Chapter 5
Methodology

5.1 Introduction

This chapter presents the methodology and procedures used in conducting the study. This includes the framework of approaches, research design, assurance of validity and processes involved in the pursuit of data collection and an unbiased and objective analysis of the data. It discusses the justification for each of the data collection methods used and measures taken to ensure reliability in the instruments employed for the research. These include pretesting and the conduct of reliability studies of the constructs in the questionnaire.

As had been stated in the introductory pages of this dissertation, the study aims at answering the main question, “Has accreditation made an impact on quality assurance in Ghanaian universities”?

Three specific questions are addressed in this study:

1. Has accreditation had influence on the quality of specified indicators in Ghanaian universities after two or more cycles of assessments?

2. Were there differential impacts of accreditation measures on the public and private universities in Ghana, between two evaluations in the period 2006-2014 and what might have accounted for any such difference?

3. Do students’ perspectives confirm or deny compliance with policies/measures in line with accreditation requirements, in their universities and do their responses have any association with the type of university – public or private – attended?

It should be noted that the actual study of this thesis was published in three articles, each of them tackling one of the research questions above. The influence accreditation has on assuring quality in higher education institutions could be assessed by considering input factors and or process factors, such as pedagogical methods, or output factors, such as graduates’ output in the labour market. This study,
however, concentrates on input factors such as curriculum structure, staffing quality, student/staff ratios and library resources of which minimum standards specified by the accrediting agency, Ghanaian universities are expected to meet before accreditation could be granted. It must be noted that the accrediting agency was yet to develop a consistent and elaborate procedure to assess process and output factors in the higher education institutions as at the time of the commencement of the study in 2012.

It was the expectation of the agency that accredited universities would go beyond the minimum requirements at the time of a second assessment for reaccreditation. Aside from the legal regime requiring universities to undergo assessments, with regard to the institutions and their programmes for accreditation before operation, the institutions themselves recognised the need for doing so in order to enhance their competitive edge in their environments. Thus, the universities, among others, adopted practices of other institutions of higher learning they perceived to be more successful, both locally and abroad, to achieve their objectives. The concepts of coercive, mimetic and normative isomorphism, defined by Dimaggio and Powell (1983 & 1991) and which trace their source to the Neo Institutional Theory are utilised to explain the behaviour of the universities. It must be emphasised that the ability of the universities and their students to have access to any form of funds depends, first and foremost, on the accreditation status of the university. This condition by funding agencies, including the state, gave the accrediting agency a great leverage in getting the institutions to conform with its set standards. It was for this reason also that the agency was able to direct the universities not to confine themselves to the minimum standards but to go beyond them, as a quality improvement measure, in subsequent assessments for accreditation. The resource dependency theory therefore enables us to explain why universities would go to various lengths to meet the expectations of the accreditation procedure to enable them have access to needed resources, both physical and human. It was the assumption of the study therefore, that the universities would strive to implement the recommendations for improvement made by the accrediting agency’s evaluators before any subsequent assessment for accreditation was conducted on their institutions. This would, hopefully result in quality improvement of the indicators to be assessed in the subsequent evaluation exercise.
In addressing the second research question, the study researched into the level of impact the accrediting body’s measures had on public as against private universities over the study period. The study here examined the varying degrees of the different isomorphic pressures exerted on the two categories of universities that made them conform to the accrediting body’s measures. The expectation was that the private universities, more than the public ones would experience more pressures but would that necessarily result in better improvement in their indicators than the public universities? The study sought to answer the question.

Finally, students’ perspectives on compliance levels with requirements for accreditation were sought and measured quantitatively by the study. Although students did not participate directly in evaluation processes leading to the grant of accreditation, it is realised that most of the accreditation requirements are meant to ensure and assure the students’ successful acquisition of knowledge. Their perspectives were therefore sought on the existence and compliance by the institutions of the measures meant to determine this assurance.

