

STUDENT HOUSING REGISTRATION AND PLACEMENT INEFFICIENCIES  
AT A SOUTH AFRICAN UNIVERSITY

SEBOKEDI, LYNETTE

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**STUDENT HOUSING REGISTRATION AND PLACEMENT INEFFICIENCIES AT A  
SOUTH AFRICAN UNIVERSITY**

by

**SEBOKEDI ZUKISWA LYNETTE**

**Dissertation submitted in fulfilment of the requirements for the degree**

**Master of Technology: Quality**

**in the Faculty of Engineering**

**at the Cape Peninsula University of Technology**

**Supervisor: R. Arderne**

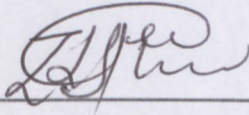
**Co-supervisor: Prof. Dr. J A Watkins D. Phil., D. Com., Ph. D.**

**Bellville**

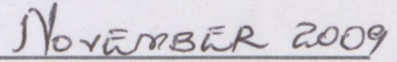
**November 2009**

## DECLARATION

I, Zukiswa Lynette Sebokedi, hereby declare that the contents of this dissertation represent my own unaided work, and that the dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.



Signed



Date

## ACKNOWLEDGEMENTS

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## **EXECUTIVE SUMMARY**

As higher education is increasingly becoming globalised, quality assurance is one of the most important mechanisms that can be used to ensure the competitiveness of higher education institutions in South Africa. The competitive market place both in private and public higher education sectors, require people at all level in an organisation to think of ways to continuously improve their products or service that they deliver to customers. This can only be achieved within higher education institution if staff and management can demonstrate their commitment to quality improvement through their active contribution to outstanding performance. By providing higher quality service to students, contribute to the positive assessment of the university in its services rendered to its clients.

This research seeks to determine the inefficiencies that impact adversely on service delivery as identified in the student housing registration and placement system, and to investigate ways of continuously improving the various processes and procedures.

The primary research objectives of this study include the following:

- To review the current student housing registration and placement system.
- To determine client satisfaction as it relates to the current student housing registration and placement system.
- To investigate and design an improved student housing registration and placement system that is efficient, workable, fast and user-friendly.
- To develop a mechanism to continuously improve the quality of the system.

It is anticipated that the research will lead to an improvement of student housing registration and placement application processes, which in turn will contribute to the overall improvement of service delivery. Furthermore it will enhance communication with the students and staff involved in the registration and placement process.

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## **1. CHAPTER 1: SCOPE OF THE RESEARCH**

### **1.1 INTRODUCTION AND MOTIVATION**

The Cape Peninsula University of Technology (CPUT) was established in January 2005 out of a merger between the Cape Technikon and the Peninsula Technikon. The new institution was faced with challenges to not only to built a new identity and 'brand' of the new 'university of technology', but most importantly the challenge of developing institutional structure, culture, systems and processes in order to successfully compete with the other institutions of higher learning in South Africa.

The provisioning of a quality learning experience and education is of importance to current and potential students, who are considered to be the 'customers' of the organisation. Institutions of learning can improve on student recruitment, retention, throughput and graduate output by continuously improving the levels of service they offer to their customers. Shanahan and Gerber (2004:166), maintain that in order to create, assure or improve quality, one must first accept that quality is important. If it is important, a full understanding of quality is then required. This full understanding forms a platform from which quality can be created, assured or improved.

A recent climate survey conducted in May 2008 amongst staff at CPUT, points to a definite drop in standards of quality services, primarily as a result of inefficient administrative functions and systems. This study will investigate the inefficiencies in the student housing registration and placement systems being used at the CPUT Bellville Campus.

### **1.2 BACKGROUND TO THE RESEARCH PROBLEM**

Although CPUT is promoting quality assurance as a mechanism to ensure customer satisfaction, the institution is still experiencing problems relating to good service delivery as

is evident in the Student Housing Departments' registration and placement process. This by implication creates a need for the Housing Department to have well defined improvement processes, that will lead to positive quality service delivery.

This research will seek to identify mechanisms to continuously measure, analyse, and improve the registration and placement process in order to meet and exceed customer expectations.

### **1.3 STATEMENT OF THE RESEARCH PROBLEM**

Against the above background the research problem to be researched within the ambit of this dissertation reads as follows: "Lack of communication between the Registration Department, the Examination Department, the International Office, the Faculty Department and the Student Housing department of the Cape Peninsula University of Technology, adversely impacting on the efficiency of the Housing Department".

### **1.4 THE RESEARCH QUESTION**

The research question to be researched within the ambit of this dissertation, reads as follows: "How can the Student Housing Department registration and placement processes and systems be streamlined to improve the efficiency of the department?"

### **1.5 INVESTIGATIVE (SUB-) QUESTIONS**

The investigative questions to be researched in support of the research question reads as follows:

- To what extent does the Student Housing Department meet customer expectation?
- Does the Student Housing Department ensure that the service delivered during registration period to internal and external customers is of high standard?

- What measures should the Student Housing Department have in place to ensure that employees are empowered in dealing with registration problems, and how do they contribute to overall quality improvement?
- To what extent does the Student Housing Department measure its performance in enhancing customer satisfaction?
- Does the Student Housing Department promote effective communication amongst departments that are involved in the registration and placement process?

## **1.6 PRIMARY RESEARCH OBJECTIVES**

The primary research objectives of this dissertation read as follows:

- To review the current student housing registration and placement system.
- To determine client satisfaction as it relates to the current student housing registration and placement system.
- To investigate and design an improved student housing registration and placement system that is efficient, workable, fast and user-friendly.
- To develop a mechanism to continuously improve the quality of the systems.

## **1.7 THE RESEARCH PROCESS**

The research process provides insight into the process of 'how' the research will be conducted from developing the proposal to submitting the dissertation. Remenyi, Williams, Money and Swartz (2002:64-65), explains that the research process as consisting of eight specific phases, which will be applied to this research study. The phases include:

- Reviewing the literature.
- Formalizing a research question.
- Establishing the methodology.
- Collecting evidence.
- Analyzing the evidence.
- Developing conclusions.

- Understanding the limitations of the research.
- Producing management guidelines or recommendations.

## **1.8 RESEARCH DESIGN AND METHODOLOGY**

Zikmund (2003:65) states: “A research design is the master plan specifying the methods and procedure for collecting and analyzing the needed information”. In this dissertation, descriptive research will be conducted which will take place in the social world.

Case study research will serve as a research method. Case study primarily fall within the phenomenological (qualitative) paradigm, it could also be applied within the quantitative research paradigm. According to Yin (2003:1), case study research can be used in many situations including:

- Policy, political science and public administration research.
- Community Psychology and sociology research.
- Organizational and management study.
- City and regional planning research, such as study of plans or public.
- Agencies.
- Research into social sciences, the academic discipline as well as professional fields such as business administration, management science and social work.

Case studies essentially investigate events in its real-life context and it addresses the following: It answers ‘How’ and ‘Why’ questions, and explore events and aids the understanding thereof in a particular context. It is seen as an all-inclusive research strategy when contextual conditions are the subject of the research.

Four types of case studies can be identified namely, descriptive, illustrative, experimental and explanatory case studies. Collis and Hussey (2003:68-70), implies that case studies are used in areas where there’s an inadequate amount of knowledge. Yin (2003:20-27), focuses on the important elements of case study research design, namely:

- Study questions.

- Study propositions.
- Unit of analysis.
- Linking data to propositions.
- Criteria for interpreting findings.

## 1.9 DATA COLLECTION DESIGN AND METHODOLOGY

In this dissertation questionnaires will serve as the data collection methodology, as it falls within the broader definition of 'survey research' or 'descriptive survey'. Remenyi *et al.* (2002:290), defines the concept of 'survey' as: “. the collection of a large quantity of evidence usually numeric, or evidence that will be converted to numbers, normally by means of a questionnaire”. A questionnaire consists of a list of questions compiled in order to elicit reliable responses from a chosen sample with the aim to determine what the participants do, think or feel. According to Cooper & Schindler, 2006:204, 208, 210-211), there are three types of interviews identifiable, namely:

- **Unstructured interviews:** No specific questions or order of topics to be addressed, which each interview customized to each participant.
- **Semi-structured interviews:** Generally starts with the few specific questions and then follows the individual tangent of thoughts with interviewer probes
- **Structured interviews:** Similar to questionnaire to guide the question order and the specific way the questions are asked, but the question remains open ended.

The sample frame will consist of the sample drawn from the population of students currently registered at CPUT. In additions staff members will be selected from the five departments, namely the Student Housing Department, the Registration Department, the Exam Department, the International Office and the Heads of the Departments who are in charge during the registration process to complete the questionnaires.

## 1.10 DATA VALIDITY AND RELIABILITY

According to Collis and Hussey (2003:186), ‘validity’ is concerned with the extent to which the research findings accurately represents what is happening. More specific, whether the data is a true picture of what is being studied. According to Cooper and Schindler (2006:318-320), three major forms of validity can be identified, namely ‘content validity’, ‘criterion-related validity’ and ‘construct validity’.

Reliability (also referred to as ‘trustworthiness’), is concerned with the findings of the research (Collis & Hussey, 2003:186). The findings can be said to be reliable if you or anyone else repeated the research and obtained the same results. There are three common ways of estimating the reliability of the responses to questions in questionnaires or interviews, namely:

- The re-test method, which will be used in this dissertation, and the
- split halves method, and the
- internal consistency method.

## 1.11 ETHICS

In the context of research, according to Saunders, Lewis and Thornhill, (2001:130), “... ethics refers to the appropriateness of your behavior in relation to the rights of those who become the subject of your work, or are affected by it”. The following ethics will be observed in the research study:

- **Informed consent:** Participants should be given the choice to participate or not to participate, and furthermore be informed in advance about the nature of the study.
- **Right to privacy:** The nature and quality of participants’ performance must be kept strictly confidential.
- **Honesty with professional colleagues:** Findings must be reported in a complete and honest fashion, without misrepresenting what has been done or intentionally misleading others as to the nature of it. Data may not be fabricated to support a particular conclusion.

- **Confidentiality/Anonymity:** It is good research practice to offer confidentiality or anonymity, as this will lead to participants giving more open and honest responses.

### **1.12 RESEARCH ASSUMPTIONS**

The following assumptions apply to the proposed research:

- Quality at CPUT is not practiced and understood by all those involved in service delivery.
- Students and staff are not satisfied with customer service delivery during the registration period.
- Registration process and procedures is not clearly understood by all students, especially first year students at CPUT Bellville Campus.

### **1.13 RESEARCH CONSTRAINTS**

The following constraints apply to the research:

- Research is limited to Bellville Campus of the Cape Peninsula University of Technology.

### **1.14 CHAPTER AND CONTENT ANALYSIS**

The following chapter and content analysis will be applicable to the research study:

**Chapter 1:** Scope of the research.

**Chapter 2:** Holistic perspective of the research environment.

**Chapter 3:** Continuous improvement and ISO 9000 (A literature review):

**Chapter 4:** Data collection design and methodology.

**Chapter 5:** Data analysis and interpretation of results.

**Chapter 6:** Conclusion.

### **1.15 SIGNIFICANCE OF THE PROPOSED RESEARCH**

Higher education institutions attempt to attain rapid quality improvement in order to glean from it the benefits associated with improved quality. The benefits are student recruitment, retention, throughputs and graduate outputs, which can only be achieved if the institutions can improve the level of service they provide to their customers.

The research will contribute to an understanding of the needs of the students applying for accommodation. The research will also contribute in providing the institutions of higher learning with measures that can be put in place in overcoming the problem of registration and placement process.

## **CHAPTER 2: BACKGROUND AND INSIGHT TO RESEARCH ENVIRONMENT**

### **2.1 INTRODUCTION AND BACKGROUND**

With the rapid growth of higher education in South African, universities face difficult competition in the overall retention of students. Registration Departments, Academic Departments and Support Services are vital entities to a university, as 'front end' to the service quality of the university. By making the Student Housing registration process easy, user-friendly, and acceptable, will work to the advantage of the institution. Understanding how students see on-campus registration provided input to academic decision makers of staff attitudes involved during the registration and placement period. In this chapter, the researcher will endeavour to place the study into its context and focus on describing the background of the research environment.

### **2.2 HISTORICAL PERSPECTIVE OF STUDENT HOUSING**

The historical roots of student housing started in Europe, where students who attended college in Europe were considerably younger (14-15 years old), often from very poor families, and who had to find a places to leave for themselves. As the time went on, students began to form their own voluntary living units, which were democratic, self-governing and self-financed (Cowley, 1934) cited by Rentz, & Saddlemire (1988:228). Students who were not satisfied with the living arrangements, were free to move and find more suitable arrangements.

The rationale behind housing provisioning during the early years focused primarily on providing close supervision for young women. The development of campus life outside the classroom, intercollegiate sports, debating societies, and student publication encourage students to spend their out of classroom time in various extra curricular activities (Brubacher & Rudy, 1958 cited by Rentz & Saddlemire, 1988:230). Campus housing became more convenient for those students, and consequently the demand for student housing.

The establishment of higher education institutions in South Africa was based largely on the British model, with the University of Cape Town (UCT) being the first such institution founded in sub-Saharan Africa. The first residence at the University of Cape Town in 1887 for men marked the beginning of student housing, and by 1918 two more residences were added. Hope Mill and Arthur's Seat, the women residences were headed by a non-faculty member until its closure in 1928. The women who were responsible for the residences, continued as a first heads of the new women residence at Grooter Schuur campus. This reflects the hybrid model of student services, with the involvement of faculty staff and non-academics, a practice that still continues in most higher education institutions in South Africa today (Mandew, 2003: 3).

The Student Housing department falls under the auspices of Student Affairs. The term 'Student Affairs' refer to the integrated group of non-academic departments and units providing support and welfare services and programs for students in higher education institutions (Mandew, 2003: 3).

### **2.3 BRIEF DESCRIPTION OF RESIDENCES AT CPUT**

CPUT has a capacity to accommodate 6092 students of the over 29000 total enrolment population. CPUT has three campuses namely, Bellville Campus, Cape Town Campus and Wellington Campus. The Bellville Campus has 11 residences, which accommodates a total number of 2555 students. The Cape Town Campus has 15 residence scattered around Cape Town with 2985 students, Whilst the Wellington Campus is the smallest campus with 5 residences accommodating 552 students.

Bellville Campus has 11987 total enrolment population divided across the six faculty departments. With 11908 student's enrolments, only 2555 spaces were available for accommodation. The number of spaces available for placement of students is far less than the ever-growing number of students who applies each year for accommodation. As a result the Student Housing Department is experiencing on going problems in keeping up with the demands of students seeking accommodation due to the limited space in residences. As a

result, it is of importance that the institution should build more residences on campus to alleviate the pressure that Student Housing Department experience every year in terms of accommodation. The problem of limited accommodation makes it difficult for the housing department to fulfill their objectives, vision and mission.

The vision of the Student Housing Department is to offer an on-campus living environment, that supports each student's academic experience at CPUT. The mission is to strive towards creating an environment that is conducive for learning, professional development and growth, and in the process rendering of good quality service. It also ensures controlled and equitable access to institutional residence accommodation, and to ensure optimum and profitable utilization of space. Student Housing also offer programs for student development.

These objectives suggest a more educational and developmental role for the residential living experience. This approach is probably the most comprehensive statement on the purpose of student housing, and represents the basis for today's educational environment. It encompasses all aspects of student housing and underscore the interrelatedness of the physical and the programmatic environment.

#### **2.4 OVERVIEW OF REGISTRATION AND PLACEMENT PROCESS**

The number of students who have applied for accommodation in Bellville Campus for 2008 was 6030 for first semester and 5934 for 2009 first semester. Students are selected for placement in residences in terms of Student Housing policies and procedures. In this chapter focus will be directed on the registration and placement processes of the Student Housing Department and the system they use to do the selection, of students. A detailed explanation of how the process is executed, will be provided.

For any student who wishes to be accommodated in residence, certain activities need to occur. Activities like filling the application form for the enrolment of the course she or he wishes to study. The application form falls under the general application process of the institution. Evaluating the current registration and placement of students, one immediately realises that there are gaps in the system. These gaps emanate from the fact that there is no evidence that

there are any quality measures put in place for the smooth running of the processes. Lack of monitoring, planning, and the absence quality control points accounts for some of the many reasons that have exacerbated the problem. As a result, it is important to evaluate the current processes and systems and map them in order to be able to determine where the bottle necks are, and to formulate a quality improvement plan.

For the first semester of 2009, the total number of students who have applied for accommodation was 5934, while only 2555 students managed to obtain accommodation. These statistics shows clearly that the accommodation demand at CPUT Bellville is growing and there are no measures in place to accommodate the exponential growth. The exponential growth, 2008 first semester to 2008 second semester to 2009 first semester is shown in table 2.1

**Table 2.1** Summarised report on accommodation placement for students (Source: Own)

YEAR	2008		2009	TOTALS
	Intake for 2008/2009		2009	
1. Application Summary	Number of Applicants		2008	2009
	1 <sup>st</sup> Semester	2 <sup>nd</sup> Semester	1 <sup>st</sup> Semester	
Re-admissions	1810	474		2255
First Time and First Years applicants	4220	418		3679
<b>Total Applicants</b>	<b>6030</b>	<b>892</b>		<b>5934</b>
<b>2. Estimated Allocation Summary</b>				
Re-admissions	1698	431		2255
First Time Applicants	250	69		2892
First Years	320	21		787
Corrections of results	121	29		-
1 <sup>st</sup> years guaranteed spaces				300
Appeals	19	11		-
<b>Total</b>	<b>2408</b>	<b>561</b>		<b>2555</b>
<b>3. Demand</b>				
1 <sup>st</sup> Time Applicants				2892
1 <sup>st</sup> Years				487
Total Appeals	90	39		
Pending allocations	24	-		
Outstanding Allocations	3622	292		

Total

3736

331

3379

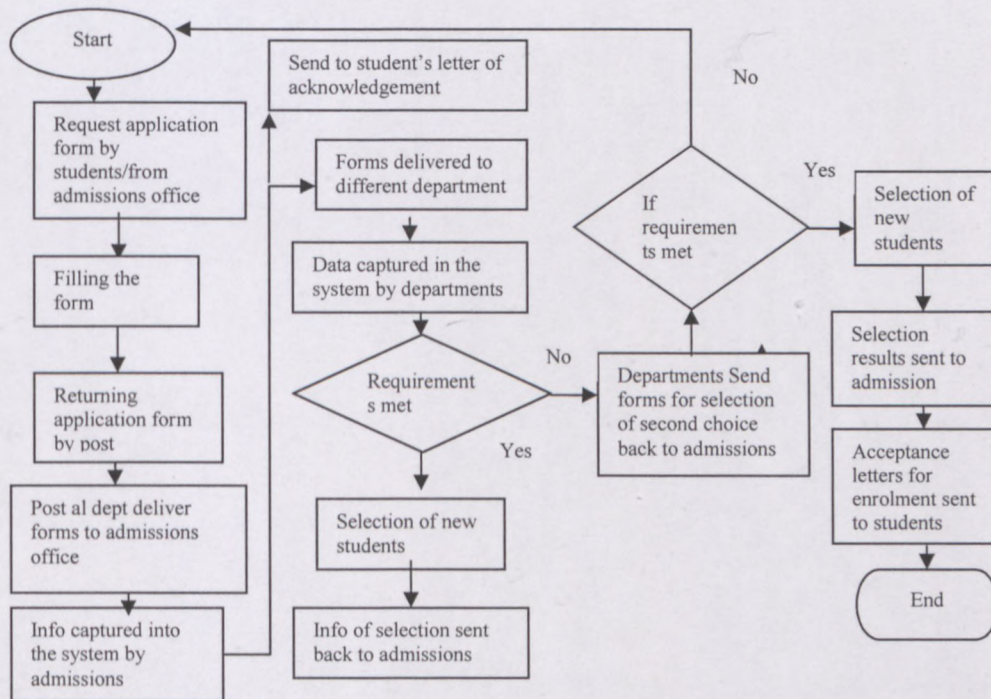
From the summarised report the number of students who have applied for residence accommodation in the first semester of 2008 were 6030. Out of the total number of applicants only 2408 students managed to get accommodation. The figure of 2408 is inclusive of senior students and first year students. The 320 spaces that were reserved for first years were divided amongst the 6 Faculty departments. The selection criteria was based on a first come first serve basis, culminating in the students who managed to call to confirm their acceptance of enrolment first were selected, while those who did not confirm were only given rooms on their arrival pending on the space availability. The outstanding allocations for the first semester of 2008 numbered 3736 students.

