate of Secondary Education) population of no less than 30,000 students. Some of these undergraduates, in fact, had been offered seats in public colleges, but they had to turn them down because they were not offered the fields they aspired to pursue their careers in. However, although they were underachievers, a good deal of them enjoyed scholarships either from the state through the Ministry of Social Affairs or through the colleges themselves. Private higher education institutions were allowed to run for two main reasons. On the surface, these institutions were established to bridge the educational gap between the academically high achievers and low achievers and,

secondly, they gave opportunities for higher education to the lower and medium achievers with GCSE results (CGPAs) that were not high enough to secure them seats in the public institutions of higher learning.

Despite the growing pressures associated with the ever-growing numbers of GCSE holders, the Sultanate of Oman had thus far insisted on giving access to its public institutions of higher education, and the Sultan Qaboos University in particular, to the elite of high achievers. Instead of lowering the entrance benchmarks of the public institutions, the Omani government had opted to launch a long-term, large-scale venture into private higher education. Consequently, when the two developments were being put together, Oman hoped that by maintaining the high standards of the Sultan Qaboos University, they provided the current and prospective private institutions of higher education with a model to emulate and a benchmark against which they should gauge their performance, notably in the area of quality. Providing educational services was not the only purpose. After all, one may ask: why did the Oman government not build more public institutions? The quick rise of an ever-increasing private educational infrastructure could be translated to two main features of the Omani government policy: On the one hand, Oman had always made it clear that the development of human resources was indispensable for any sustainable socio-economic development. On the other hand, another equally vital requisite for the developmental process was the active participation of the private sector not only as a consumer but as a producer of human and material resources.

In this study, the researcher involved students at all the academic levels (i.e., year one through year four students) because they had gone through different experiences and these experiences might enrich the study and provide more accurate information that could determine the strengths and weaknesses of the private university experience in Oman. Moreover, the masters' students were included so as to get their feedback on the private university. The above-mentioned categories of students' participation in the study were deemed appropriate for one simple reason: to get their opinions and experiences after going through the private higher education institutions. Additionally, only those students that were enrolled for a degree or masters' program in the private higher education institutions were randomly selected to respond to the research questionnaire.

3.3.2: Manager Respondents

Executive managers of eight selected private universities also participated in the study. This includes deans, executive managers, program coordinators, and heads of departments, deans, deputy deans, or staff from academic department. The executive managers of the private higher education institutions were involved in this study because of their supervision and management of the institutions and their awareness of – and probably active contribution—in the design of quality assurance procedures. By their involvement in the study, the effectiveness and fulfillment of the private higher education institutions quality policies could be meaningfully examined. Also, the managers were selected due to their involvement in making decisions and

recommendations that could facilitate the smooth implementation of the rules and regulations of the QA policy. In other words, their participation was deemed indispensable for this study simply because they were the policy-makers, which may one way or another affect the quality assurance for accreditation of private higher education institutions.

QA survey questionnaire was sent to eight registered private colleges/ universities in the Sultanate of Oman. It was then followed by interview with the same or different managers of the same institution. The dual approach was largely meant to accurately gauge the institutions' awareness of the quality issue and evaluate to what extent each of them is working to establish and maintain the standards. The standard questionnaire comprised ten (10) factors, namely (a) mission and objective, (b) governance, (c) effective management, instructional programs, (d) student support services, (e) library and learning support services, (f) human resources, (g) physical resources, and (h) technology resources and financial resources (see the details in instrumentation,).

3.4: Determining the Sample Size

Tabachnick et al. (2001) agree that whenever the word “sample” is used, it usually connotes a sample selected from a population randomly or at least in a manner which is reasonably random. Ideally, samples are selected, generally by random process, so

that they represent the population of interest. The population, thus, is the group from which the researcher is able to randomly sample (Tabachnick & Fidell, 2001).

Gay & Airasian (2000) suggest that the determination of adequate sample size is an important decision that has to be made by a researcher. This is because if the sample size is too small the findings of the study may not be representative of the population, as the results may be true for the sample only (Gay & Airasian, 2000, p.134). On the other hand, the large sample size will affect the sensitivity of the study, to the extent that a small difference will be statistically significant. According to Hair et al. (1998) if the sample size becomes very large, the method becomes too sensitive and almost every trivial difference will be found significant.

Thus, the question that the researcher needed to consider was not simply "How large should the sample size be?", but rather: How large the sample size should be in order to detect a specific effect size or the degree to which the phenomenon exists? (Hinkle, Wiersma, & Jurs, 1996)0. It was from this perspective that the sample size played an important role in the inferential statistics results. This was because a sample size provided a basis for the estimation of sampling error and representativeness of the targeted respondents.

Educators are now requesting researchers to include effect size information in their studies (Cohen, 1990; Sccmidt, 1992; Lipsey & Wilson, 1993). Reporting effect

size is very important not only because it provides readers with adequate information to assess the magnitude of the observed effect or relationship, but also it allows the researcher to judge the practical importance of the findings and results.