5.2 Defining the variables

This study makes a crucial assumption that the maintenance and improvement in quality may be associated with accreditation measures. The reliance on a probabilistic causation was due to the fact that it could not be readily established at the time of the study that, by all standards (through space and time) improvement in all the identified indicators under review was as a result of accreditation measures in the selected universities. Suppes (1970) observes that most causal thinking in the social sciences is probabilistic rather than deterministic. In probabilistic determination, strict conditions are not specified as in a deterministic causation. In measuring the impact of accreditation through cohort data in part retrospectively collected, the ratings for the specified indicators in the two assessment periods were compared. The assumption was that the impact of accreditation would be evident in the quality of the indicators in the second assessment. Unfortunately, however, not all potential interfering factors could be taken into account.
5.3 Design

The study utilised a cross-sectional analysis and a longitudinal approach for its investigation. This was based on the expectation that changes would likely occur in the identified variables between one cycle of assessments for accreditation and a subsequent one. Thus, the first cycle of assessments served to indicate the situation that prevailed, during which evaluators identified deficiencies in the indicators and made suggestions that would likely correct the identified deficiencies and help improve their quality. The reports from the subsequent assessments therefore, granted that the suggestions of the first cycle evaluators were faithfully implemented by the assessed universities, would be expected to show quality improvements in a longitudinal study.

Various data sources were utilised for the study. These were from evaluation reports, survey of academics teaching on the assessed programmes and student feedback on the existence and usefulness (in their estimation) of accreditation requirements in their respective institutions. Cohen et al (2013, p.141) classifies this ‘use of two or more methods of data collection in the study of some aspect of human behaviour as triangulation’. Social science research experts believe that conclusions from such studies, utilising various data collection methods, are likely to be more convincing (Eurepos et al, 2010). Thus in this study quantitative and qualitative data are combined from self-reported questionnaires and surveys in order to produce valid results regarding the impact of accreditation on the quality improvement of the sampled institutions.

The advantage of the adopted data collection strategy, that is from varied sources, was that it had the potential of exposing unique differences or meaningful information that might have remained undiscovered with the use of only one data collection technique. In this method, stress is put on the paradigmatic connection between qualitative and quantitative methods and, as noted by Lincoln & Guba (2000), blending elements of one with the other is possible, especially if the approaches have similar axiologies.
5.4 Sample and Sampling Methodology

For the first research question, the study selected 64 academic programmes from the seven, out of the nine, oldest public universities and the four, out of the forty, oldest private universities, in Ghana, that had undergone, at least, two cycles of assessments-for-accreditation between the years 2005 and 2012, for analysis.

Similarly, the participating institutions in the study for the second research question consisted of seven of the nine state and four of the forty private universities. These were also the oldest institutions in each category that agreed to participate in the study. Again, like the first study, the selected institutions had programmes of study that had undergone two cycles of assessments by the accrediting body between 2006 and 2012. In addressing both research questions, the study collected secondary data from the evaluation reports of the selected study programmes from the sampled universities. The evaluation reports utilised for the study were chosen purposively to meet the two cycles assessment criterion. Two (2) latest reports – one from a cycle of assessment and the other from the succeeding cycle - were collected from each sampled programme file of the selected universities/university colleges, for analysis. Thus, the reports on all such programmes that met that criterion were selected as not many of them had undergone two cycles of assessments as at the time of the study in 2012. Care was however taken to avoid the selection of programmes with almost identical characteristics from the same broad category. For instance, the sample would not include a Bachelor of Finance programme and also a Bachelor of Banking & Finance programme from the same institution. One was chosen over the other. Apart from a study programme having had to go through 2 cycles of assessments to merit selection in this study, efforts were also made to balance the number of programmes selected from the public institutions with those of the private institutions. Thus, 40 programmes were selected from the public institutions and 24 programmes from the private institutions. The disparity in sample sizes stems from the fact that the public institutions, with a relatively longer period of existence, had a wider range and variety of programmes than their private counterparts. The private institutions had a tendency of starting with programmes with fewer overhead costs, thus they had a concentration of Business and Computer Science programmes. These programmes
were common to both public and private institutions while programmes in the basic sciences were mostly found in the public institutions. Basic science programmes were grouped under the broad heading of Science and Technology and this also accommodated programmes in Computer Science, Information Technology and Engineering. Similarly, Business and Arts programmes were classified under Humanities. Thirty-one (31) programmes were thus categorised under Science and Technology while 33 programmes fell under the Humanities. Table 5-1 below shows the number of programmes selected in the various categories.