The second semester for 2008 application was limited to students who are doing engineering studies, being the only group of students who were allowed to apply for accommodation. Out of 892 students who have applied, only 561 students managed to get accommodation and 331 students could not be placed for accommodation. For the first semester of 2009, the total number was 5934 of students who applied for accommodation while only 2555, which comprised of senior students, first time applicants, in-service training and first year students could be placed. Out of the 2555 students that were placed, 300 placements were for first year's students. The total number of students who could not be placed for accommodation in the first semester of 2009 was 3379 students.

## **2.5 HOLISTIC PERSPECTIVE OF STUDENT'S APPLICATION PROCESS FOR ENROLMENT AT CPUT**

To define any processes improvement project, one must first understand the process that creates the outputs that internal and external customers receive. This understanding sets the foundation for identifying critical quality issues, selecting measures, identifying root cause of problem, and non- value added steps. Diagram 2.1 identifies the sequence of activities (the flow of materials and information) in the student's application process.

Diagram 2.1 further illustrates how the different elements fit together and provide understanding in the logic of the process. According to Evans and Lindsay (2005:352), flow charts can help the people involved in the process understand it better and more objectively by providing a picture of the steps needed to accomplish a task. The flow chart can also help all employees of the department involved in the registration, to understand how they fit into the process and who are their suppliers and customers. Comparing a flow chart to the actual process, will highlight the areas in which rules or policies are unclear so that communication can be facilitated about problem areas since all inputs and outputs are identified.



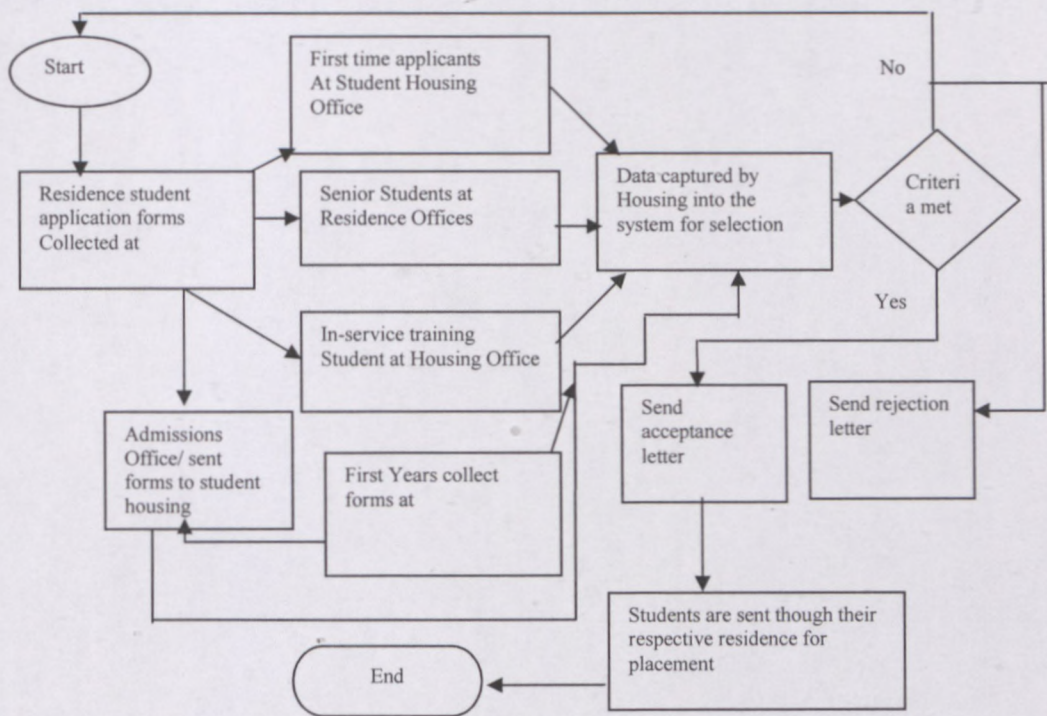
**Diagram: 2.1** Holistic perspective of the application process at CPUT (Source: Own)

## 2.6 APPLICATION PROCESS

The application process begins with an application form to be filled out and getting accepted for a particular course. In the application there is a part dealing with residence requirements

where a student needs to complete the names of all the residences that he or she wishes to go to in the different campuses. After the application form has been filled out, it will be sent through by mail to the institution's Post office. The form is then delivered by post office to the admissions office, where it is then captured onto the system. After capturing, an acknowledgement of receipt of the application forms will be sent out, and the application form will then be sent through the different departments for selection of the student for the enrolment of studies.

The departments do not get the information of students electronically after the admissions office has captured the data; the form is delivered to them by hand together with the list of students and summary sheet (end of September). When the form reaches the department, they will verify the contents by checking whether the list corresponds with the forms, and only then will they start capturing the information onto the system. The entry exams are captured in the department, and the applicants are ranked on point system. Applicants are selected based on ranking, gender, work experience and demographics at the beginning of October. The Student Housing application and selection process is graphically depicted in Diagram 2.2



**Diagram: 2.2** Application and Selection process diagram (Source: Own)

When the academics start with their selection, they in the first instance check whether the student meets the requirements. The student who meets the requirements is sent to Faculty office by mid October. Faculty office will notify admissions office, residence office, and students of the outcome of the applicants at the end of October. Successful applicants are given 14 days to accept the offer after receiving an acceptance letter. If the student is not accepted for the first choice of studies, the forms will be forwarded back to the admissions department, and they will send the forms to the department of the second choice for selection. Those applications of students who have accepted the offer are then submitted to the academic departments. The admissions office will then send letters of acceptance and rejections to students. Whist the academic selection was completed end of October, delays of forwarding first year's information for enrolment resulted in student housing not being able to send acceptance letters to first years, culminating in first years only knowing about their residence status on their arrival.

The registration is done twice a year. At the beginning of the year for everyone, while the second registration occurs at the beginning of the second term for students who wish to enroll for engineering studies, which are semester courses. All the information for enrolment is fully advertised on the website of the University, which is [www.cput.ac.za](http://www.cput.ac.za).

## **2.7 STUDENT HOUSING SELECTION CRITERIA**

The central residence office strives to provide accommodation to all the students who qualify, with the proviso that they meet the selection criteria and that there is space available for accommodation. Only students, registered fulltime will be given accommodation, and who comply with the following requirement:

- The minimum of subjects registered for a year must be three.
- Students reside outside the 60 km radius from the institution.

Furthermore, the selection criteria has its own exclusion clause which represents a way of endeavoring that all the aspects of the process in the rules and regulations of housing department are followed. The exclusions entail the following:

- Students on experiential learning lasting six month and longer.
- Students who do not meet the academic criteria.
- Students whose pregnancy term has reached six month or more

Selection of students relies mainly on the availability of results from the examination department. Currently, the Student Housing Department is experiencing the problem of not receiving the results on time, and above all the problem of wrong and unreliable results. The delays in the publication of the results will mean that the Student Housing Department will never be able to respond on time for accommodation and placement of students. Furthermore, the fact that these departments are not communicating effectively when it comes to the registration process, add to the complexity of the process.

One needs to look at what quality measures can be implemented in solving the problem. Secondly a thorough investigation of the current system will be executed in order to gain a clearer understanding of how the academic system works and what causes the delays. Furthermore the system which each department is using to do their selection and associated time frames allocated, for marking exam scripts will be evaluated.

### **2.7.1 Categories of Applicants**

#### **➤ First Year Students**

The students have to apply using the general application process of the institution. The first year students must apply on the prescribed form attached to the university application form for admission. First years who would have written and pass matriculation at the time, will be selected and places for accommodation during the October and November selection period. For those students who are still waiting for their matriculation results at the time of selection, can only be placed at the beginning of the year when the matriculation results are available and the confirmation letter of acceptance for enrolment is faxed through to Student Housing

Department. For their selection to take place; they need to call the Student Housing Department to enquire about accommodation status after they have confirmed that they are accepted for enrolment. Only then does the selection take place. The selection is then executed on a first come first serve basis.

➤ **First Time applicant**

First time applicants are senior students who are studying at CPUT but who have never stayed in any of the residences. They applied directly to Student Housing and they are the most disadvantaged group, because when selection starts, they will only be attended to after selection of first years and senior students who had accommodation the previous year, has been done. The chances for them to get accommodated are slim, because they will only be considered if there are spaces available to accommodate them.

➤ **Senior Students**

These are students who are currently staying in residences. These students will apply for residence through their respective Residence Managers Office. After filling out the application form, they return the form to the Residence Managers office. The student will then sign the control form as a proof that the form has been returned. The forms will be sent through to the Student Housing Department for the capturing of information onto the system. Once all the data has been captured, the Student Housing Department will wait for notification of results from Exams Department. The publication of results is the major issue, because some departments do not meet the deadline for submission of results to the Examination Departments.

When all the results which are submitted and checked, the Exam department can then forward the results to Student Housing department. Selection for senior students will be executed based on the results received. Most of the time, student results are not correct, and students have to suffer and get rejection letters for accommodation even though they have passed, because the results reflect that student does not meet the criteria.

This creates a major problem because it means that there will be over allocation, due to wrong results. Rejection letters will be sent to students and those students who had wrong results have to go through another process of enquiring about their results. They will go back to their departments to get a confirmation letter stating that the student has passed. If the outcome of the enquiry is positive, then a student will submit the letter to the Residence Manager and hopefully accommodated. The confirmation will be forwarded to Student Housing or the Residence Office after which a student can be placed back into his or her room.

### ➤ **In-service Training Student**

These are students who are busy with their internships whose applications are also processed through Student Housing. Those who are not based in Cape Town should apply telephonically so that the forms can be sent to them. After filling out the form, the student must send the form back to Student Housing, by fax, scanned and emailed, posted or direct submission. In some instances the application forms get lost in the process. The student then has to produce the proof to Student housing showing that he or she have applied. The in-service training students are automatically accepted, and are placed back in the residence where they were staying in the previous year before their training.

## **2.8 CHALLENGES OF REGISTRATION AND PLACEMENT**

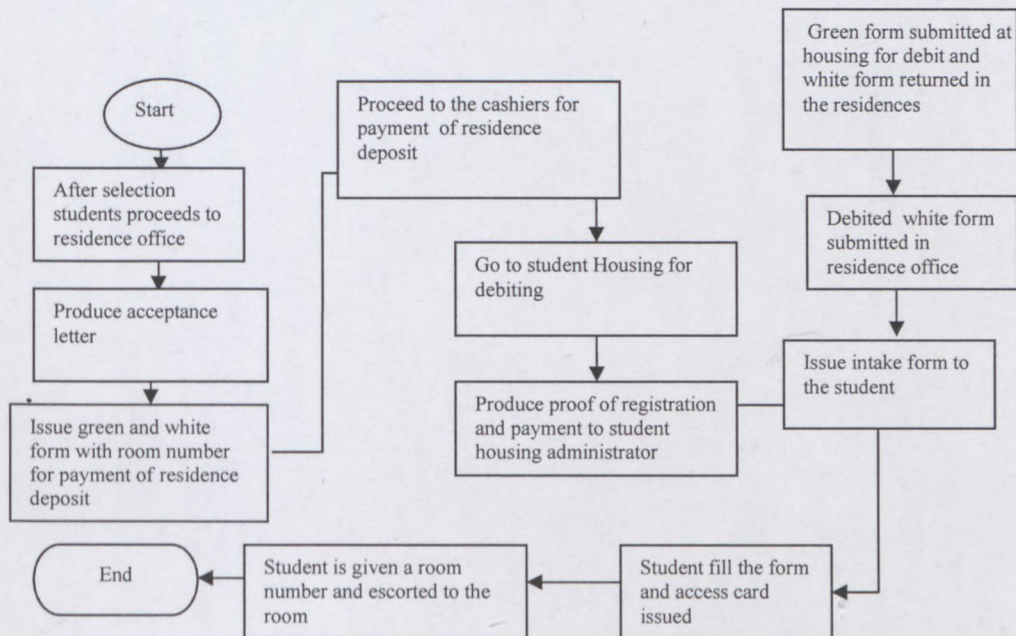
When students are selected they need to submit the following documentation for them to be admitted in residences.

- Payment slip or receipt, and a copy of the letter of acceptance as a proof.
- Pay the minimal initial payment for residence fee.
- Received final registration forms.
- Proceed to the residence where they are given the debit forms to pay the upfront-payment to the cashiers.

After the account payment, they can go through the Student Housing Department for debiting off the account. The 'white form' will be stamped and given back to the student, while the 'green form' will remain to Student Housing Department for debiting of the account. The student will then proceed to the residence where he will be given an Intake form, to complete

and an access card will be issued to the student. After the student has completed the form the room can be occupied by the student.

Diagram 2.3 is a graphical representation of the Student Housing Registration and Placement process (Source: Own)



**Diagram 2.3** Student Housing Registration and placement process

## 2.9 ACCOMMODATION AND PLACEMENT CHALLENGES FOR HOUSING DEPARTMENT

Due to the growing numbers of students seeking accommodation and the associated lack of accommodation, the Student Housing department has found themselves in the situation where they have to face dissatisfied customers like, Parents, Students, Staff members and Faculties. The rate of building residences is not consistent with the growing numbers of first year and International students who are coming to enroll at CPUT. In 2007, CPUT lost a block of residence space in Bellville College, which was accommodating 114 students. Furthermore they lost another block of 112 students at the end of 2008. The institution could only manage to get a block of flats in 2009, that accommodates 222 students. At the end of 2009 the last

wing at Bellville College will be taken, and hopefully management have contingency plans to facilitate the 2010 requirements for. The challenges in this respect are listed below:

- Late receipt of results from exams departments.
- Misplaced student application forms.
- Late response outcome on placement of students, specially first year and international students.
- Lack of communication between the departments involved and registration.
- Over allocation of students.
- Reliability of exams.
- Acceptance of walk-ins by Faculty departments.
- Subject cancellation after a student has been placed in the residence and no measures put in place to track students who have cancelled their subjects.
- Placement of students who do not meet the requirements due to circumstances, these are referred to as 'special cases'.
- Lack of accommodation for placement of students which results to squatting.

These problems emanate from the fact that the departments involved do not work together, even though they are depending on one another for information. The turn around time for the student to finish the whole process is too long, which at some times causes the students an extended period to finish the registration. At times students loose interest and get frustrated because of the long queues and number of issues in the process. Thirdly the problem of the response times which mostly affects first year students needs to be addressed as a matter of urgency. The late receipt of student results and wrong results from Exam Departments are a major concern, because it affects the selection status of the student. This problem is caused by the delays of late submission of results by some Faculty departments, who are unable to meet the submission deadlines.

The delays for late submissions also culminate as a result of rescheduling of exams and subsequent exams to accommodate sick students. Hence, the submission of doctor's certificate and other supporting documents to the institution will determine whether the student should

write a supplementary exam or not. Secondly the delays of results are also caused by those students who have applied for remarking. The Faculty departments can only announced the results after they have captured the information of all the students who have written the exams. The problems pertaining to registration are as the result of the time it takes for Student Housing to obtain an outcome of first year student selection for enrolment to the course from the academics. After the selection has been done, the feedback does not go to Student Housing, instead it goes to the Registration department then sent through to students. Lastly the merger is a contributor to the problem because the exam department are of the opinion that they are still having difficulties in making sure that all the departments adhere to due dates, as resistance to change is evident.

## **CHAPTER 3: CONTINUOUS IMPROVEMENT: A LITERATURE REVIEW**

### **3.1 ROLE OF SERVICE QUALITY**

According to McDaniel and Pariseau (1997:204-218), service quality is a feature of the literature in marketing and operations management, but is just starting to gain attention in higher education. Gronhaug & Arndt, (1980:324-328), Quelch & Ash, (1981:82-85), and McDaniel and Pariseau (1997: 204-218), have demonstrated that consumers are reluctant to complain about poor professional service, but these same consumers are becoming increasingly more value conscious. As a result, higher education institutions are experiencing mounting pressure from their customers, which include students, alumni, parents to close the widening gap between their expectations of the institutional performance, and actual performance. As a result, it is imperative for institutions of higher learning to monitor the quality of their service and commit to continuous improvement in an effort to respond to the needs of the institutional constituency (Brigham, 1994 cited by McDaniel and Pariseau, 1997: 204-218).

Ziethaml (1992) cited by Joseph, Stone, and Yakhou, (2005:66), indicate that poor performance amongst service related businesses often result from inadequate information about their own customers. If firms do not know what their customers desire in terms of service, then how they can possibly design programs that match customer expectation that constitutes good service. In defining service quality (Lewis and Booms, 1983 cited by Caruana 2002:813), holds that this is the result of the comparison that customers make between their expectations and about a service and their perception of the way the service has been performed. 'Expectations' are the wants of the consumers that they feel a service provider should offer. Whilst on the other hand, 'perceptions' refer to the consumers' evaluation of the service provider (Lim & Tang, 2000: 290-299).

According to Foster (2004:215), high quality service is essential for competitiveness and can even improve employee satisfaction. However, service like quality is a multidimensional term.

Quality service is not only an imperative for competitiveness, but also the sign of quality maturity. As a result, for an organisation to provide high quality service, it needs a profound understanding of the needs, wants, and desires of the customer and an understanding of who the customers is. The role of service quality in higher education, as discussed by Shank *et al.* (1995) cited by Joseph, Stone, & Yakhou, (2005:66), is that: "Higher education possesses the characteristics of a service industry. Education service is intangible, heterogeneous; inseparable from the person delivering it, variable, perishable, and the customer (student) participates in the process. Additionally, colleges and universities are increasingly finding themselves in an environment that is conducive to understand the role and importance of service quality this environment is the fiercely competitive one".