Moreover, talking about effect size automatically leads to the description of power and other related issues such as alpha and sample sizes. Power is the strong probability that the effects that actually exist have a chance of producing statistical significance in eventual data analysis (Tabachnick & Fidell, 2001). Power analysis refers to any strategy that studies the relationship among four important elements of research; ES (effect size), alpha (ά), type-two error (Beta) and sample size (N). Therefore, fixing any of these elements initially determines the fourth (Hair, Anderson, Tatham & Black, 1998).

This study had set the power at 0.80 to ascertain that a false null hypothesis to be rejected. Also (0.05) alpha level of significance would be selected in order to eschew inflation of type 2 error because the more stringent the alpha the harder it was to reject the Ho (null hypothesis), and consequently the lower was the power (Welkowitz, Ewen & Cohen, 1986).

According to Cohen (1988), sample size has rigorous and essential effects on the result of hypothesis testing, because the larger the sample size the smaller the error, and the greater the reliability or precision of findings. He argues that “the larger the sample size, other things being equal, the smaller the error and the greater the

reliability or precision of the results" (p.11). Thus, an increase in the sample size will increase the power, and hence enhance the probability of detecting the influences of treatment in the phenomenon under investigation.

The researcher selected sample size according to Cohen's (1988) suggestion, in which alpha and power were selected to decide the appropriateness of the sample size based on the inferential statistic to be used. "When an investigator anticipates a certain ES (effect size), sets a significance criterion (ά) and then specifies the amount of power he desires, then which is necessary to meet these specifications can be determined" (Cohen, 1988, p.14). Consequently, a number of 388 student respondents were selected based on the result of power and effect size chose.

3.4.1: Sampling technique

The student respondents of this study were selected using stratified random sampling technique from the 8 different private higher education institutions across the Sultanate of Oman. The sample was drawn from five types of faculties, namely, general academic, business, engineering, medicine and information technology (ICT). Then, the stratified random sampling was used to balance the representativeness across the faculties. Easton & McColl (1997) state that the stratified random sampling technique can be used if the population is heterogeneous or dissimilar. It is obtained by taking samples from each sub-group of a population (Easton & McColl, 1997). The main reason of using the stratified sampling technique was that it could reduce

sampling error. The total number of the students population in higher education was around 20,000 students.

3.5: The Qualitative Part of This Study

A qualitative research is a naturalistic investigation, since the data collection strategies used are interactive and aimed at discovering the natural flow of the events and processes. The purpose of combining the quantitative and qualitative together in this study was to add depth and detail to the quantitative part of the study. Patton (1987) believes that follow-up interviews with a sub-sample of respondents can provide meaningful additional detail to help make sense out of and interpret survey results. This qualitative data can put flesh on the bones of quantitative results, bring the results to life through in-depth case elaborations (Patton, 1987, pp.38)0.

Campbell & Stanley (1963) say that the qualitative phases of data collection and analysis, unlike the quantitative approach, are interactive research processes that occur in overlapping cycles. There are no rigid step by step procedures to follow, both data collection and analysis progress concurrently toward the completion of the study itself.

The qualitative part of the study was carried out in order to provide substantive evidence on the preparations and enforcement actions carried out by private higher education institutions in Oman from their operators' point of views.

The researcher employed triangulation method—collecting data through interviews, observation, and documents—for the purpose of identifying any important general themes and patterns about the private institutions' strengths and weaknesses. Golafshani (2003) regards the triangulation method as one important way to strengthen the understanding of phenomena under study. This can be accompanied by using different kinds of methods or data, such as a combination of both qualitative and quantitative approaches (Golafshani, 2003).

The qualitative method used in this study was designed to complement the quantitative analysis in order to enhance the validity of the survey findings. This section analysed the data collected through face-to-face interviews, coupled with participant observation, i.e. two primary methods used to collect the qualitative data. The goal was to get an accurate view of the participants' frames of mind in order to appreciate what they were doing and why.

Eight interviewees (who were the general manager/ university president of eight private institutions in Oman) participated in the qualitative research (these participants were drawn from the same population. In other words, they were the decision-makers in the eight institutions covered by the quantitative study). Both structured and semi-structured interview question were given first to the managers of these private institutions or parts/departments before the researcher came to visit them. The interview questions matched the twelve aspects of quality assurance in Part II of the survey. Matching questions to participants allows the researcher to minimize

sampling and coverage errors. The researcher typically used simple words, focused on clear ideas and kept items short. This clear, precise and direct method was adopted so the data would be easily coded, and interpreted. On the other hand, semi-structured questionnaires were used in the interviews to identify the participants' responses to previously analyzed situations. It was also utilized to explore the participants' views about the standard problems while encouraging a full explanation of their perspectives.