Table 5-1
Programmes’ sample size.
Determined by the no. of cycles of assessments

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of programmes</td>
<td>40</td>
<td>24</td>
</tr>
<tr>
<td>Selection of Humanities programmes</td>
<td>190</td>
<td>14</td>
</tr>
<tr>
<td>Selection of Science and Tech. programmes</td>
<td>21</td>
<td>10</td>
</tr>
</tbody>
</table>

The next stage involved eliciting the views (through questionnaires) of all 288 academics, who had taught during the two assessment periods, on their perception of changes that had occurred in the indicators between the two periods. Two hundred and two (out of the 288) academics could be reached. Based on the relative sizes of the institutions, 147 academics from the selected public universities were invited to provide responses to questionnaires designed to elicit their views. Eighty-two (56%) of them provided responses. Fifty-five academics were similarly invited from the private universities, out of whom 43 (78%) provided responses. Respondents were made aware that this study was an independent project – not connected with the accreditation agency – and they were free to agree or decline to participate. One hundred and twenty-five (125) academics in total provided responses to the questionnaire – a response rate of 62%. Academics who participated in the study were
selected from all ranks - professors, senior lecturers, and lecturers – the only proviso being that their departments or courses they taught had undergone at least two cycles of assessments for accreditation and they had been at post then.

For the study on students’ perspectives on the impact of accreditation, 1,100 students were randomly selected from six (out of the 9) public universities and five (out of the 60) private universities in Ghana (Table 5-2). A breakdown of the response rates indicates 89 per cent of student responses from the public and 78 per cent of student responses from the private universities.

*Table 5-2*

*Sample characteristics*

<table>
<thead>
<tr>
<th>Type of institutions</th>
<th>Population of Institutions and students:</th>
<th>Sample institutions and students:</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inst. (Students)</td>
<td>Inst.(Students)</td>
<td></td>
</tr>
<tr>
<td>Public Universities</td>
<td>9 (205,000)</td>
<td>6 (780)</td>
<td>696 (89%)</td>
</tr>
<tr>
<td>Private Universities</td>
<td>60 (65,000)</td>
<td>5 (520)</td>
<td>404 (78%)</td>
</tr>
<tr>
<td>Total</td>
<td>69 (270,000)</td>
<td>11 (1,300)</td>
<td>1,100 (85%)</td>
</tr>
</tbody>
</table>

The sample selected from the study population of public and private universities, constituted about 0.3 per cent of the total university student population of about 350,000 in Ghana, 70 per cent of whom were enrolled in the public universities. Six hundred and ninety-six (63 per cent) of the sampled students were from the public universities while 404 (37 per cent) of the students were enrolled in the private universities. These students were reading various programmes, at various levels - bachelor, master and doctoral - in the sciences and in the humanities. The distribution of students sampled within the
universities was motivated by the higher number of departments in the public as compared to that of the private universities.

It must be emphasized that since students did not directly participate in the assessment processes leading to the grant of accreditation in Ghana, what this study sought to do was to find out, albeit indirectly, from the students whether the agency’s set minimum standards were being maintained by the universities. Nevertheless, the students were assured of their anonymity in the study and that the results were not meant to be relayed to the accrediting agency to exact any form of sanctions on defaulting universities. The study, they were assured, was meant to be a pure academic and research exercise. Student participants came from all academic disciplines – humanities, the sciences and technology. Those selected for the study were those in their second year through to their fourth year of undergraduate study and those in the graduate study category.