Furthermore, according to Parasuraman, Ziethamal, & Berry (1988) cited by Abouchedid & Nasser (2002:198), the service quality concept in higher education, is inextricably linked to the competitive service and success of an institution. As a result, service quality helps meet the basic objectives of retention and enrolment of students in universities. With the idea that these institutions have a market to provide for, how well they provide students with service as registered students can be of value to their stature and academic reputation. Furthermore, the retention of students through academic and administrative provisioning is often associated with the quality of service that links the registrar with admission of academics (Backes & Gunn, 1992:183-186).

### **3.2 MEASURING SERVICE QUALITY USING SERVQUAL**

According to Brysland & Curry (2001:389-410), the SERVQUAL approach was designed by Parasuraman *et.al.* (1985), in response to the lack of conclusive published research materials relating to the measurement of service quality. The aims of SERVQUAL methodology evaluates and helps determine the following:

- Different customer's perceptions and expectations of service quality to highlight current performance levels, by customer segmentations.
- Resultant service quality gaps.

- An understanding of customer perceptions over time, allowing further analysis as part of the monitoring process.
- How to manage customer expectations with regard to service planning, design and delivery.
- The impact of service improvement activities carried out as a result of customer expectations and priorities.
- The results that provide a starting point and assist in the prioritisation of service improvement activities.

Most researchers in the area of service quality has identified services based on accepted differentiators, and how much of the research into service quality has focus on identifying measures for service quality and on identifying results of good service quality. Overall, expected organisational results include increased productivity and increase profit due to reduced cost (Kandampully & Duddy, 1999:51-56). Brysland & Curry (2001: 389-401), believe that measuring customer perception of service may increase expectations, and measuring too often may result in customers losing their motivation to answer correctly. Furthermore, they feel that if organisations are not willing to take appropriate actions on findings, there is therefore no point in measuring service quality.

The measure of service quality is complex because it is dependent on customer perceptions and evaluation of the service. (Dabholkar, Thorpe, & Rentz, 1996:3-16). In measuring service quality a single item measures satisfaction in terms of overall service quality. However research has shown that the service quality construct is more complex and may be more accurately assessed by using multiple items. Gronroos (1990:262), defines service quality in terms of the point in the service process, where the interaction between customers and employees occurs and concludes. As a result, this point is what determines whether customer expectation has been met and whether it will be satisfied with service quality.

- A number of previous research studies into student perceptions of quality satisfaction, have utilised the SERVQUAL framework (Parasuraman *et al.*, 1988 cited by Barney, Douglas & Douglas (2006: 251-267). According to Barney *et al.*(2006:251-267) Parasuraman *et.al* (1988)

developed this survey instrument for assessing quality along five service quality dimensions. These five dimensions have been used in many service firms to measure quality performance. Foster (2004:221), believe that the SERVQUAL instrument has many advantages that organisations can benefit from in measuring service quality which one expanded upon below:

### **3.2.1 Benefits of using SERVQUAL**

The benefits of using SERVQUAL according to Foster (2004:221) are:

- It is acceptable as a standard for assessing different dimensions of service quality.
- It has been shown to be valid for a number of service stations.
- It has been demonstrated to be reliable.
- The instrument is parsimonious in that it has only 22 items that can be filled quickly by the customer.
- It has standardise analysis procedure to aid interpretation and results.

Furthermore, in using this instrument one must firstly understand both customer expectation and perceptions, in so doing one will be able to assess the gap that exist in these areas. Looking at the five dimensions of service quality, which are reliability, tangibles, responsiveness, assurance, and empathy, the gaps that exist between these dimensions, demonstrate differences in perceptions that can have a detrimental effect on quality perceptions of service quality.

A high level of service quality may help an organisation in the creation of a comparative advantage, an important factor in an increasingly global market (Kandampully & Duddy, 1999: 51-56), and Sharma & Gadenne, (2002:394:404). From a customer perspective, good service quality should lead to long term customer relationships, customer willingness to recommend the service to others and to a good image of an organisation (Gronroos, 1990:260).

Customers will be able to recommend the service only if they get satisfaction on what they perceive to be good quality. Hence, it is vital for departments to regularly measure the quality

performance through surveys. The outcome of the surveys will help them identify the problem areas and be able to institute corrective action. Those corrective actions will be based on facts to make proper decisions for improvement program plans.

### **3.3 MANAGING SERVICE QUALITY IN HIGHER EDUCATION INSTITUTIONS**

According to Hill (1995:13), one of the problems facing higher education organisations seeking to improve service quality are that a body of meaningful performance measures does not exist. However, since students are now being viewed as the primary customers of the higher education institution, one approach to service quality management, which to some extent circumvents the performance measure difficulty, would be attempting to align, as closely as possible, students' expectations with their perceptions of service performance.

Hill (1995:13) citing Crawford (1999), highlight some issues that seems to be fundamental to the management of service quality. These include the centrality of the role of the consumer, and the relationship between the consumer expectations and the perception of service provided. The author further stated that in British higher education, students are now being considered 'primary customers'. Therefore one possible approach in managing service quality is to focus on the alignment of student expectations with the perception of service provided.

Gronroos, (1982:36-44), maintain that service quality can be broken down into two sub-components, namely 'technical quality' and 'functional quality'. 'Technical quality' relates to what is provided during the service process (knowledge, tangibles, and technical solutions), while 'functional quality', on the other hand refers to how the service is provided; the interpersonal behaviors contributed by the service employee during the service encounter. The significance of the above discussion on service and service quality is that in attempting to manage service quality, it is not enough to focus on service provider personnel, attention should also be directed to the motivation and behavior of the consumer as well. It has already been demonstrated that service expectations play a key role regarding the quality perceptions, which consumers ultimately develop. As a result, the organisations should take appropriate steps to manage such expectations. At a minimum, this involves informing consumers of what

is and what is not possible, and outlining the reasons why (Berry *et.al.*, 1985 & King, 1985 cited by Hill, 1995:10-21).

Barney *et.al* 2006:251-267 citing Deming (1982), comment that most people form their opinions based on what they see, and they are either dissatisfied or delighted, or at some point are on the continuum in between. As a result, in order to deliver high quality of service to students, universities must manage every aspect of the student's interaction with all of their service offerings and in particular those involving its people. Services are delivered to people by people, and the moment of truth can make or break the image of university (Banwet & Datta, 2003: 234-243).

### **3.4 BENCHMARKING**

Camp (1989:4-6), emphasise that although the comparative data has been used for years in some industries including higher education, benchmarking was developed in early 1980's at the Xerox Corporation in response to an increase in complaints and the rapid declining market. As a result, the strategy of benchmarking is important both conceptually and practically and is being used for improving administrative processes as well as for instructional models at colleges and universities by examining processes and models of other schools and adapting their techniques and approaches (Chaffer & Sherr 1992, and Clark 1993 cited by Alstete, 2000:200-205).

Kempner (1995:21-31), describes benchmarking as an ongoing, systematic process for measuring and comparing the work process of one organisation to those of another, by bringing an external focus to internal activities, and helping to identify where opportunities for improvement may reside. The author further believes that benchmarking as with other quality concepts, should be integrated into the fundamental operations throughout the organisations, and should be an ongoing process that analyse the data collected longitudinally, as a means of performance improvement.

According to Kempner (1995:21-31), benchmarking attempts to answer the following questions:

- How well are we doing compare to others?
- How good do we want to be?
- Who is doing it best?
- How do they do it?
- How can we adapt what they do in our institution?
- How can we be better than the best?

To answer these questions several multi-step benchmarking methods have been deployed by leading benchmarking practitioners in the likes of Longbottom (2000: 98-117), who has identified four key stages within a benchmarking process, namely planning, analysis, implementation, and review. (Camp 1989 cited by Pyzedek, 1995:Online), identified five key steps, which are in line with those of Longbottom (2000), but adding the fifth stage, of maturity in his benchmarking process. The stages are elaborated upon below:

- **Planning:** Identify what is to be benchmarked, and determine data collection methods and collect data.
- **Analysis:** Determine current performance gaps and project future performance levels.
- **Integration:** Communicate benchmark findings and gain acceptance and establish functional goals.
- **Action:** Develop an action plan, implement specific actions and monitor progress. Thereafter, recalibrate the benchmark.
- **Maturity:** Leadership position attained and practices must be fully integrated into process.

Most research on benchmarking emphasise that organisations should not consider benchmarking as a one-off exercise. For it to be effective, it must become a sustained, integral part of an ongoing improvement process with the goal of keeping abreast of ever-improving best practice. Camp (1995:15), add on further to say in benchmarking, internal processes are adjusted, performance is monitored, new comparisons are made with the current best

performers and further changes are explored, all with the ultimate goal of achieving world class status.

According to Camp (1995:15), benchmarking is the integral part of the planning and ongoing review process to ensure a focus on the external environment, and to strengthen the use of factual information in developing plans. As a result, organisation can use benchmarking to improve performance by understanding the methods and practices required to achieve world class performance levels.

### **3.4.1 Benefits of Benchmarking:**

Pyzedec, (1995: Online), explain the benefits of competitive benchmarking as follows:

- Creating a culture that values continuous improvement to achieve excellence.
- Increase sensitivity to changes in the external environment.
- Shifting the corporate mind-set from relative complacency to a strong sense of urgency for ongoing improvement.
- Focus resources through performance targets set with employee input.
- Prioritise the areas that need improvement.

From the above the analogy can be drawn that the CPUT can starts looking at what other institutions are doing and how they manage their student housing registration and placement process. For example, according to Tsatsane (2009:Interview), the Residence Manager at the University of the Western Cape, the residence administration allows Residence Managers to do the selection of their residences students. They are allowed to view and access the information that is needed for the selection of the students, by using the Link System. Their selection is done before students leave for vacation, and by the time they leave the institution, they know their status of accommodation and the rooms they are allocated to. They use the following criteria to accept students:

- The academic performance of a student.
- The financial status in terms of how much the student owes the university.
- The judicial record of the student.

- Should the student have failed two consecutive years, the student is excluded from residence.

According to Botha and Singh (2009: Interview), the residence administrators coordinating the placement process at the Tswana University of technology, student registration uses end of the year results of the previous year to do their selection for accommodation, due to the fact that the results are complete and error free. Senior students book their space first, thereafter the pre-selection of students will start. The system they use is called Integrated Tertiary Software, which enable them to view all the information needed for selection of students. They also use the system to block the application of a student, should the student have the following outstanding issues:

- Outstanding balance for fees.
- Outstanding balance for residence breakages.
- Judiciary record and expulsions.
- Students who are doing three year diploma courses are allowed to stay in residence for only four years, and that applies also to those who are doing four year degrees who can stay for five years.

According to Nhlanguwini (2009: interview), the residence manager and the coordinator of placement of students at the Nelson Mandela Metropolitan University, selection and registration of residence students is executed entirely by residence managers and there is no placement officer. The list of all students who have applied for accommodation is sent through to the residence managers by the admissions office. Students are selected based on the following criteria:

- They look at the radius/ distance student leave from the university
- Age of the student, as they prefer to accommodate younger students on campus and older students are advice to get accommodation privately so as to open the space for first years.
- Race of the students, because they need to make sure that students from other races are catered for, because most of the time the majority of students who apply for on campus accommodation is African students.
- Should students have failed two consecutive years, they are excluded from the residence.

CPUT can also learn from what other institutions are doing by exchanging information and also forming partnerships, that will help the institution to achieve greater benefits to continuously improve their systems and performance.

Camp (1995:16), identifies four types of benchmarking, which are elaborated upon below:

- **Internal benchmarking:** This is a comparison among similar operations within one's own organization.
- **Competitive benchmarking:** This is a comparison to the best of the direct competitors.
- **Functional benchmarking:** This is a comparison of methods to companies with similar processes in the same function outside one's industry.
- **Generic benchmarking:** This is a comparison of work processes to others who have innovative, exemplary work processes.

Lastly, Bossidy (2000: 46-49), believes that the ever-growing literature on benchmarking indicates a significant momentum, which will develop in the future, and which will become more and more a way organisations do business. The author further stated that best practice transfer has the potential to achieve greater benefits, which must be coordinated as part of the future business development, and that is part of the learning process. As a result, organisations must be flexible to respond rapidly to competitive and market change, and they must benchmark continuously to achieve best practice.

### 3.5 CUSTOMER SERVICE

One of the major issues facing recruiters and admission officers today are institution's inability to meet student customer service needs. Raisman (2001:189) conducted a study, which indicated that up to 12 percent of the potential student population are lost because of poor customer service during campus visits. In today's economically depressed market, more institutions are fiercely competing for a shrinking number of students (Anonymous 1, 2009: Online). These institutions can only survive the competition if they start to recognise the vital

role that customer service plays in attracting and retaining high quality students, and winning over skeptical parents.

Furthermore, Inability to satisfy student's expectations may not be just due to the attitude of staff the other possible cause may be the lack of clarity of systems and roles of support staff. Staff must be clear on what their roles are, communication on the expected level of service should be specific and commitment will be there if the system is well defined and students are aware of the services available. Therefore institutions of higher learning should provide service that is valued by the customers, and that could only be possible if they develop the understanding of their customers needs. In achieving that they need to institutes the following strategies: Anonymous 2, 2009: Online:

- Regular ask your customers about your business services.
- Provide feedback forms four your customers to complete.
- Welcome customer complaints and managed these promptly and positively to avoid loss of customers and negative word of mouth.
- Keep a list of customer complaints to identify any patterns and the cause of dissatisfaction.
- Learn what your competitors are doing to achieve customer satisfaction.

### **3.6 CUSTOMER SATISFACTION**

According to Meneses, Palacio, & Perez (2002:486-505), customer satisfaction has been debated in the literature and numerous definitions have been proposed without a consensus ever having been reached. From the research which have been conducted, Cote and Giese (2000:7-27), reached the conclusion that satisfaction comprises of three essential elements, namely:

- A general affective response that varies in its intensity;
- focus on choice of product, purchase, or consumptions; and
- the moment of determination, which vary according to the different situations and its duration in time which is generally limited.

In order to satisfy ones customers one needs to have an understanding of who your customers are, and what their needs and wants are? Gryna (2001:315), defines 'customer' as anyone who is affected by the product or process, and identifies three categories of customers, namely:

- **External customers, both current and potential:** A multiplicity of these customers gives rise to a variety of influence, depending on whether the customer is economically powerful and on its technological sophistication.
- **Internal customers:** These customers include all functions affected by the product, at both the managerial and workforce levels.
- **Suppliers as customers:** Suppliers should be viewed as extensions of internal customer departments, such as manufacturing.

More recently, customer satisfaction has been viewed as a global assessment that follows evaluations of service quality. Several researchers (Anderson & Sullivan, 1993; Cronin *et al.*, 2000; Spreng & Mackoy, 1996) cited by Dabholkar and Overby, (2005:10-27), have found empirical support for customer satisfaction as a consequence of service quality. Oliver (1981: 25-48), is of the opinion that service quality evaluations tend to be attribute-based and suggest that customer satisfaction evaluations are typically more global. Other researchers like Cronin, Brady, & Hult (2000:193-218.), have also found empirical evidence to support this notion.

Gryna (2001:327), further argued that in measuring customer satisfaction, one firstly need to identify the attributes of the product that collectively defines satisfaction. The list of attributes are tangibles, reliability, responsiveness, assurance, and empathy that should span the entire cycle of customer contact, from initial contact with the front line employees through use and rendering of the service and handling of complaints. For example in areas of customer service, the five dimensions in SERVQUAL model can be used by the Student Housing Department to measure customer satisfaction.

According to Detoro and Tennere (1992:56), customer needs and expectations are constantly escalating as they have their requirements met and learn of new possibilities from competitors. Any organisation that is too internally focused and not mindful of the dynamics of the market place, will eventually loose market share. The task then, is to pursue customer satisfaction in

an organised discipline manner. As a result, an organisation needs to have a framework, to guide its efforts to improve customer satisfaction. The steps that the organisation needs to follow according to Detoro and Tennere (1992:56), are elaborated upon below:

- Begin with an external assessment on the customer's perception of the product and service. By so doing, internal work processes impacting customer satisfaction are identified and improved to remove unwanted variation in performance.
- Unnecessary work steps are eliminated, and variation is minimised so that consistent, reliable delivery of service can be achieved.

Kinlaw (1992:30), on the other hand suggested a team based approach and strategies that organisations can use for improving customer satisfaction. He further maintains that team development is the grand strategy for the critical events that underlie continuous improvement. It is through team developments that teams can:

- Equip themselves for continuous improvement:
- Include customers as part of their teams, improve their output, and assure that the satisfaction of their customers is continuously improved; and
- Include suppliers as part of their teams, improve the input of their suppliers, and assure that the performance of their suppliers is continuously improved.

According to Kinlaw (1991) cited by Kinlaw (1992:31), team development is the context within which continuous improvement is initiated and maintained between the three roles of supplier, processor, and customer. Even if the meanings of team can differ when applied to internal and external customer, the difference will be in terms of degree only. As a result, the critical dimensions of team development are the same, in terms of inclusion, commitment, loyalty, pride, and trust.

Fredenberger, Marshall, & Ware (1996:21-31), are of a different opinion than Kinlaw (1992), in that the implementation of effective team-based continuous improvement projects in the academic side of schools as a most difficult task, because of the time required by team activities. The understanding is not clear as to how teams can contribute to academic processes, and an aversion to change in academic culture. However, academics maintain that

continuous improvement is easily implemented in areas composed of business-like processes (e.g., maintenance, cafeteria, housing and others). Therefore based on Kinslaw's opinion, it is important that the departments involved in the registration process should work as a team and not in silos, so that each department have the ability to understand other department's processes, above all staff can also start to see how their work impacts on others.

### **3.7 PROCESS MANAGEMENT**

According to Waszink, & Wijngaard, & Zhang (2000:730-755), organisations need to take into consideration that all activities can be considered as processes. As a result, if the aim of a TQM initiative is to achieve overall quality performance, then process management appears to be an essential requirement. Process management is the concern of quality of conformance, therefore one important matter in process management, is to ensure that process capability can meet production requirements.

According to Johnston, (2008:Online), as demands increase for higher education leadership to demonstrate accountability and transparency to their funding sources, some universities and colleges are using principles and practices of what is known as continuous process improvement, quality improvement, continuous quality improvement or total quality management. This approach can be viewed as a form of organisational development, or as a set of tools that assist with organisational development.

Continuous process improvement is an intentional approach to strategic change focused on planning for a determined future by improving business processes to get there. To be effective, continuous process improvement must look for improvement in a myriad of areas, including managing people, reducing waste or delays, understanding and meeting customer needs, and stewarding financial assets. Elements of effective CPI programs resonate with Balanced Scorecard principles. Each approach is best tailored to the needs and culture of the institution (Johnston, 2008: Online).