The section on the qualitative analysis was also divided into two subsections, A and B. In subsection A, the researcher focused on the structured interview, while in subsection B the attention was concentrated on the semi-structured questions. The interview questions were as listed below:

SECTION A

a. What is the mission and objective of private higher institution in Oman and how do see the mission and objective?
b. How would you describe the governance of the private institution in Oman?
c. How would you describe effective management of these institutions?
d. As a responsible director of this program, how would you describe the instructional program designed for private institutions?
e. How effective and efficient is the students support services in your institutions?
f. How do you want to comment of library and learning support services in your private institution
g. How effective of efficient Human resources?
h. What is your opinion on physical resources in your institution?
i. The technological is very essential in today high institutions, how can you describe the adequacy of technology resources in your private institution?
j. What is your view on financial resources?

SECTION B:

11. How do you describe quality assurance implementation in terms of:
    a- The consistency of practice in the use of quality assurance procedures?
    b- Good preparation and outcomes for audit?
    c- Good preparation and outcomes of for quality assessment?
    d- Better ability to meet monitoring requirement of professional bodies?
    e- Better ability to meet monitoring requirement of external examiners?
    f- What are the problems in implementing QA in the private institution?
    g- How to improve capability to address quality issues in non-academic services areas?
    h- How to improve the standard of the students as well as both academic and non-academic staff?

The purposeful sampling strategy was used to collect the data. The purpose of using this strategy was to select information-rich cases for study in depth. In other words, information-rich cases are those from which one can learn a great deal about issues of great importance for the study. The researcher employed the maximum variation sampling strategy, which was aimed at obtaining differences of perceptions about the key research question “What are the initiatives, constraints, and issues in implementing QA policy in private universities and colleges in the Sultanate of Oman"?

3.5.1: Validity of qualitative research

Validity refers to the best available approximation to the truth of propositions. There are two types of validity according to Campbell and Stanley (1963): (a) internal

validity which refers to the approximate validity with which it is inferred that a relationship between two variables is causal, and (b) external validity which refers to the approximate validity with which one can infer that the presumed causal relationship can be generalized to and across different types of persons, settings, and times.

In order to enhance the validity of a qualitative research and this study in particular, the researcher used the following strategies: 1) participants language verbatim accounts, i.e. obtaining literal statements of participants and quotations from documents, 2) mechanically recorded data. 3) participants' review. This includes participants reviewing researcher's synthesis of all interviews with the person for accuracy of representation.

Reliability issue is not often quite applicable in qualitative research. However, a different criterion known as "disciplined subjectivity" is recommended. A disciplined subjectivity is the researcher's rigorous self-monitoring, continuous self-questioning and reevaluation of all phases of the research process (McMillan & Schumacher, 1997).

3.5.2: Qualitative Data Analysis

Qualitative data for this study was obtained by interviews with the general manager or executive officer of the eight institutions involved in the study. Interviews were held for eight days, i.e. each day for one institution. Visitations to the eight institutions also include observations of the quality of facilities, classrooms, services, and management operations of the institutions. The interview protocol is as provided in Appendix 3. Interviews were held using the Arabic language, and the responses were tape-recorded for transcription and analysis. Apart from that, non-classified documents regarding quality assurance and accreditation process were also reviewed with the permission of the management.

The objective of qualitative data analysis was to answer research questions 4 and 5, i.e.

4. In terms of college or university management, what are the managers of private colleges/ universities' responses in carrying out the ten aspects of quality assurance in Oman?
5. Based on the college or university managers' experience as policy implementers, generally what are the main approaches and techniques used by college/ university managers in implementing quality assurance process in Oman?

Data obtained from interviews, observations, and document reviews were analyzed using the thematic method, i.e. raw data to codes to concepts to sub-themes to themes. In other words, content and thematic analysis was used to systematically categorize the data into some meaningful themes and possible emerging theoretical propositions.

3.6: Summary

This chapter explains the research methodology, which includes the sample size, the instrumentation process, and factor analysis of the findings of the pilot study. The reliability of students' and managers' instruments was tested during the pilot study. In addition, the data collection techniques for both the qualitative and quantitative parts of the study were discussed. The internal consistency measures, using Cronbach's alpha analysis, revealed that the survey items had high reliability indices, which implies that the researcher can proceed with the actual data collection and analysis of this study.

It is worth mentioning that distributed questionnaires included the part on demographic variables. In addition to personal information such as age, gender, and courses, there were also other variables related to the characteristics of the institutions such as year of foundation, location, number of the students, number of the staff and so on. The respondents were asked to rate the items on a five-point Likert scale. The researcher decided to use the Likert scale as a method of measurement because it was

relevant to the study, i.e. to specify respondents' level of agreement to each of a list of statements.

For the qualitative part of the study, the researcher made visitations to the eight private colleges and universities concerned for the purpose of having a closer look at their conditions, facilities, and services. Apart from that, in-depth interviews were held with some managers to find out their readiness and initiatives in implementing the QA policy as well as the constraints and issues regarding the policy.