5.5 Main research methods

For the first research question, the study utilized research techniques, including content analysis, to bring out commonalities of identified issues, and the frequencies of their occurrences, in the indicators. Tests regarding changes in the indicators were conducted and the mean and spread measures, such as the standard deviation, were shown. It must be noted that the transformation function: \[ x' = -1/(x + 1)^2 \] - was used to correct the positive/right skewness or upward skew of the curriculum data using a modification of Tukey’s ladder of transformations, where \( x \) is the original score, and \( x' \) is the transformed score.

In the study addressing the second research question, secondary data collected from reports submitted by evaluators’ on the five key indicators assessed for accreditation were statistically analysed. The study utilized the median as a measure of central tendency to describe the general performance of the assessed institutions and their programmes. The study employed the Wilcoxon signed-rank test as a further verification measure to test the significance of the results of the median scores and for the differences between the outcomes of the evaluation of the same indicators recorded at the two different times. The paired sample \( t \)-test was used to compare aggregate changes in the
indicators (as a measure of accreditation impact) between the two assessment periods, and between the public and private universities.

For the study on students’ perspectives on accreditation, statistical tests were mainly non-parametric, involving chi-square analysis and Mann-Whitney U Test.

5.6 Instrumentation

The main research instrument employed in the survey of the opinions of academics and students in research questions one and two respectively was in the form of questionnaires.

The academics’ questionnaire (Appendix 1) contained 35 items that required them to:

1. Rate, in order of importance, the reasons for their institutions undergoing accreditation exercises - the assumption behind this was that institutions were more likely to take the accreditation exercises more seriously and implement any recommendations arising out of them, if the academics, especially, found the exercises to be beneficial.

2. Rate the helpfulness of the assessment team in the accreditation process – the expectation being that results from the assessment would serve as explanatory variables for the extent of impact of accreditation on an institution.

3. Rate the extent and level of implementation of recommendations or directives from the accrediting agency - the opinion of academics in this regard was considered very important as they form crucial partners in the implementation (especially the academic aspects) of any such recommendations and, or directives.

4. Assign likely reasons for the improvement (if any) of students’ performance in examinations – although it might be argued that no single factor, for example accreditation, could be cited as accounting for the direct improvement of student performance, the expectation was that this item would help define some dominant contributing factors coming out of the process of accreditation.
5. Express an opinion as to whether obtaining the accreditation certificate assisted an institution in the competition for resources – human or material - in the tertiary education market.

6. Indicate their perception about the whole concept and practice of the system of accreditation – as major stakeholders in university education, academics’ perception about accreditation would inform the extent to which they, did not only participate in the exercise but also saw to the implementation of recommendations meant to ensure the quality development of the institutions.

7. Provide their respective opinions on the impact of accreditation on indicators such as curriculum structure, teaching delivery, student learning outcomes, library facilities and funding.

   The students’ questionnaire containing 9 items (Appendix 2), was more like a customer satisfaction survey and was also designed to seek confirmation, albeit indirect, whether standards set by the accreditation procedure were being complied with by the institutions. The students’ questionnaire also sought responses that would serve as verification for some of the responses provided by the academics. These included:

   1. The quality of information on course outlines – the purpose was to obtain a hint on changes effected in the curriculum as a result of the possible implementation of recommendations by the last assessment panel.

   2. Quality of classroom facilities – this would similarly show whether recommendations suggested on the physical facilities had been effected.

   3. Total lecture/ credit hours and class sizes – this would assist in determining the level of conformity with the norms (benchmarks) on student/staff ratios.

   All the questions were close-ended and most of them came with answering options to be rated on a scale (largely in conformity with the Likert scale).
5.7 Issues of validity and reliability

The questionnaires developed and administered for the study was guided by Churchill’s (1979) seven-step approach. However, the methodology did not utilize robust statistical measures of reliability. The questionnaires were pretested using face validity and undeclared pre-testing methods. Face validity, involving the seeking of expert advice to scrutinize and improve the questionnaires and undeclared pre-test were used to redesign the respective questionnaires for academics and students.