### 3.7.1 Steps for process improvement

According to Evans and Lindsay (2005:345), process improvement is an important business strategy in competitive markets, and suggest four points that organisation can consider due to the fact that:

- Customer loyalty is driven by delivered value.
- Delivered value is created by business processes
- Sustained success in competitive market requires a business to continuously improve delivered value.
- To continuously improve value creation ability, a business must continuously improve its value creation process.

The philosophy of Deming dictates that in order to apply the six steps of process improvement one needs to be disciplined, failure to do so will results to poor outcomes. As a result, the six steps of process were developed through years of frustration and failure, and have been designed as a universal approach. The model introduces a systematic approach for applying management to any type of process. Hence it can be applied in any operation, information system, administration, service, or manufacturing. It can also be applied to any system like those that exchange information with he customer, and those that use to produce and deliver product and service (Detoro & Tennere 1992:111).

The following steps can only be used by many departments at the CPUT, since it can be applied in any operations as stated above, namely:

- **Define a problem:** In the context of the process.
- **Identify and document the process:** In understandable terms.
- **Measure performance:** In the absence of documented performance standards, remedial work is needed to quantify how well or poorly the system is performing.
- **Understand Why:** The lack of data increases the difficulty of understanding why the system is performing the way it is.
- **Develop and test ideas:** Understanding variations and process capability are the preferred first activities in this step.

- **Implement solution and evaluate:** Begin by planning and implementing the improvements identified and verified in step 5.

Detoro and Tennere (1992:111), further state that service providers or knowledge workers sometimes do not recognize that they are performing within a business system. As a result, the six steps serve as a universal road map to process improvement. It provides a systematic approach to build a fundamental understanding of customer's requirements, process capabilities, and the cause for gaps between them.

Owen (2002:16), describe continuous process improvement as a systematic method of analysing data, identifying the root cause of problems, understanding likely future changes to product or service requirements, and acting on the results. As a result, one can deduce from the statement above that, in order to continually improve your processes departments need to ensure that feedback from internal and external customers and staff is actually fed back to the right people. Above all, the information gathered will be used to review and improve the process so as to be able to render service that continues to meet customer needs, because customers need change overtime.

Owen (2002:17), furthermore believe that the constant review will help to ensure that the process and hence the product or service it produces, continues to meet customer needs overtime. As a result the author suggests key steps that organisations need to follow to attain continuous improvement, namely:

- Document the process,
- establish process suppliers/customers/owner,
- measure the process,
- identify problems,
- identify solutions/improvements,
- implement changes,
- review changes, and
- start again.

### 3.8 QUALITY AS CORE COMPETENCY

There is a need for academic departments to build and enhance relationships so that they can be able to function properly. It is believed that quality service requires a commitment to and understanding of best practice by all staff members in an organisation. Core competence is defined as consisting of communication, involvement, and a deep commitment to working across organisational boundaries. Furthermore, it involves many levels of people and all functions (Prahalad and Hamel, 1990 cited by Forster, 2004:113). The skills that together constitute core competence coalesce around individuals, whose efforts are not so narrowly focused that they cannot recognise the opportunities for blending their functional expertise, with those of others with new and interesting ways (Foster, 2001: 113).

Organisations producing outstanding products or services with an understanding of processes are better positioned to operate in a changing market, because they can introduce new products rapidly with fewer quality related hold-ups. As a result, core competency is built on the foundation of a long term commitment to quality and continual improvement.

According to Schilikman (2003:4), a Quality Management System (QMS) is most effective when it is transparent to the overall strategic goals and objectives of the organisation. The strategic goals and objectives of the organisation are embedded within the organisation's processes or core competencies. This means that the overall operational structure of the organisation is in the form of core competencies. Each core competency is characterised by a process that must link seamless into the next core competency to produce an effective overall QMS. Javadin (1998:60-71), is of the view that companies need to understand fully their core competencies and capabilities in order to successfully exploit their resources. Having the ownership of different types of resources, will enable the organisation to develop different strategies. Strategies that are too far from the firm competencies and capabilities are too risky, because they can lead to major company loss

Furthermore, McHugh, Merli, & Wheeler (1995:52), refer to core business processes that are identified by the business strategic thinking as critical to excel at to meet or beat the

competition. As a result, a core competence may be a business process, a management skill or an applied technology. Gary Hamel, a professor at the London Business School, has determined three tests by which to judge if a capability is the core competence, because much confusion arises in distinguishing between capability and core competence. The three tests listed by McHugh *et.al.*, (1995:52), include:

- Does it make disproportionate contribution to customer value?
- Does it offer the opportunity to build competitive distinction?
- Is it applicable in other business, location or products?

McHugh *et.al.* (1995:52), distinguishes between capabilities and core competence, by citing the example of pediatricians, who he believes are capable of basic medicine for adults because of their general training, but are competent in medical care of children, because of their specialized additional study. According to Hitt and Ireland (1986:401-416), a business has to be capable of doing many different things if it is to exist. Therefore, a capability is considered to be everything a business needs to compete. It may also refer to an ability to work in teams, attributes such as knowledge, an activity that goes on in every business.

### **3.9 QUALITY AS A WORK PRACTICE**

Shanahan and Gerber (2004:169), describe quality work practice as that is designed and enacted to provide a platform upon, which a quality faculty student administration service can be delivered to meet and exceed the expectations of the stakeholders. It evaluates efficiencies and continuous improvement as best practices. It identifies integrity as a sign of quality and work practice and is seen as a culmination of success and good quality service delivery. More specific, work practices are of quality if they are well designed and suit the purpose of enabling faculty student administration to meet and exceed student needs and expectations. For the work practices to be successful, they rely on the process of continuous improvement, which necessitates design implementation, feedback and design improvement, to which staff at all levels can contribute. It is of importance for the Student Housing department to have flexible policies and procedures that can be easily adapted to changing customer needs. Quality work practice enables the delivery of service in a timely, and cost- efficient way.

### 3.10 CONTINUOUS IMPROVEMENT

Goetsch and Davis (2002:83), argue that, "...the best way to win in global competition is with quality. The best way to produce quality is to continually improve people, processes and environments. The best way to improve people, process and environment, is the total quality way". To help in ensuring the future of the organisation and satisfaction of the interested parties, the Student Housing department management should create a culture that involve people actively seeking opportunities for improvement of performance in process and activities. These activities should include:

- Setting of objectives for people, projects and organisation.
- Benchmarking competitor performance and best practice to compare the standards.
- It is also imperative that performance need to be considered, because it is important to measure performance in order to make sure that customer requirements are met.

The quality assurance structure set up by the CPUT has already helped to raise awareness of the importance of a culture of continuous improvement and monitoring. According to Kinlaw (1992:13), continuous improvement means undertaking improvement projects that range from fixing things that fail, to creating new processes, service, and products. This means solving the customer's immediate problem and preventing the same problem from happening again. The author suggested five general strategies for improvement. These strategies exist on a continuum from being reactive to being proactive. Kinlaw (1992:15) strategies that can be used to prevent the problems being at the reactive end of the continuum are expanded upon below:

#### **Responding to an immediate problem:**

- This strategy includes actions such as correcting errors in a procurement request,
- taking care of customer complaints, and
- resolving conflict between team members.

#### **Preventing the occurrence and recurrence of a problem:**

- Focuses on action such as preventing customer dissatisfaction,
- by inspecting products or service,

- preventing failure of the machines through maintenance, and
- preventing errors in a procurement request.

**Upgrading machines, methods and techniques:**

Work processes and their results often can be improved:

- By replacing machines with new and better ones,
- automating some or all of a work process, and
- introducing a job aid or a new tool.

**Experimenting to improve an operation or work process:**

- This strategy for improvement means designing to test the impact of a modification in sequence, timing, and equipment material.

**Creating a new opportunity:**

This strategy includes the active search:

- To anticipate the developing needs of a customer,
- the introduction of product or service to meet these needs,
- the total elimination of outmoded work process, and
- breaking out of many limits to inquiry and improvement that typically exist Owen (2002:16).

According to Dobie and Hensley (2005:83), a number of quality improvement programs that are available for use by service industries are Six Sigma reengineering, benchmarking and TQM. Six Sigma is particularly attractive to the service industry due to its customer driven methodology. Whilst on the other hand TQM has been used for a number of years and results show that TQM can lead to improvement in the following areas (Sharma & Gadenne, 2002:394-404):

- Improvement in team work,
- increase feelings of personal responsibility,
- increase customer orientation, and
- improve organisational efficiency.

According to Detoro & Tennor (1992:32), various teachings of the quality gurus with practical experience have led to the development of a simple but effective model for implementing TQM. The model has build on fundamental principles of total quality, namely focus on the customers that are internal and external, focus on improving work processes to produce consistent, acceptable outputs, and focus on utilizing the talents of those with whom we work. The fundamental principles of total quality are according to Detoro & Tennor (1992:32), elaborated upon below:

- **Customer Focus:** This concept requires a thorough collection and analysis of customer requirements, and when the requirements are understood and accepted, they must be met.
- **Process Improvement:** The concept of continuous improvement is built on the premise that work is the result of the series of interrelated steps and activities that result in the output. Sustained attention of each of these steps in the work process is necessary to reduce the variability of the output and improve the reliability of the process
- **Total Involvement:** This approach begins with the active leadership of senior management and includes effort that utilises the talents of all employees in the organisation to gain a competitive advantage in a market place.

Various other general and systematic approaches to improvement have been employed or proposed by educators in higher education institutions, including Kaizen, total quality management, quality function deployment and policy deployment. The CPUT like most institutions of higher learning subscribes to quality, excellence and improvement. However, that can only be achieved in the presence of well defined improvement process. As a result, the Kaizen process can be used as the principal process in eliminating waste and improving the processes deployed by the Student Housing Department at the CPUT. Kaizen is the Japanese word meaning: 'Change for the better', and is typically interpreted as 'continuous improvement' (Imai, 1986 cited by Emiliana, 2005:39).

Emiliana (2005:37-52), emphasises the most important point of how the leaders of higher education institutions fail to cut on activities that adds cost but does not add value. The author further argues that the leaders of higher education institutions, like most leaders do not operate

with the understanding of waste in mind, and thus are not effective at cost reduction, when compared to some non-educational organisations. As a result, they have a poor understanding of business processes and the specific activities contained therein that consume resources, but do not create value. The common solution to the problem is to increase tuition and fees, or cut programs, reduce academic, or support resources, and sometimes lay staff off (Rensselaer & Hartford 2001; Hebel, 2002; Arnol *et al.*, 2003, and Farrel, 2003, cited by Emilliana, 2005:37-52). Hence, the strategy they use to deal with the problem is to 'look at the numbers' to justify the cuts, but never 'look at the process' to understand and eliminate cost that customers do not value (June, 2002: 27).

The Kaizen process is the important tool that can be used to eliminate cost, and it utilises various tools and methods to make the problem visible. Then uses formal root cause analysis and other means to identify and correct the problem at the source. The results are rapid improvement, lower costs, higher quality and better product or service which are the attributes that the customer recognise (Zimmerman 1991, Imai, 1997 and Roffe 1998 cited by Emiliana 2005: 37-52).

### **3.10.1 Root Cause Analysis**

Root cause analysis is a class of problem solving methods aimed at identifying the root cause of the problem or event (Anonymous 3, 2009: Online). The practice of root cause analysis is predicated on the belief that problems are best solved by attempting to correct or eliminate root causes, as opposed to merely addressing the immediate obvious symptom. By directing corrective measures at root cause, it is hoped that the likelihood root cause analysis of problem recurrence by a single intervention is not always possible. As a result, root cause analysis is often considered to be an iterative process, and is frequently viewed as a tool for continuous improvement (Anonymous 3, 2009: Online).

As indicated above, the Student Housing Department, the Exams Department, the Registration/ Admissions Department and the Faculty Department could use this method as a

problem analysis tool in identifying the problems they are experiencing, so as to be able to correct and eliminate the root causes of their problems. The problems associated with the Student Housing department are partly caused by late delivery of results and application forms, that does not reach the department on time. This makes it difficult for the Student Housing department to capture the information for their selection and placement of students.

According to Emiliana (2005: 39), root cause analysis is not a single, sharply defined methodology; there are many different tools, processes, and philosophies of root cause analysis in existence. However, most of these can be classed into five very broadly defined 'schools' that are termed by their basic fields of origin: They are as follows

- **Safety-based Root Cause Analysis:** Descends from the fields of accident analysis and occupational safety and health.
- **Production-based Root Cause Analysis:** Have its origins in the field of quality control for industrial manufacturing.
- **Process-based Root Cause Analysis:** Is basically follow-on to production-based, but with the scope that has been expanded to include business processes.
- **Failure-based Root Cause Analysis:** Is rooted in the practice of failure analysis as employed in engineering and maintenance.
- **System-based Root Cause Analysis:** Has emerged as an amalgamation, risk management, and system analysis.

In addition, one needs to take into consideration that Kaizen is the specific form of action or on-the-job learning, where people examine and critically question all activities that are performed in order to meet the needs of internal or external customers (Zimmerman 1991, Imai 1997 and Roffe 1998 cited by Emiliana, 2005:39).

### **3.11 ELEMENTS OF THE KAIZEN PROCESS:**

The Kaizen process includes the following elements:

- Observation,
- data gathering,
- analysis, and

- critical thinking.

According to Emiliana (2005:41), Kaizen is valuable because it is the method for quickly achieving improvement. It also engages people at all levels of an organisation and promotes teamwork. It challenges the team to identify solutions that are both low cost and highly effective at eliminating waste, unevenness, and unreasonableness. This process can help the Student Housing Department to clearly identify the root of problems, measure, and correct the problems associated with the process. This can be done by using the general principles of root cause analysis.

### **3.12 SIX SIGMA**

According to Holmes, Jenicke, & Kulmar (2008:453-462), as customers continue to demand better quality products or service, companies have used various approaches to meet this need. Six Sigma improvement methodologies is one of the approaches that has been successfully used by companies in the United States and other parts of the world to improve quality of products manufactured or service delivered.

Antony (2006:236), states that many service oriented companies still conform to the notion that Six Sigma is confined just to manufacturing, companies. He then suggested three rudimentary principles of statistical thinking advocated by Hoerl and Snee (2002), that he believes will be the best way in convincing service oriented company to initiate, develop, and implement Six Sigma strategy, namely:

- All work occurs in a system of interconnected processes,
- all processes exhibit a variety; and
- all processes create data that explain variability and it is the companies' responsibility to understand the source of variability and device effective strategies to reduce or eliminate variability.

From the above analogy it is evident that higher education institutions can also implement the above Six Sigma strategies to improve their systems and processes.

### 3.12.1 Benefits of Six Sigma in service oriented companies

Some researchers are of the opinion that Six Sigma is difficult to implemented in an education setting, forgetting that higher education institution are part of service oriented organisations. Should the CPUT use the strategies above in their implementation, they can glean some of the following eight benefits (Holmes, Jenicke, & Kumar, 2008:453-462):

- Effective management decision due to heavy reliance on data and facts instead of gut feelings and hunches.
- Increase the understanding of customer needs and expectations, especially the critical-to-quality service performance characteristics, which will have the great impact on customer satisfaction and loyalty
- Efficient and reliable internal operations, leading to greater market share and satisfied share holders.
- Improved knowledge across the organisation in terms of various tools and techniques for problem solving, leading to greater job satisfaction for employees.
- Reduction in the number of non-valued added operations through systematic elimination, leading to faster delivery of service.
- Reduction in the variability of service performance, leading to more predictable and consistent level of service.
- Transformation of organisational culture from being reactive, to proactive thinking or mindset.
- Improve cross-functional teamwork across the entire organisation.

Success stories of Six Sigma implementation and subsequent improvements in processes can be found in both academic journals and trade publications. The focus of these publications has however been on industrial (manufacturing and services) processes. Not much has been published on implementing Six Sigma in an academic environment. One can then argue that academia is part of the service industry, it is believed that there are characteristics that are unique to the academic world. Hence it makes it an interesting application area for the Six Sigma methodology (Holmes, Jenicke, & Kumar, 2008:453-462).

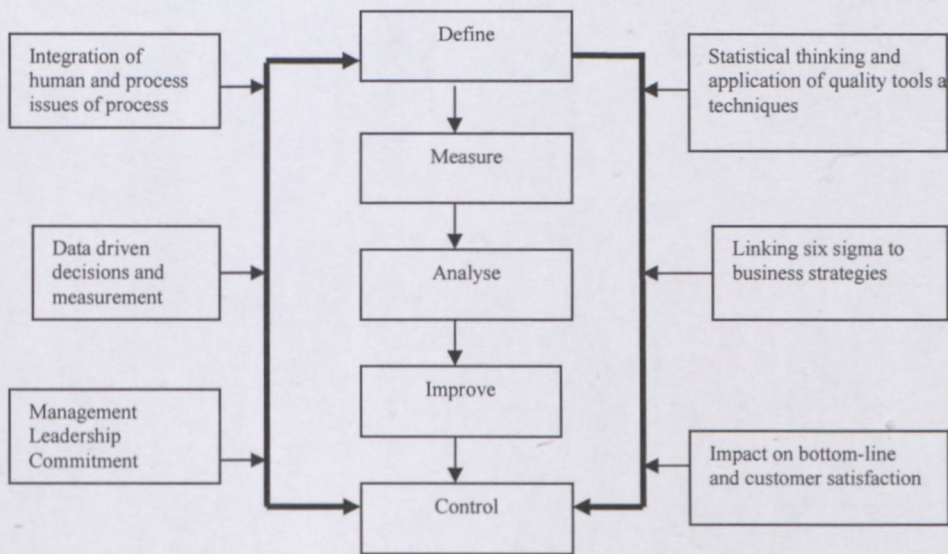
The concept of Six Sigma was introduced by Bill Smith in 1986, a senior engineer and scientist within Motorola's communication Division. He was responding to problems associated with high warranty claims. The success of the efforts at Motorola was not just achieving Six Sigma quality level, rather the focus was on reducing defects rates in processes through the effective utilisation of powerful and practical statistical tools and techniques. According to Antony (2006:234-248), this approach has led to:

- Improved productivity,
- improved customer satisfaction,
- enhance quality of service, and
- reduce cost of operation or cost of poor quality.

Six Sigma is being implemented successfully in the broad range of services, especially in those service industries that have traditionally lack quality improvement programs. Manufacturing companies are taking their Six Sigma experiences and moving them to their service operations. Caterpillar Corporation was so successful in using Six Sigma for process improvement in its financial services corporation, that it received a Malcom Baldrige National Quality Award in the service category for 2003 (Daniels, 2004:58-65).

According to Gryna (2002:57), Six Sigma approaches is the collection of managerial and statistical concept and techniques that focus on reducing variations in processes and preventing deficiencies in product. Six Sigma applications in the service sector are still limited although it has been embraced by many big service oriented companies like City Bank, Zurich Financial Services and others, that are experienced. Furthermore, Juran (2002:3), defines Six Sigma, as a management strategy, which maximises customer satisfaction, and minimises the defects that creates customer satisfaction. Hence it is crucial for top management to adopt Six Sigma because it works most successfully when it is adopted as a managerial philosophy, and not as a quick fix for a particular problem.

According to Bremer, Daniels, Gupta, & Mc Carthy (2005:331), DMAIC comprise the major phases of the process improvement project. Each phase consists of the set of tools and deliverables. Other researchers suggest the well known Plan, Do, Check, and Act (PDCA) cycle for improvement. Although DMAIC looks different than these methods, it encompasses both approaches. It also focuses on using data to make decisions and then verifying those decisions before committing business resource. See figure 3.1 for a graphic depiction of the Six Sigma methodology.



**Figure 3.1** Six Sigma methodology: (Source: adapted from Bremer *et al.*, 2005:331)

### 3.12.2. Six sigma methodology for service processes

Antony (2006:234-248), defines Six Sigma as a problem solving methodology or process improvement framework, which makes use of a series of well-defined steps. Each step is a prerequisite for performing the next. The five DMAIC phase are elaborated upon below:

**The Five DMAIC Phases are:**

- **Define phase:** A serious is identified and the team is given the responsibility and resources for solving the problem.
- **Measure phase:** Data is gathered and analysed that describes with precision and accuracy: What is the current, or baseline level of performance of the process that creates the problem.
- **Analyse phase:** Theories are generated as to what may cause the problem, and by means of testing the theories, root causes are identified.
- **Improve phase:** Root cause are removed by means of designing and implementing changes to the process that has been producing the problem.
- **Control phase:** New controls are design and implemented, which prevent the original problem from returning and which hold the gains made by the improvement.

There are various tools that organisations can use at every stage of the cycle in order to assist in making a success of their improvement efforts. The following serve as examples of tools which can be deployed for each of the stages of the DMAIC (Evans & Lindsay 2005:352).

**Define:** You can use the flowcharts

**Measure:** Check sheets or Histograms

**Analyse:** Pareto diagrams and cause and effect diagram.

**Control:** Control charts.

### **3.13 INITIATIVES FOR CONTINUOUS IMPROVEMENT IN HIGHER EDUCATION INSTITUTIONS**

Dew (2009: Online), believes that many institutions and agencies in higher education accept that there is a need for quality improvement; but relatively few have embraced the reasoning behind the term 'continuous quality improvement'. Some institutions are being pushed by accreditation agencies to focus on big institution wide improvement initiatives, as opposed to working on continuous improvement across the organisation. The underlying distinction seems to be between those institutions that understand how the system works, and those that do not.

Higher education institutions are complex with multiple subsystems. These subsystems can have a negative impact on each other if they are not managed properly. A change in the admissions office work procedure could broadly impact on the efficiency of the entire institution. For example, problems with food service could drive students away, likewise with financial aid, could lead to student unrest and impact retention. Policies in the library, or student accommodation problems can impact student success in academic programs.

It is within this framework that continuous improvement acknowledges the reality that subsystems co-exist and emphasises the need for all subsystem in the university to identify their most critical processes and to continuously seek to improve them. This includes every academic program, academic support service, and every student support service. (Elsehennaway and Mullens (2002: Online), believes that total quality initiatives in many organisation requires employees to complete basic training. Training generally includes quality awareness, teamwork, continuous improvement tools, problem solving and other issues such as meeting customer's requirements and data interpretation. The authors also believe that adequate training and on-job training helps improve work processes, and develop skills required for employees to do their work effectively. It also provides more flexible, high educated workers and improved work practices.

### **3.14 UNDERSTANDING ISO 9001:2000**

It is important for an organisation to consistently produce products, including services that meet customer requirements, and as a result it is important to understand what ISO 9000:2001 entails. ISO 9000 specifies requirements for a quality management system, where an organisation needs to demonstrate its ability to consistently provide products or services that meet customer and applicable regulatory requirements. It also aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity (Karapetrovic, Rajamani, & Willborn, 1996:3).

Pfeifer and Wunderlich, (1997: 228), believe that quality has a high impact on the competitiveness of any organisation. To adopt total quality management is a big challenge for everybody. As a result, it is not sufficient to react with traditional methods, but new strategies have to be implemented. All enterprises and organisations must face the task to analyse and improve their structure and their business processes. It is within this framework that any organisation should have an understanding of the quality of an improvement system. A quality system can be defined as set of interdependent processes that function harmoniously in an organisation, using various resources, to achieve objectives related to quality. An objective related to quality is to meet and surpass customer needs and requirements (Karapetrovic *et al.*, 1996:3).

An efficient quality system aims at flexible and controlled processes, improving cost competitiveness and a reduction of lead time. Moreover, the design of the system has to meet the varying needs of an organization and its particular objectives. It has to have a strong orientation of the personnel who are most important resource, especially at the CPU. Similarly, the quality system should strengthen confidence in its performance for potential customers (Pfeifer & Wunderlich, 1997: 225).

According to Pfeifer and Wunderlich (1997: 225), a quality system has to create the prerequisite that the balanced needs of all customers are satisfied. The objective is to achieve the required quality by a quality oriented design of all relevant processes. Furthermore, the system should be the framework for a continuous improvement of the organisation. The ISO 9000 series of standards supports setting up a structured quality system. This series does not standardise the system itself, but the requirements it has to meet

It is against this background that the application of the ISO standard creates a solid basis for quality systems. It can become an excellent departing point for continuous improvement system that considers the needs of the external and internal customers. The customer's confidence in the performance of quality system increases if it is built on the internationally established ISO 9000 standard. An effective and efficient quality system has to conform to the

specific situation and processes of the institution. If departments can incorporate ISO 9000 principles and clauses in their systems and day to day activities, then there is a great chance of improvement.

An approach based on ISO may serve to provide evidence that an institution has a soundly grounded approach to the assurance of the quality and standard (Yorke, 1990 cited by Lee, 1997:163). As a result, the firms that are certified in ISO 9001: 2000 to demonstrate clear benefits.

### **3.14.1 Benefits of ISO certification**

The following benefits can culminate as a result of ISO certification:

- **To improve business processes and save money:** Most companies implementing ISO 9000 certification report increases in business process efficiencies, reductions in waste, and improved product quality.
- **To qualify for new customers:** Many corporations see ISO 9000 certification as an essential requirement for conducting business with a new vendor.
- **To enter global markets:** ISO 9000 standards are required in many countries.

### **3.14.2 Internal Operations benefits from ISO**

Studies, conducted in several North America, Europe and Asian countries, according Lee (1998:168), have suggested that ISO 9000 will benefit the internal operations of the certified firms as follows:

- Better team spirit,
- increase efficiency,
- less staff conflict, and
- reduce wastage.

From the above the analogy can be drawn that ISO will also benefit internal operations of the Housing Department, Exams Department, Registration Department, International Office and

Faculty Departments as they are all depending on one another for information. As a prerequisite, these departments need to understand the guiding principles of an effective quality management system and how it relates to quality of service. Furthermore, these principles can be used by senior management of these departments, as a framework to guide themselves towards improved performance.

Schilickman (2003:13), firmly believed that the intrinsic value of the standard is its bottom-line focus on productivity and thus profitability, regardless of how the supplier wishes to state such objective, for example: Lower customer complaints, increase returns on investment, lower rejects, and lower product-return rate. Hence, the standard through its continuous improvement paradigm, stress on customer satisfaction, and heightened awareness of lowered cost of quality, transparent business quality objectives, and explicit calls for process or procedural analysis offers a supplier a unique opportunity to improve its competitive advantage. The standard has integrated the following total quality management principles into its requirements:

Total Quality Management principles as defined by Foong, (2006: Online) include:

- **Customer Focus:** Organisations depend on their customers and therefore should understand current and future needs, should meet requirements and strive to exceed expectations.
- **Leadership:** Leadership establishes unity of purpose and direction of the organisation. Top Management should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.
- **Involvements of people:** People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit.
- **Process approach:** A desired results is achieved more efficiently when activities and related resources are managed as a process.
- **System approach to management:** Identifying, understanding and managing interrelated processes as a system contributes to the organisation's effectiveness and efficiency in achieving its objectives.

- **Continual improvement:** Continual improvement of the organisation's overall performance should be the permanent objective of the organisation.
- **Factual approach to decision making:** Effective decisions are based on the analysis of data and information.
- **Mutually beneficiary supplier relationship:** An organisation and its suppliers are interdependent and mutually beneficial relationships enhance the ability of both to create value.

It is against this background that for any organisation to achieve effectiveness of all of its operations, it needs to focus all of its energy in making sure that management are totally committed to the effort of establishing a quality management system that can be maintained in a cost effective manner. As a result, only a fully responsive quality management system will include the totality of the eight principles and offer the organisation the maximum return against these principles. Most importantly, a unified strategic, business and quality policy signals to all employees that the main purpose of the ISO 9000 certification is to improve the effectiveness of the operations, not just achieve certification (Schlickman, 2003:14).

### **3.15 LEADERSHIP AND TOP MANAGEMENT COMMITMENT**

According to Spinks & Wells (1995:16), leadership is defined as the 'heart and soul' of an organisation. What is really managed in an organisation are people to work together as a team to achieve common goals. Literature on total quality management emphasises the critical role of leadership in the implementation of the concept (Mc Adam & Kelly, 2002:15). The reasons are that leaders are seen as an agent of change, in that they are able to affect follower's behavior and performance.

Furthermore for TQM to be successful requires an increased effort from everyone in the organisation to satisfy the customers continuously (Mc Adam & Kelly 2002:15). Without clear and consistent quality leadership, quality cannot hope to succeed. This requires quality leadership to establish strategic objectives (Feingenbaum, 1991:102). This will help the leader

to create a suitable environment that is comfortable enough in encouraging the group members to improve performance productivity.

Top management commitment has been identified as one of the major determinants of successful TQM implementations. Juran (1974:98), maintains that most of the problems associated with quality are attributed to management. This indicates that successful quality management is highly dependent on the level of top management commitment. This requires that the management commitment to quality must convey the philosophy that quality will receive a higher priority over cost or schedule, and that in the long run, consistent and superior quality will lead to improvement in cost and delivery performance (Atkins, 1990 cited by Baidoun and Zairi, 2003:4). Deming (1986) cited by Baidoun and Zairi (2003:5), calls for managers to institute leadership rather than supervision in the transformation process of the business philosophy.

Management participation and leadership is crucial to build a service quality culture. This vision and leadership is also important in developing and implementing a total quality management strategy. Lack of management commitment could lead to service gaps or cause service gaps to widen. Therefore quality must be a management priority. Frick, (1997:3), believes that adopting quality in an organisation means a cultural change, and change is difficult to accomplish without solid, committed leadership. Therefore, leaders need to manage the change process in order to keep the organisation moving towards its new vision and its stated objective. As a result, unmanaged change initiatives, can produce unintended, detrimental effects such as poor morale, lost of trust in management, workplace jealousy and lower productivity (Pasmore, 1994 cited by Charns, (1994:2).

According to Furash (1994), cited by Frick (1997:3), top management must have three critical characteristics, namely:

- A style of doing business that makes customers feel the organisation is something special.
- Management process that is systematic and transferable from institution to institution and department to department.

- Management style that also balances individual and unit freedom, creativity, and incentive with central control of risk, quality, and efficiency.

True commitment to quality and continuous improvement starts with leadership that promotes excellence in the organisation. Visionary leadership creates atmosphere that is focused on customer satisfaction and continuous improvement. They provide the means to achieve customer and operational performance goals through an emphasis on quality, customer satisfaction, and continuous improvement. This culminates in involvement being the key issue in demonstrating the leader's commitment to quality (Elshennaway & Mullens 2002:Online). The authors also highlighted the best practice for leadership involvement which includes the following:

- Leadership must serve as quality trainers.
- Participate in weekly or monthly quality audits of finished product including service.
- Participate in customer service surveys and follow-ups.
- Hold meetings with teams on regular basis.
- Form quality council and be active participants.
- Guide and lead improvement efforts in the organisation.
- Use continuous improvement as the primary business system for the company.
- Establish and review performance measure for the organisation and look for ways to improve.

### **3.16 EFFECTIVE EMPLOYEE COMMUNICATION**

Batemen, Ponce de Leo, & Troutt (1995:51-60), highlights the role and the importance of employee communication in any quality improvement principle programme. The authors further address the need to apply quality improvement principles to the employee communication process. The authors believe that comprehensive quality enhancement programmes can benefit from effective employee communication. However, the importance of quality in the employee communication process itself has, so far not received adequate attention in the literature. The overall quality improvement principles; often begins with

employee communication, if the communication process fails to adhere to effective quality principles; the overall programme will suffer or even be compromised. Furthermore, quality improvement programmes will not succeed if communication is sidelined and not considered central to its implementation.

The above statement reflects on what is happening currently at the CPUT, because of lack of communication between the departments that are involved in the registration process has impacted negatively to the way Student Housing responds to the students in terms of accommodation and placement. There is no cohesion between the departments as they work in silos, even though one department depends on another for information. In achieving a shared vision on how quality is to be interpreted and institutionalised, regular feedback and dialogue with all levels of employees are necessary. Furthermore, an appropriate deployment of human resources and allocation of responsibilities are crucial to creating the conditions for achieving quality service in support services.

According to Drennan (1992:89), many companies treat employee communications as if it were an 'add-on' to the business, something done 'because it keeps employees informed'. But communication is not something that is confined to what is said in meetings. One needs to look at other ways of conveying messages like; what front-line managers do and say every day, what different departments treat as important, and how they deal with each other. Therefore communication in this context can be seen as a continuous two-way process that influences both the culture and the health of the business.

Certo, (1992:84), describes communication in its broadest sense as 'the process of sharing information with other individuals'. The process involves gathering, processing, dissemination, and storing information. The Deming cycle is one of the quality improvement principle programmes that have been proposed and have been found to be effective (Bateman *et al.*, 1995: 51-60). As previously elaborated upon, the Deming cycle consists of repetitive applications of the sequence- plan, do, study, act, which by its repetitive nature initiates Kaizen. The plan and study stages emphasise the problem-solving aspects of quality

improvement principles, while the do, study sequence calls attention to both the importance of trying something, as well as the monitoring of results.

### 3.16.1 Four stages of Deming's PDCA Cycle

According to Bateman *et.al.* (1995: 51-60), the Deming PDCA Cycle include the following:

- **Plan:** Organizations need to determine where the problem are, by reviewing the current situation
- **Do:** Testing on small scale is done in order to check whether the changes are solving the problems that can be done by describing the process.
- **Check:** Check whether the results from the above testing are delivering the desired improved outcome.
- **Act:** Once the organization is satisfied with the outcome of the testing then it is implemented on a large scale. Actions are taken to standardize or improve the process

### 3.17 EMPLOYEE'S EMPOWERMENT

According to Elshennaway & Mullens (2002:Online), good companies provide ways to empower employees and teams to make decisions that affect quality and customer satisfaction. Some companies require employees to participate in teams whose objectives is to improve service delivery, timelines, and cost in the workstation. Therefore quality leaders emphasized the need for empowering employees for the success of the organisation. The authors share the opinion with Evans & Lindsay (2004:279), of using Deming's five of fourteen points as mentioned below.

Empowerment has been defined in numerous ways but most authors agree that the core element of empowerment involves giving employees discretion or latitude over certain task related activities. Most researchers emphasise the need to empower the entire workforce in order for quality to survive. Juran wrote that "quality control should be delegated to the

workforce to the maximum extent possible". Deming's five of fourteen points for management relate directly to the notion of empowerment of Evans and Lindsay (2004: 279).

The five points are as follows:

- **Point 6:** Institute training.
- **Point 7:** Teach and institute leadership.
- **Point 8:** Drive out fear. Create trust. Create climate for innovation.
- **Point 10:** Eliminate exhortations for the workforce.
- **Point 13:** Encourage education and self improvement for every one.

These points suggest involving employees more directly in decision making processes, give them security and confidence to make decisions, and provide them with necessary tools and training.

Employee empowerment is the key to providing superior customer service in the competitive higher education industry. The paramount objective of empowerment is to do whatever it takes to satisfy a customer in a quick-and-efficient manner (Anonymous 4, 2009:Online). Detoro and Tennere (1992:178), states that if organisations are serious, they will build empowerment in its three requisite dimensions. The three dimensions are:

- **Alignment:** All employees need to know the organisation's vision, mission, values, policies, objectives, and methodologies.
- **Capability:** Employees must have the ability, skills, and knowledge needed to do their jobs. They must also have resources needed from the organisation, material, methods, and machines.
- **Mutual trust:** Once the alignment and capability are developed, the organisation is in the position to unleash the power, creativity, and resourcefulness of the work force. Employees need to trust management and feel that management trusts them, because mutual trust completes the picture required to build an empowered work force.

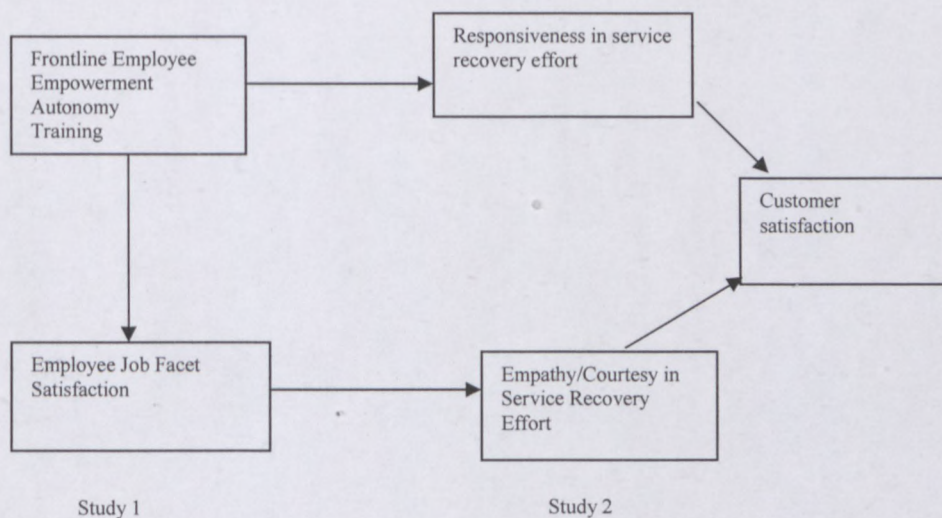
Kuei and Madu (1995:175) states that education and training needs attention of individual leaders, and universities. They believe in a multidisciplinary background that individuals

should develop so that they can work in teams, generate new ideas, find new solutions, and find new paradigm. In so doing, they will be able to interact with employees and share ideas that will solicit mutual respect.

Empowerment is a powerful tool that increases revenue and improves the bottom line. Management must become active in empowering their employees by sharing information, creating autonomy and establishing self-directed teams. It works only when the exchange of information includes group and individual feedback. The feedback can come in the mode of continual employee evaluations or the daily coaching by the management staff. (Lawlet *et al.*, 1989 cited by Ahmed & Rafiq, 1998:379-396). Feedback is a tool that improves the decision-making ability of an employee who directly deals with the customer. Moreover, it provides management with an idea of the more prevalent customer service related problems, which allows it to empower the staff to make proper customer service decisions

### 3.17.1 Impact of employee empowerment

The impact of employee's empowerment is graphically depicted below in Figure 3.2 in the service recovery model.