Pretesting the questionnaires by eliciting responses from academics and students from two different universities in Accra helped to improve the quality and wording of the instrument. Towards that objective, the questionnaires were administered to 10 academics and 20 students (undeclared pre-test) for responses and comments. In consonance with recommendations by Weinberg et al. (2002) on the assessment of reliability in research, the responses to the pretested questionnaires from the two institutions were compared. Validity was then tested by, for instance, comparing responses to questions asked in opposites. This pretesting procedure allowed for the identification and rectification of errors and deficiencies in the structure of the questionnaires including clarification of ambiguous questions or wording and unclear instructions. The pre-test exercise, which took one month to complete, was used to verify the satisfactory intent of the scoring criteria and nature of the listed items on the questionnaires.
Table 5-3  
A matrix of informational need from different sources

<table>
<thead>
<tr>
<th>Deans/ HODs</th>
<th>Academics</th>
<th>Students</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on Curriculum</td>
<td>✓</td>
<td>✓</td>
<td>✓*</td>
</tr>
<tr>
<td>Impact on Library facilities</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Impact on Student/Staff Ratio</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Impact on Physical Facilities</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Impact on Funding</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reason for accreditation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Assessment of panels of assessors</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Implementation of recommendations/ compliance with norms</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Improvement in performance of students</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Coping with competition</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Perception about accreditation</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Ensuring standards in programmes</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

*measured indirectly in the context of accreditation influence

The approach adopted helped to validate results of the study in that responses from academics could refute or confirm results from the assessment reports and, or those from students. Indeed in this study,
students responses were elicited mainly to either reject or confirm results from the assessment reports and those from academics.

5.8 Data collection procedure

Respective reports from two cycles of assessments – a first cycle and the succeeding one - on the selected programmes were retrieved from files for compilation of the relevant information. The information consisted mainly of the ratings scored by the evaluators on the chosen indicators - curriculum structure, student class sizes, library facilities, physical facilities and funding. Particular note was taken of the evaluators’ recommendations for the correction of identified deficiencies in the quality of the indicators in the first cycle assessment reports. Similarly, the comments of the evaluators, on the extent of implementation of their recommendations from the first cycle assessments and the current state of the indicators, were taken note of from the second cycle reports.

Upon written permission granted by heads of the selected institutions, questionnaires were administered to academics and students, selected through the sampling procedure outlined above, in the participating public and private universities. This field exercise covered both categories of universities spread throughout the country. While some respondents completed the questionnaires for collection on the same day others took time to do so which sometimes necessitated a second visit by contracted research assistants. In the case of students, permission was sought from their respective course lecturers to have them complete the questionnaires before their scheduled class sessions. The research assistants were present in all cases to provide clarifications whenever and wherever required.

5.9 Data analysis

The Statistical Package for Social Sciences (SPSS) was utilized for the cleaning process, running frequencies of items to remove illogical or impossible responses and the cross-checking of responses from individual questionnaires to ensure that the correct data had been entered.

Data from three sources – evaluation reports, academics’ responses and students’ responses to questionnaires – were analysed by, first
producing descriptive statistics of central tendency and spread measures. The evaluators’ reports were further analysed using non-parametric tests of comparison such as the Wilcoxon Sign Rank test. However, the normal approximations to the test were applied because of the large sample size. On the aggregate level (of all the indicators) the paired sample t-test was employed to test for the hypothesised difference. Specifically, the tests helped to determine the significance of improvements in the indicators from one cycle of assessments to the succeeding one and also between the public and private universities.

The academics’ perception survey was expected to reflect the impact of accreditation on the two institutional categories, hence the tests were mainly on proportions – using chi square – for the respective frequencies of responses. These responses pertained to the indicated degree of implementation of accreditation directives to the institutions for the implementation of evaluators’ recommendations for improvement.

Responses from students were analysed using relative frequencies on selected features such as quality of information on course outlines, quality of physical facilities, academic staff quality and class sizes. These pieces of information were to essentially confirm or deny the existence of requirements specified by the accreditation procedure in its instruments and responses to the questionnaires administered to the academic staff (Annex 1).