**Figure 3.2** Service recovery model: (Source: Adapted from Hart, Heskett & Sasser 1990:148-156)

The model is composed of three sections, each reflect a different dimension:

- Shows components of employee empowerment which is (autonomy and training) that influence the level of front line employees job facet satisfaction;
- Outcomes of employee empowerment and job facet will increase responsiveness in the service recovery effort and empathy, courtesy towards the customer;
- The consumer's response to the service recovery effort, which results to customer satisfaction.

Hocutt and Stone (1998:117-132), suggest that firms providing higher level of service quality usually generates higher customer satisfaction and loyalty, which in turn generates higher profits. According to Bitner, Booms, and Mohr 1994:95-106), it is paramount to investigate factors that influence customer satisfaction when a service encounter fail. The research of the authors returned that a large percentage (42.9 %) of dissatisfying service encounters were the result of the front-line service employee's inability to respond to service failure situations. Spretzer (1995:1442-1465), believe that inadequate response by frontline service employee could be caused by many factors, one of which is the lack of empowerment.

According to Hart *et al.*, 1990:148-156), frontline employees are critical to the quality of service recovery, process because of their interaction with customers. Generally, they are in the best position to know how to respond with problems that may arise during the service encounter. As a result, empowering service employees is an essential ingredient in good service recovery.

## **4. CHAPTER 4: DATA COLLECTION DESIGN AND METHODOLOGY**

### **4.1 THE SURVEY ENVIRONMENT**

The Residence Administration unit of the Student Housing division of the Cape Peninsula University of Technology (CPUT) Bellville Campus is comprised of various functional areas, which collectively contribute towards the provision of a residence administration service to institutional clients. The Residence Administration unit of the Student Housing division at CPUT is constituted by various complementary functions which include the following which will also serve as the research environment:

- Residence Administration.
- International Office Administration.
- Registration Administration.
- Examination Administration.
- Faculty Administration.
- First year Students.
- Senior Students.

The research will mainly focus on business processes affecting the core function of Residence Administration. In this regard, the research environment is constituted by business processes within the Residence Administration operational area, as well as the internal customers servicing and serviced by Residence Administration.

### **4.2 AIM OF THIS CHAPTER**

The aim of this chapter and the survey contained therein is to determine the key factors affecting the residence administration function with special focus on the business cycle of selection, admission and placement of students in residences. The ultimate objective is to solve the research problem as defined in Chapter 1, Paragraph 1.3, and which reads as follows: "Lack of communication between the Registration Department, the Examination Department, the International Office, the Faculty Department and the Student Housing department of the

Cape Peninsula University of Technology, adversely impacting on the efficiency of the Housing Department”.

### **4.3 CHOICE OF SAMPLING METHOD**

The choice of sampling method has been influenced by the internal business processes within the residence administration in the Student Housing division, as well as stakeholders and customers (within CPUT) servicing and serviced by the residence administration unit in the Student Housing Department. The various functional areas, were listed under paragraph 4.1.

To ensure that each identifiable strata of the population were taken into account (Collis & Hussey, 2003), (Easterby-Smith, Thorpe & Lowe, 1996), a representative sample of respondents were selected from each of the environments identified above.

### **4.4 THE TARGET POPULATION**

With any survey, it is necessary to clearly define the target population, which, Zikmund (2003), define as follows: “*A population is a complete group of entities sharing some common set of characteristics.*” Whilst, “*Target population is the complete group of specific population relevant to the research project.*”

The ‘sampling frame’ is defined by Vogt (1993), and cited by Collis and Hussey (2003:155-160), ‘a list or record of the population from which all the sampling units are drawn. For this survey, 60 students were randomly selected from students who are first, second, third, and Btech students residing on-campus and day scholars. Furthermore 40 staff members drawn from 30 randomly selected staff members from four departments and 10 heads of departments randomly selected from (CPUT Bellville Campus) involved during the registration and placement period.

The target population was specifically chosen in order to validate the practicality of the concepts as presented here. The risk of bias, which cannot be statistically eliminated, is

recognised by the author based on the very definition of the target population as well as the number of respondents selected.

#### **4.5 DATA COLLECTION**

According to Emory and Cooper (1995), three primary types of data collection (survey) methods can be distinguished namely:

- Personal interviewing.
- Telephone interviewing.
- Electronically mail and self-administered questionnaires/surveys.
- Observation

The primary data collection method use in this survey is the questionnaires, personal interviews and observations. The data collection method used in the survey, falls within the context of a survey described by Collis & Hussey (2003), as: "*A sample of subjects being drawn from a population and studied to make inferences about the population.*"

The questionnaires were designed to gain insight into the attitude and perception of students and staff on service delivered by Student Housing during registration and placement period. According to Zikmund (2003), the survey method is generally used when the researcher wishes to elicit opinions. The objective of the researcher was to measure perceptions concerning the registration and placement inefficiencies at Bellville Campus of CPUT.

Interviews, according to Collis and Hussey (2003), are associated with both positivist and phenomenological methodologies. They are a method of collecting data in which selected participants are asked questions in order to find out what they do, think or feel. The use of personal interviews as an additional element to the data collection process in the opinion of the author is important, since this allows for the identification of issues within the target environment, which may not be readily identifiable using a pure survey questionnaire.

Furthermore, according Collis and Hussey (2003), interviews are associated with both positivist and phenomenological methodologies as employed within the ambit of this dissertation. In this dissertation by using interviews as one of the technique in collecting the data, the researcher wanted to gain an understanding of the underlying reasons and motivation for people's attitudes, preferences, and behavior. More specific, the survey conducted in this dissertation falls within the ambit of the 'descriptive survey' as defined by Ghauri, Grønhaug and Kristianslund (1995).

The data collection method used fall within the ambit of both the definitions attributed to the concepts 'survey' and 'field study'. 'Survey', according to Gay and Diebl (1992:238), is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables, while Kerlinger (1986:372), define 'field study' as non-experimental scientific inquiries aimed at discovering the relations and interactions among ... variables in real ... structures. As in the case of most academic research, the collection of data forms an important part of the overall dissertation content.

Lastly the researcher also used observation which serves as data collection methodology for research methods falling within the context of either the positivistic (quantitative) or phenomenological (qualitative) research paradigm . Collis and Hussey (2003:171-172), describe that there are two ways in which observation can be conducted, namely, 'non-participants' and 'participant' observation.

#### **4.6 MEASUREMENT SCALES**

The survey was in the form of well-known Likert scale, which was developed by Rensis Likert (Likert, 1932:1-55), which use item analysis to select the best items (Remenyi, Williams, Money & Swarts,2002:284). The respondents were asked to respond to questions or statements (Parasuraman 1991:410). The reason for choosing the Likert scale, is the fact that the scale can be used in both respondent-centered (how responses differ between people) and stimulus-centered (how responses differ between various stimuli) studies, most appropriate to

glean data in support of the research problem in question (Emory and Cooper 1995:180-181). Parnaby (2006: Online), maintain that Likert scale is an effective method for obtaining consistent survey response. It allows participants to provide feedback that is slightly more expansive than a simple close-ended question, but also much easier to quantify than a completely open ended response. The advantages in using the popular Likert scale according to Emory and Cooper (Emory and Cooper 1995:180-181) are:

- Easy and quick to construct.
- Each item meets an empirical test for discriminating ability.
- The Likert scale is probably more reliable than the Thurston scale, and it provides a greater volume of data than the Thurston differential scale.
- The Likert scale is also treated as an interval scale.

According to Remenyi, Money & Twite (1995:224), interval scales facilitate meaningful statistics when calculating means, standard deviation and Pearson correlation coefficients.

#### 4.7 THE DEMAND FOR A QUALITATIVE RESEARCH STRATEGY

While this author acknowledges that a number of strategies can be applied in similar research projects, the well-known concepts of objectivity, reliability etcetera, inherited from the empirical analytical paradigm, is suggested for business research in more or less the traditional way. Quoting Thorndike & Hagen, these concepts are defined by Emory & Cooper (1995:156), as follows:

- **Practicality:** Practicality is concerned with a wide range of factors of economy, convenience, and interpretability.
- **Validity:** Validity refers to the extent to which a test measures what we actually wish to measure. Yin (2003) identifies 3 subsets to the concept validity, namely: Construct validity, internal validity and external validity.
- **Reliability:** Reliability has to do with the accuracy and precision of a measurement procedure.

#### 4.8 SURVEY SENSITIVITY

Research conducted in areas of a sensitive nature as in the case of this survey, pose particular challenges to the researcher. The following guidelines from various academics serve to illustrate the mitigation process, which can be deployed in an instance where research is conducted in areas of a sensitive nature: A qualitative investigation of a particularly sensitive nature conducted by Oskowitz & Meulenberg-Buskens (1997:83), qualified the importance of handling mission critical issues as identified above when the authors stated: *“Thus any type of qualitative investigation could benefit from the researchers being skilled and prepared, and the sensitive nature of an investigation into a stigmatizing condition made the need for such an undertaking even more imperative in the current study”*.

The sensitivity of certain issues and issues identified as impacting the research negatively in the environments being evaluated, not only demand intimate personal involvement, but also demand the ‘personal and practical experience’ of the researcher. This view was upheld by Meulenberg-Buskens (1997), as being imperative to assure quality in qualitative research being undertaken. Checkland (1989:152), supports this view, however extends the concept with the opinion that: *“The researcher becomes a participant in the action, and the process of change itself becomes the subject of research”*.

#### 4.9 SURVEY DESIGN

Collis & Hussey (2003), is of the opinion that, ‘if research is to be conducted in an efficient manner and make the best of opportunities and resources available, it must be organised. Furthermore, if it is to provide a coherent and logical route to a reliable outcome, it must be conducted systematically using appropriate methods to collect and analyse the data. A survey should be designed in accordance with the following stages:

- **Stage one:** Identify the topic and set some objectives.
- **Stage two:** Pilot a questionnaire to find out what people know and what they see as the important issues.
- **Stage three:** List the areas of information needed and refine the objectives.

- **Stage four:** Review the responses to the pilot.
- **Stage five:** Finalise the objectives.
- **Stage six:** Write the questionnaire.
- **Stage seven:** Re-pilot the questionnaire.
- **Stage eight:** Finalise the questionnaire.
- **Stage nine:** Code the questionnaire.

The survey design to be used in this instance is that of the descriptive survey as opposed to the analytical survey. The descriptive survey is according to Collis & Hussey (2003), frequently used in business research in the form of attitude surveys. The descriptive survey as defined by Ghauri, Grønhaug and Kristianslund (1995), has furthermore the characteristics to indicate how many members of a particular population have a certain characteristic. Particular care was taken to avoid bias in the formulation of the questions.

The statements within the survey have been designed with the following principles in mind:

- Avoidance of double-barreled statements.
- Avoidance of double-negative statements.
- Avoidance of prestige bias.
- Avoidance of leading statements.
- Avoidance of the assumption of prior knowledge.

Statements were then formulated as to allow the same respondents to respond to each of the three different questionnaires, to determine their perceptions/attitudes and the extent of the satisfaction of service quality rendered by Student Housing Department.

#### **4.10 THE VALIDATION SURVEY QUESTIONS**

The author has developed three separate survey questionnaires, which were so designed in order to understand how students, administrative staff and Head's of Faculty departments perceive Student Housing service delivery during registration and placement period. Due to the fact that surveys are highly structured, questions were prepared and piloted to ensure they reflected a high degree of 'validity' (Easterby-Smith, Thorpe & Lowe 1996).

#### **4.10.1 Students questionnaire**

**Question 1:** Student Housing Department provides an excellent service. To what extent do you agree with this statement?

**Question 2:** Employees at Student Housing always give customers individual attention. To what extent do you agree with the statement?

**Question 3:** Student Housing insist in the error- free records. To what extent do you agree with the following statement?

**Question 4:** Employees at Student Housing are consistently courteous with customers. To what extent do you agree with the following statement?

**Question 5:** First Years and International students are given the first priority during registration. To what extent do you agree with the following statement?

**Question 6:** Student housing employees always give instructions to student prior the registration period. To what extent do you agree with the following statement?

**Question 7:** The behaviour of employees in Student Housing will instill confidence to customers. To what extent do you agree with the following statement?

**Question 8:** All the employees in Student Housing will have the knowledge to answer customer's questions. To what extent do you agree with the following statement?

**Question 9:** Student Housing employees understand the specific needs of their customers. To what extent do you agree to the following statement?

**Question 10:** Information provided by Student Housing to assist during registration is clear and understandable. To what extent do you agree with the following statement?

**Question 11:** Students are satisfied with the registration process. To what extent do you agree with the following statement?

#### **SECTION A 1**

In your opinion, what specific changes, if any, could you suggest to improve the registration process as the whole? Please answer in the space provided below:

#### 4.10.2 Staff questionnaire

**Question 1:** Years you have worked at CPUT.

**Question 2:** To what extent is management committed towards continuous improvement?

**Question 3:** Management has created a culture that involves people actively seeking opportunities for improvement of performance in process and activities. To what extent do you agree with the following statement?

**Question 4:** Top management always ensure that quality objectives are communicated effectively to all staff members. To what extent do you agree with the following statement?

**Question 5:** Student Housing has flexible policies and procedures that can be easily adapted to changing customer needs. To what extent do you agree with the following statement?

**Question 6:** Student Housing employees who are dealing with registration are well trained. To what extent do you agree with the following statement?

**Question 7:** Regular meetings are held with Exams, Registration, faculty department's International office and Student Housing to discuss registration process and procedures. To what extent do you agree with the following statement?

**Question 8:** Student Housing hire enough personnel to assist during registration. To what extent do you agree with the following statement?

**Question 9:** Student Housing do reviews on a regular basis and corrective actions are implemented. To what extent do you agree with the following statement?

**Question 10:** Student Housing facilitates on time delivery when it comes to responding to first year's application and international students. To what extent do you agree with the following statement?

**Question 11:** Student Housing employees involved in registration are motivated to do their job. To what extent do you agree with the following statement?

**Question 12:** Student Housing employees understands what quality is all about. To what extent do you agree with the following statement?

**Question 13:** Student Housing Department measures their performance on a regular basis. To what extent do you agree with the following statement?

**Question 14:** Student Housing department are consistent when doing their selection for placement of students.

### **SECTION A-1**

In your opinion, what specific changes, if any, could you suggest to improve the registration and placement process as the whole? Please answer in the space provided below

#### **4.10.3 Heads of faculty questionnaire**

**Question 1:** Years you have worked at CPUT

**Question 2:** To what extent is management committed towards continuous improvement?

**Question 3:** Management has created a culture that involves people actively seeking opportunities for improvement of performance in process and activities. To what extent do you agree with the following statement?

**Question 4:** Top management always ensure that quality objectives are communicated effectively to all staff members. To what extent do you agree with the following statement?

**Question 5:** Student Housing employees who are dealing with registration are well trained. To what extent do you agree with the following statement?

**Question 6:** Student Housing informed Faculty Departments on time about number of spaces available for each department for allocation of First Years students. To what extent do you agree with the following statement?

**Question 7:** Regular meetings are held with Exams, Registration, faculty department's International office and Student Housing to discuss registration process and procedures. To what extent do you agree with the following statement?

**Question 8:** Faculty Departments always adhere to deadlines of submission of results to Exam Department. To what extent do you agree with the following statement?

**Question 9:** Heads of Departments always have their inputs on Registration and Placement of students. To what extent do you agree with the statement?

**Question 10:** Delays of exam results impacts negatively on student's registration and placement for accommodation of students. To what extent do you agree with the following statement?

**Question 11:** If there is anticipation of delay in results, Faculty Departments will always inform exams department about the matter. To what extent do you agree with the following statement?

**Question 12:** Student Housing employees understands what quality is all about. To what extent do you agree with the following statement?

**Question 13:** Student Housing employees involved in registration are motivated to do their job. To what extent do you agree with the following statement?

**Question 14:** Student Housing facilitates on time delivery when it comes to responding to first Year's application, and international students. To what extent do you agree with the following statement?

**Question 15:** Student Housing department are consistent when doing their selection for placement of students.

## **SECTION A 1**

In your opinion, what specific changes, if any, could you suggest to improve the registration process as the whole? Please answer in the space provided below

### **4.11 CONCLUSION**

In this chapter, the 'Residence administration service quality' survey design and methodology was addressed under the following functional headings:

- Survey environment.
- Aim of the chapter.
- Choice of sampling method.
- Target population.
- Data collection.
- Measurement scales.
- Demand for a qualitative research strategy.
- Survey sensitivity.
- Survey design.

## **CHAPTER 5: DATA ANALYSIS AND INTERPRETATION OF RESULTS**

### **5.1 INTRODUCTION**

Data analysis is “the process of bringing order, structure and meaning to the mass of collected data” de Vos (2002: 339). This chapter discusses the results of the data analysis of the survey conducted within a number of departments in CPUT and in particular the Student Housing Department. The aim of this study is to determine whether lack of communication between the Registration Department, Examination Department, International Office, Faculty Departments and Student Housing Department of CPUT adversely impact on the efficiency of the housing department. The data obtained from the completed questionnaires will be presented and analysed by means of various analyses (uni-variate, bi-variate and multivariate) as it comes applicable.

The data has been analysed by using SAS software. As descriptive statistics, frequency tables displayed in Paragraph 5.3.2 shows the distributions of biographical variables and statement responses. As a measure of central tendency, Tables 5.7 to 5.9 show the means and standard deviation of the statement responses as well. Comparative statistics for comparing information for the different biographic groups using Chi-square tests, Kruskal Wallis tests for more than two independent samples and the Wilcoxon Rank-Sum (Mann-Whitney U) tests for two independent samples are discussed in Paragraph 5.3.4 and the computer printouts are shown in Annexure C. The reason for using above mentioned statistics is because doubt existed whether the data was normally distributed and thus non-parametric statistics is used.

### **5.2 ANALYSIS METHOD**

#### **5.2.1 Validation survey results**

A descriptive analysis of the survey results returned by the research questionnaire respondents are reflected below. The responses to the questions obtained through the questionnaires are

indicated in table format for ease of reference. Each variable is tested to fall within the boundaries. These boundaries are pre-programmed into the Micro Soft Access data base on which the data is to be captured. Data accuracy and correctness are ensured by capturing the data twice and compare the two data sets for differences. If there are any differences it is corrected by going back to the questionnaire and capture the correct information.

### **5.2.2 Data format**

The data received are hard copies of the questionnaire responses. These questionnaires were then captured onto a Microsoft Access data base, which were created for this purpose. It was then imported into SAS-format through the SAS ACCESS module. This information was analysed by the custodian of this document.

### **5.2.3 Preliminary analysis**

The reliability of the statements in the 3 questionnaires posted to the sample drawn from the departments at CPUT is tested by using the Cronbach Alpha tests (See Paragraph 5.3.1). Descriptive statistics were performed on all variables; displaying means, standard deviations, frequencies, percentages, cumulative frequencies and cumulative percentages. These descriptive statistics are discussed in Paragraphs 5.3.2 and 5.3.3. (See also computer printout in Annexure A).

### **5.2.4 Inferential statistics**

The following inferential statistics are performed on the data:

- Cronbach Alpha test. Cronbach's Alpha is an index of reliability associated with the variation accounted for by the true score of the "underlying construct". Construct is the hypothetical variables that are being measured Cooper & Schindler, (2006:216-217). More specific, Cronbach's alpha measures how well a set of items (or variables) measures a single uni-dimensional latent construct.

- Kruskal Wallis test for interval data with more than 2 independent samples. The Kruskal-Wallis one-way analysis of variance by ranks is a non-parametric method for testing equality of population medians among groups. Intuitively, it is identical to a one-way analysis of variance with the data replaced by their ranks. It is an extension of the Mann-Whitney U test to 3 or more groups. Since it is a non-parametric method, the Kruskal-Wallis test does not assume a normal population, unlike the analogous one-way analysis of variance. However, the test does assume an identically-shaped and scaled distribution for each group, except for any difference in medians.
- Mann-Whitney U test or Wilcoxon rank-sum test for ordinal data with two independent samples. The Mann-Whitney *U* test (also called the Mann-Whitney-Wilcoxon (MWW), Wilcoxon rank-sum test, or Wilcoxon-Mann-Whitney test) is a non-parametric test for assessing whether two samples of observations come from the same distribution. The null hypothesis is that the two samples are drawn from a single population, and therefore that their probability distributions are equal. It requires the two samples to be independent, and the observations to be ordinal or continuous measurements, i.e. one can at least say, of any two observations, which is the greater. In a less general formulation, the Wilcoxon-Mann-Whitney two-sample test may be thought of as testing the null hypothesis that the probability of an observation from one population exceeding an observation from the second population is 0.05.
- Chi-square tests for nominal data. The Chi-square (two-sample) tests are probably the most widely used nonparametric test of significance that is useful for tests involving nominal data, but it can be used for higher scales as well like cases where persons, events or objects are grouped in two or more nominal categories such as 'yes-no' or cases A, B, C or D. The technique is used to test for significant differences between the observed distribution of data among categories and the expected distribution based on the null hypothesis. It has to be calculated with actual counts rather than percentages (Cooper & Schindler, 2006:499).

### **5.2.5 Technical report with graphical displays**

A written report with explanations of all variables and their outcome has been compiled. A Cross analysis of variables where necessary was performed, attaching statistical probabilities to indicate the magnitude of differences or associations. The comments made by the respondents are displayed in Annexure A as a printout.

All inferential statistics are discussed in Paragraph 5.3.4.

### **5.2.6 Assistance to researcher**

The conclusions made by the researcher, is validated by the statistical report. Help is given to interpret the outcome of the data. The final report written by the researcher is to be validated and checked by a qualified statistician to exclude any misleading interpretations.

### **5.2.7 Sample**

The target population is students currently registered at CPUT and staff from the five departments as listed previously. The total sample of students consists of 60 respondents, the total sample of staff members consists of 30 respondents and the total sample of heads of departments consists of 6 respondents, who responded on the questionnaire. A convenient sample was drawn due to the fact a high rate of response would be obtained by using this method. The sample was convenient because it comprised of First years, Second years, Third years and Btech students. Also, 30 questionnaires were distributed to staff members from five departments under investigation, and 10 questionnaires were distributed to heads of departments with 6 being returned.

### 5.3 ANALYSIS

It is of importance to note that all three questionnaires for the different respondents reflected different questions to the respondents and only a few of the questions in the staff and heads of departments questionnaire corresponded. The items (statements) in the 3 different questionnaires will be tested for reliability in the following paragraph.

#### 5.3.1 Reliability testing

The reliability test (Cronbach's Alpha Coefficient) was executed on all the items (statements) which represent the measuring instrument of this survey, with respect to the responses rendered in this questionnaire. The results are represented in Tables 5.1, 5.2 and 5.3. The resulting printouts are also displayed in Annexure B.

There were different questionnaires; one to the head of departments, one to the staff of those departments and one to students. Some of the questions were repeated in the different questionnaires but they were numbered differently. This may present a problem when the researcher wish to compare the different samples regarding the similar questions, but with data manipulation, it can be overcome.

TABLE 5. 1: Cronbach's Alpha Coefficients for HOD questionnaire

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
2. Management is committed towards continuous improvement.	Q02	0.8430	0.8142
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	Q03	-0.0822	0.8547
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	Q04	1.0000	0.7843

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
5. Student housing employees who are dealing with registration are well trained.	Q05	-0.0822	0.8547
6. Student Housing informed Faculty Departments on time about number of spaces available for each department for allocation of first year students.	Q06	1.0000	0.7843
7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Q07	0.9707	0.7736
8. Faculty departments always adhere to deadlines of submission of results to Exam department.	Q08		
9. Heads of Departments always have their inputs on Registration and Placement of students.	Q09	0.9707	0.7736
10. Delays of exam results impacts negatively on student's registration and placement for accommodation of students.	Q10	-0.1628	0.8815
11. If there is anticipation of delay in results, Faculty Departments will always inform exams department about the matter.	Q11	-0.0822	0.8547
12. Student Housing employees understands what quality is about.	Q12		
13. Student Housing employees involved in registration are motivated to do their job.	Q13	0.8430	0.8142
14. Student Housing facilitates on time delivery when it comes to responding to first year's application and international students.	Q14	-0.0822	0.8547
15. Student housing department are consistent when doing their selection for placement of students.	Q15	0.8142	0.7972
<b>Cronbach's Coefficient Alpha for standardized variables</b>			<b>0.7872</b>

Due to the fact that different scales were used for the different questions, the Cronbach's Coefficient Alpha for standardized variables which is equal to 0.7872 is used and proves this questionnaire to be reliable and consistent, because it is more than the acceptable level of 0.70.

There were questions that change direction in the sense that the one have the most positive answer on the one left side (lower code value) and the other had the positive answer on the right side (the higher code value). Thus, although the statements were not negatively phrased questions, those that had their most positive response on the left side were reversed scored. It was transformed by subtracting 5 from the value it takes and these questions are indicated with an "n" on the end.

**TABLE 5. 2:** Cronbach's Alpha Coefficients for Staff questionnaire

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
2. Management is committed towards continuous improvement.	Q02n	0.4829	0.8982
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	Q03n	0.6082	0.8948
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	Q04n	0.1691	0.9046
5. Student housing has flexible policies and procedures that can easily be adapted to changing customer needs.	Q05	-0.0537	0.9182
6. Student Housing employees who are dealing with registration are trained well.	Q06	0.6238	0.8907
7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Q07	0.5239	0.8950
8. Student Housing hire enough personnel to assist	Q08	0.7161	0.8858

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
during registration.			
9. Student Housing do reviews on a regular basis and corrective actions are implemented.	Q09	0.7696	0.8829
10. Student Housing facilitates on time delivery when it comes to responding to first year's applications and international students.	Q10	0.6316	0.8903
11. Student Housing employees involved in registration are motivated to do their job.	Q11	0.7605	0.8834
12. Student Housing employees understands what quality is about.	Q12	0.8810	0.8767
13. Student Housing department measures their performance on a regular basis.	Q13	0.8266	0.8798
14. Student housing department are consistent when doing their selection for placement of students.	Q14	0.8717	0.8765
<b>Cronbach's Coefficient Alpha for standardized variables</b>			<b>0.8928</b>

Due to the fact that different scales were used for the different questions, the Cronbach's Coefficient Alpha for standardized variables which is equal to 0.8928 is used and proves this questionnaire to be reliable and consistent because it is more than the acceptable level of 0.70.

**TABLE 5. 3:** Cronbach's Alpha Coefficients for Student questionnaire

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
1. Student Housing Department provides an excellent service.	Q01	0.6501	0.8854
2. Employees at Student Housing always give customers individual attention.	Q02	0.6712	0.8834
3. Student housing insist in the error-free records.	Q03	0.4740	0.8943
4. Employees at Student Housing are consistently courteous with customers.	Q04	0.6732	0.8837

Statements	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient
5. First year and International students are given the first priority during registration.	Q05	0.4071	0.8997
6. Student Housing employees always give instructions to students prior the registration period.	Q06	0.6977	0.8816
7. The behaviour of the employees in Student Housing will instil confidence to customers.	Q07	0.6890	0.8829
8. All the employees in Student Housing will have the knowledge to answer customer's questions.	Q08	0.6145	0.8870
9. Student Housing employees understand the specific needs of their customers.	Q09	0.6654	0.8836
10. Information provided by Student Housing to assist during registration is clear and understandable.	Q10	0.7096	0.8810
11. Students are satisfied with Student Housing service delivery during the registration period.	Q11	0.6557	0.8843
<b>Cronbach's Coefficient Alpha for raw variables</b>			<b>0.8955</b>

The Cronbach's Coefficient Alpha for raw variables which is equal to 0.8955 is used because the same scale for the questions was used and proves this questionnaire to be reliable and consistent because it is more than the acceptable level of 0.70.

### 5.3.2 Descriptive statistics

Tables 5.4-5.6 show the descriptive statistics for all the information in the questionnaire that measure a number of quality of service delivery related variables (questions) with the frequencies in each category and the percentage out of total number of questionnaires. It is so important to note that the descriptive statistics are based on the total sample. These descriptive statistics are also shown in Annexure A. Tables 5.7-5.9 show the descriptive statistics like mean, standard deviation and range for the continuous variables. Due to the voluminous

nature of the statistical data presented, Tables 5.4-5.9 will be contained in Annexure D for ease of reference.

### 5.3.3 UNI-VARIATE GRAPHS

#### 5.3.3.1 Heads of departments

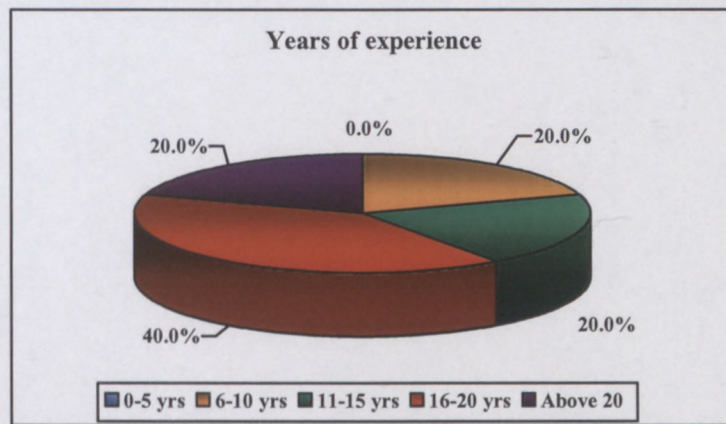


FIGURE 5. 1: Pie with 3D visual effect for years of experience

Sixty percent of the respondents have more than 15 years experience.

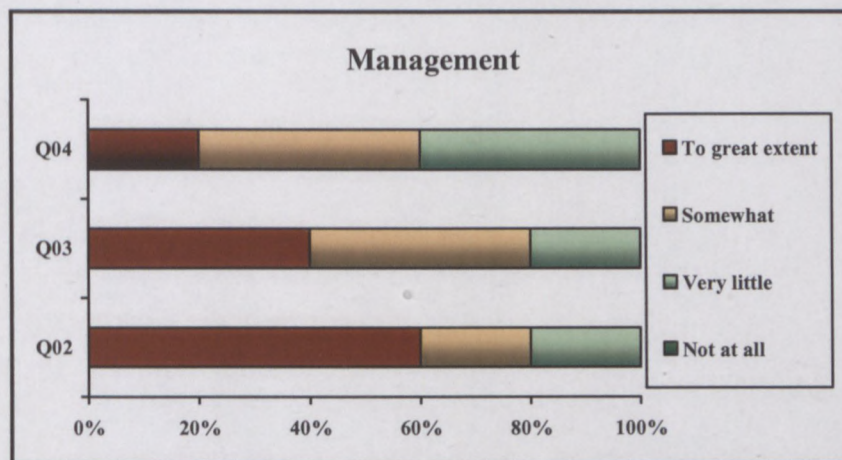
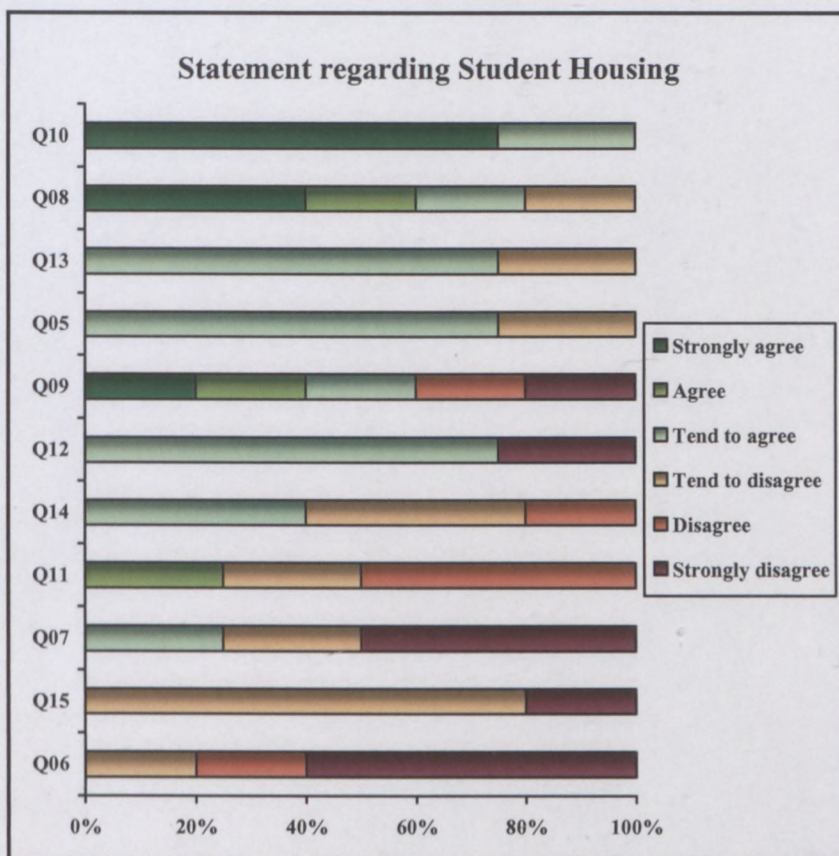


FIGURE 5. 2: 100% stack bar for Management

The respondents (heads of departments) was of the opinion that:

- Management is to a great extent (60%) committed towards continuous improvement.

- Management has to a great extent (40%) created a culture that involves people actively seeking opportunities, for improvement of performance in processes and activities.
- Top management to a great extent (20%) always ensures that quality objectives are communicated effectively to all staff members.



**FIGURE 5. 3:** 100% stack bar for Student Housing statements

The following statements were mostly responded to in a positive way:

- Faculty departments always adhere to deadlines of submission of results to exam department (80% tend to agree to strongly agree).
- Student Housing employees involved in registration are motivated to do their job (75% tend to agree).
- Student Housing employees who are dealing with registration are well trained (75% tend to agree).
- Heads of departments always have their inputs on registration and placement of students (60% tend to agree to strongly agree).

- Student Housing employees understands what quality is about (80% tend to agree).

### 5.3.3.2 Staff

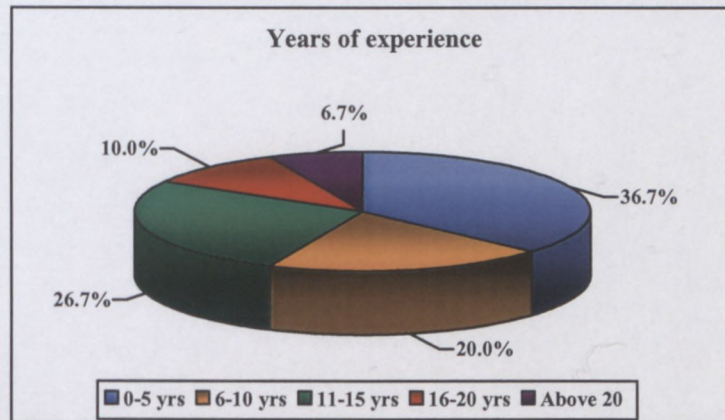


FIGURE 5. 4: Pie with 3D visual effect for years of experience

More than 50% have less than 10 years experience.

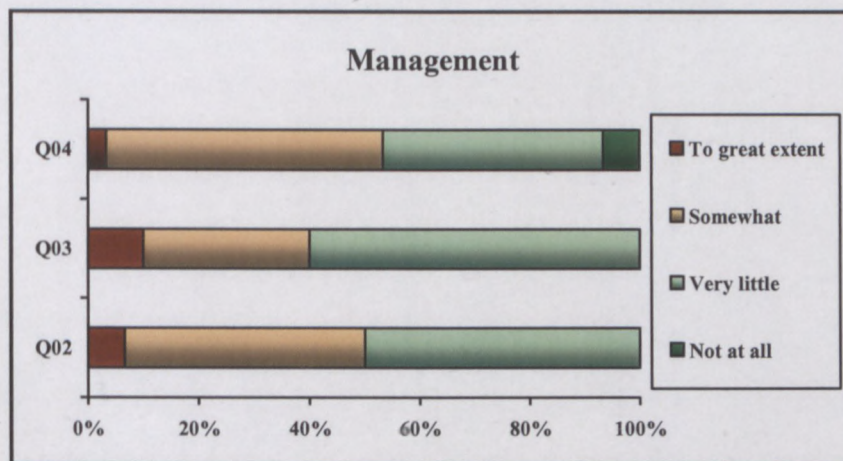


FIGURE 5. 5: 100% stack bar for Management

The respondents (Staff) felt that:

- Top management, very little or not at all (46.7%) ensures that quality objectives are communicated effectively to all staff members.
- Management has very little (60%) created a culture that involves people actively seeking opportunities, for improvement of performance in processes and activities.

- Management is very little (50%) committed towards continuous improvement.

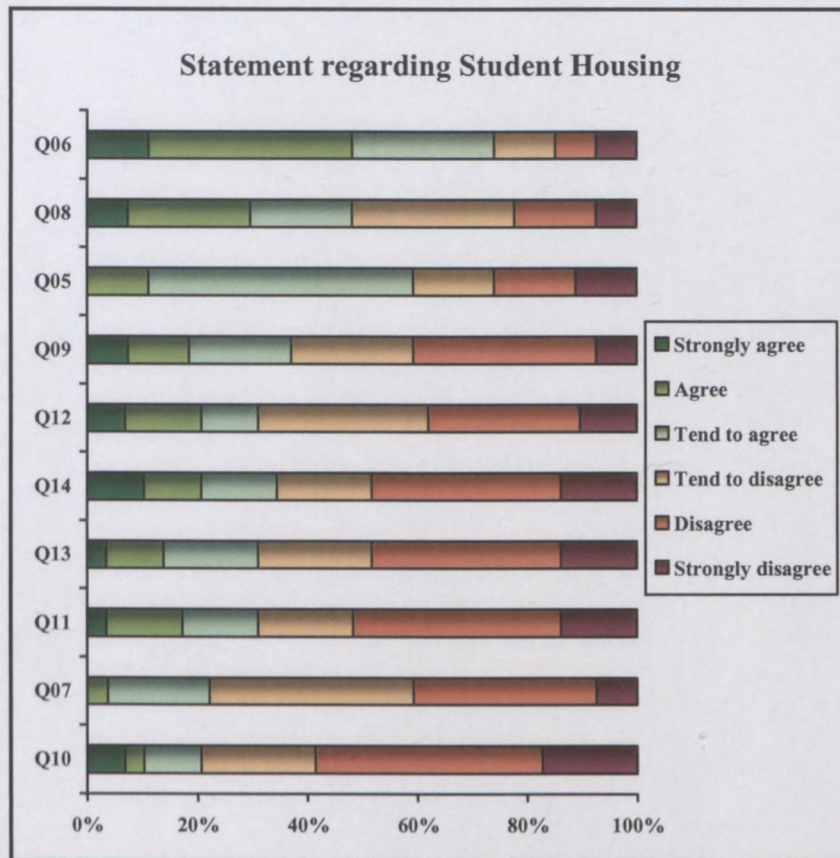


FIGURE 5. 6: 100% stack bar for Student Housing statements

The following statements were mostly responded to in a negative way:

- Student Housing facilitates on time delivery when it comes to responding to first year's and international students (76.7% tend to disagree to strongly disagree).
- Regular meetings are held with Exams, Registration, Faculty departments, International office and Student Housing to discuss registration processes and procedures (70% tend to disagree to strongly disagree).
- Student Housing employees involved in registration are motivated to do their job (66.7% tend to disagree to strongly disagree).
- Student Housing department measure their performance on a regular basis (66.7% tend to disagree to strongly disagree).

- Student Housing department is consistent when doing their selection for placement of students (53.3% tend to disagree to strongly disagree).
- Student Housing employees understands what quality is about (66.7% tend to disagree to strongly disagree).
- Student Housing do reviews on a regular basis and corrective actions are implemented. (56.7% tend to disagree to strongly disagree).

### 5.3.3.3 Students

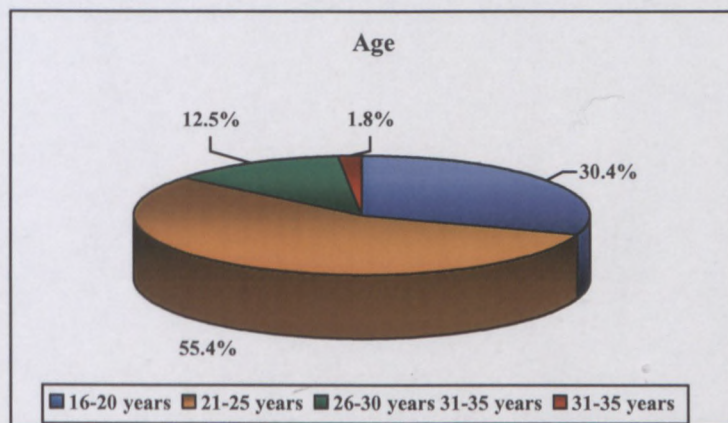


FIGURE 5. 7: Pie with 3D visual effect for years of experience

More than a half of the students are between 21 and 25 years of age and nearly a third are younger than 20 years.

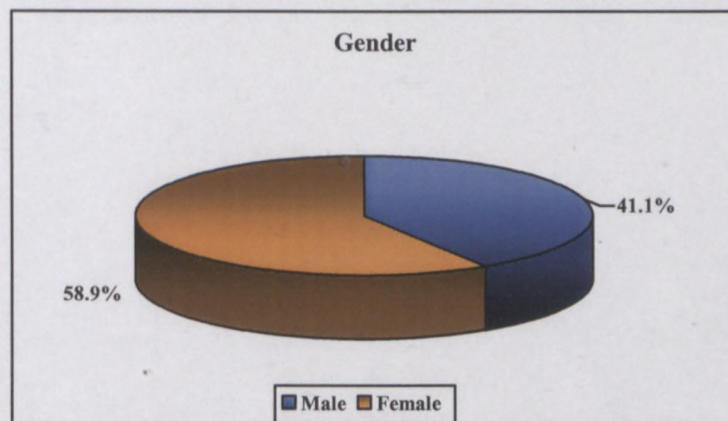


FIGURE 5. 8: Pie with 3D visual effect for years of experience

Nearly 60% of the student respondents are female.

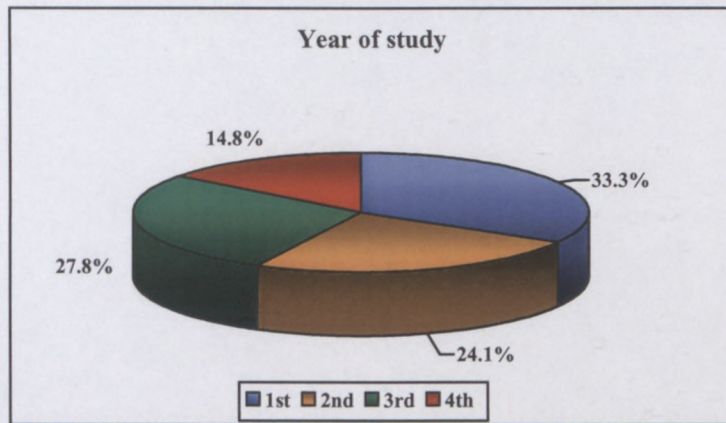


FIGURE 5. 9: Pie with 3D visual effect for years of experience

- More than half of the respondents are first and second year students and the more than 40% are third and fourth year students.

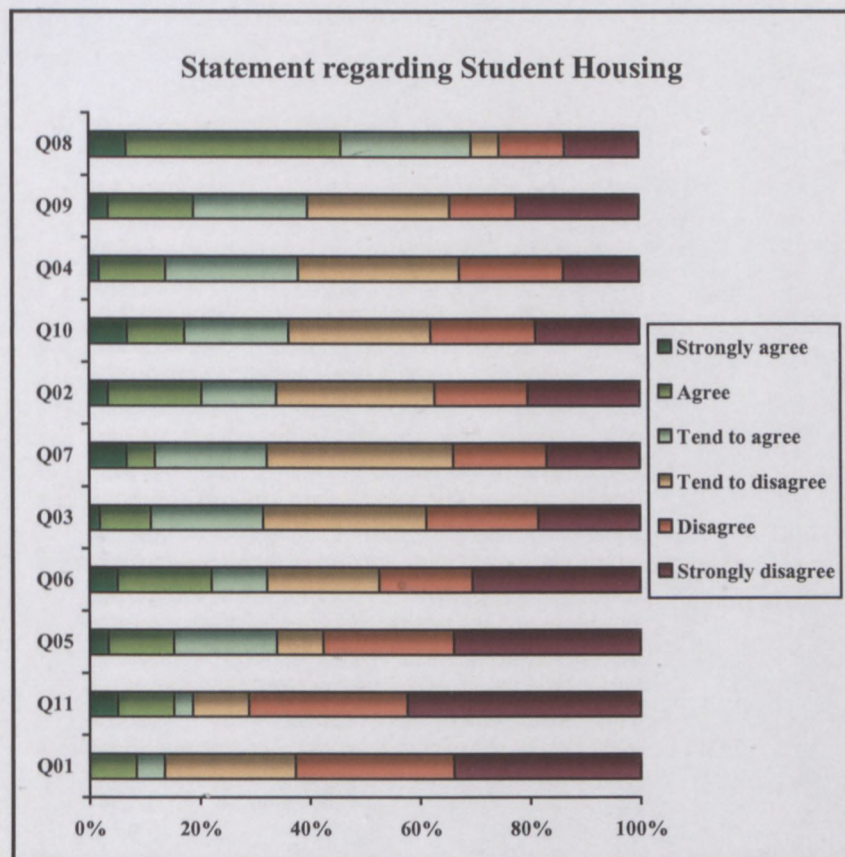


FIGURE 5. 10: 100% stack bar for Student Housing statements

The following statements were mostly responded to in a negative way:

- Student Housing Department provides an excellent service (84.9% tend to disagree to strongly disagree).
- Students are satisfied with Student Housing service delivery during the registration period (80% tend to disagree to strongly disagree).
- First year and International students are given the first priority during registration (64.9% tend to disagree to strongly disagree).
- Student housing employees always give instructions to students prior to registration period (66.7% tend to disagree to strongly disagree).
- Student housing insist in error-free records (61.7% tend to disagree to strongly disagree).
- The behaviour of the employees in Student Housing will instil confidence to customers (66.7% tend to disagree to strongly disagree).
- Employees at Student Housing always give customers individual attention (65% tend to disagree to strongly disagree)

#### **5.3.4 Comparative statistic**

There were a few questions that were the same posed to the staff and posed to the heads of departments. Comparisons were made to compare these questions with respect to the responses from the two groups. Due to the fact that for the two groups the question numbers for the same questions were not the same, new variables were created from each of the two questionnaires so that the numbers as well as the question descriptions corresponds in order to compare the two groups. Table 5.10 shows the description, the old question numbers for the two groups and the new number allocated.

**TABLE 5. 10:** Allocation of new numbers to questions which are the same for two groups

Description	Old number staff	Old number heads of departments	New number
Management is committed towards continuous improvement.	Q02	Q02	Q01c
Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	Q03	Q03	Q02c
Top management always ensures that quality objectives are communicated effectively to all staff members.	Q04	Q04	Q03c
Student Housing employees who are dealing with registration are trained well.	Q06	Q05	Q04c
Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Q07	Q07	Q05c
Student Housing facilitates on time delivery when it comes to responding to first year's applications and international students.	Q10	Q14	Q06c
Student Housing employees involved in registration are motivated to do their job.	Q11	Q13	Q07c
Student Housing employees understands what quality is about.	Q12	Q12	Q08c
Student housing department are consistent when doing their selection for placement of students.	Q14	Q15	Q09c

Comparisons were made between:

- The heads of departments and the staff,
- The age groups, the gender groups and year of study for the student questionnaire.

The following tables will only show all the statistically significant associations. However note must be taken that all the comparisons (significant and not significant) will be attached in Annexure C.

Due to a small sample size especially the heads of departments, when doing this comparisons the chi-square test becomes invalid because of expected frequencies of less than 5 in some of the cells. To overcome the problem categories were aggregated that means more or less the same. For instance the categories “Strongly agree”; “Agree” and “Tend to agree” are grouped together as well as the categories “Strongly disagree”, “Disagree” and “Tend to disagree” to form only two categories “Agree” and “Disagree”. Thus the top half and the bottom half of the categories are aggregated to form only two categories for all the variables, except for the statement using the “to what extent answers”, which will be aggregated into the following two groups; “To a great extent” and “Somewhat” in one group and “Very little” and “Not at all” in the other group.

In some instance there were still expected frequencies of less than 5. For those and if the comparisons are a two by two table the Fisher exact test is used. As back-up the Kruskal Wallis test for cases where there were more than 2 groups were done and the Man Whitney U test for cases where there were 2 groups. Table 5.11 shows the statistical significant results.

SAS computes a P-value (Probability value) that measure statistical significance which automatically incorporate the chi-square values. Results will be regarded as significant if the p-values are smaller than 0.05, because this value presents an acceptable level on a 95% confidence interval ( $p \leq 0.05$ ). The p-value is the probability of observing a sample value as extreme as, or more extreme than, the value actually observed, given that the null hypothesis is true. This area represents the probability of a Type 1 error that must be assumed if the null hypothesis is rejected Cooper & Schindler, (2001:509).

The p-value is compared to the significance level ( $\alpha$ ) and on this basis the null hypothesis is either rejected or not rejected. If the p value is less than the significance level, the null hypothesis is rejected (if p value  $< \alpha$ , reject null). If the p value is greater than or equal to the significance level, the null hypothesis is not rejected (if p value  $\geq \alpha$ , don't reject null). Thus with  $\alpha=0.05$ , if the p value is less than 0.05, the null hypothesis will be rejected. The p value is determined by using the standard normal distribution. The small p value represents the risk of rejecting the null hypothesis.

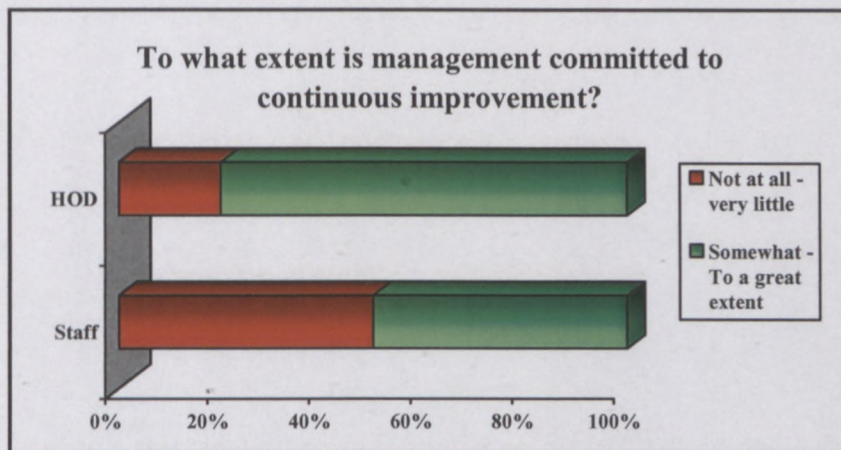
A difference has statistical significance if there is good reason to believe the difference does not only represent random sampling fluctuations. Results will be regarded as significant if the p-values are smaller than 0.05, because this value is used as cut-off point in most behavioral science research.

**TABLE 5. 11:** Mann Whitney U test for statistically significant comparisons for group with respect to statements

Question / Statement	Sample Size	Z-value	DF	P-Value
<b>Comparisons between the 2 groups staff and HOD's</b>				
1. Management is committed to continuous improvement?	35	-2.0853	1	0.0185*
2. Management has created a culture that involves people actively seeking opportunities for improvement of performance in processes and activities.	35	-1.8632	1	0.0312*

\* Significant at the 5% level of significance

Statistically significantly more heads of departments indicated that management is committed some what to a great extent to continuous improvement, and management has some what to a great extent created a culture that involves people actively seeking opportunities for improvement of performance in processes and activities than the staff.



**FIGURE 5. 11:** 100% stack bar for group versus Q01c

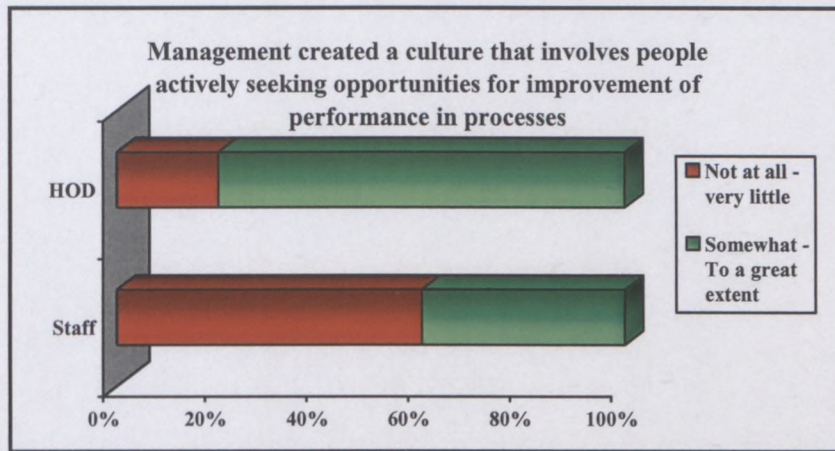


FIGURE 5. 12: 100% stack bar for group versus Q02c

Comparisons of the biographic variables in the student survey did not yield any statistically significant differences between the groups, except for the age groups which differed with respect to their answers of some of the statements. These differences are shown in Table 5.12 and all the comparisons are shown in Annexure C.

TABLE 5. 12: Mann Whitney U test for statistically significant comparisons for age groups with respect to statements

Question / Statement	Sample Size	Chi-Square value	DF	P-Value
<b>Comparisons between the 3 age groups</b>				
1. Employees at Student Housing always give customers individual attention.	56	12.8138	2	0.0017**
2. Employees at Student Housing are consistently courteous with customers.	55	6.2372	2	0.0442*
2. The behaviour of employees in Student Housing will instill confidence to customers.	56	6.5061	2	0.0387*

\* Significant at the 5% level of significance

The age group 26 to 35 years agreed statistically significantly more with the statements:

- “Employees at Student Housing always give customer individual attention than the younger age groups.

- “Employees at Student Housing are consistently courteous with customers.
- The behaviour of employees in Student Housing will instil confidence to customers.

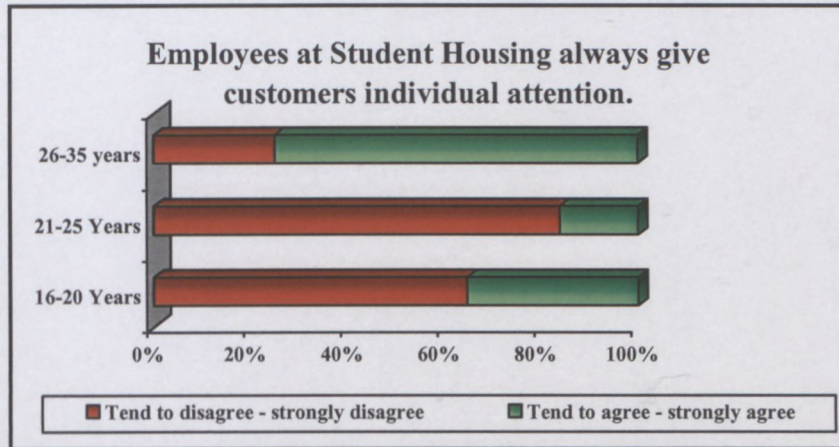


FIGURE 5. 13: 100% stack bar for age groups versus Q02

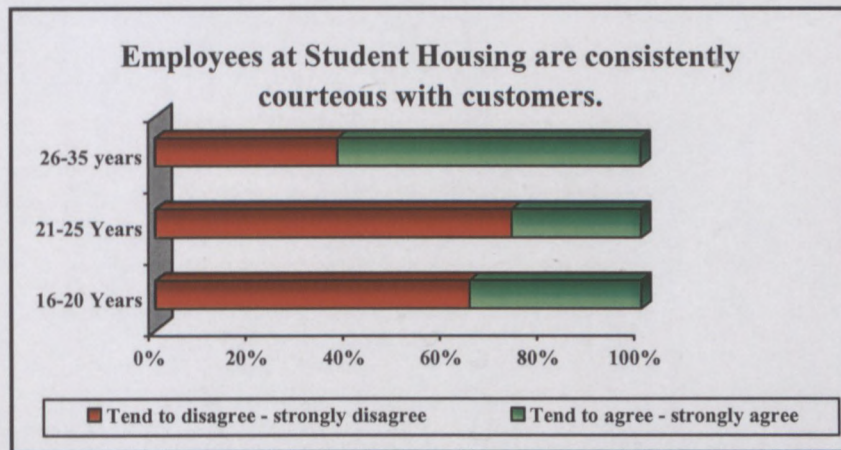
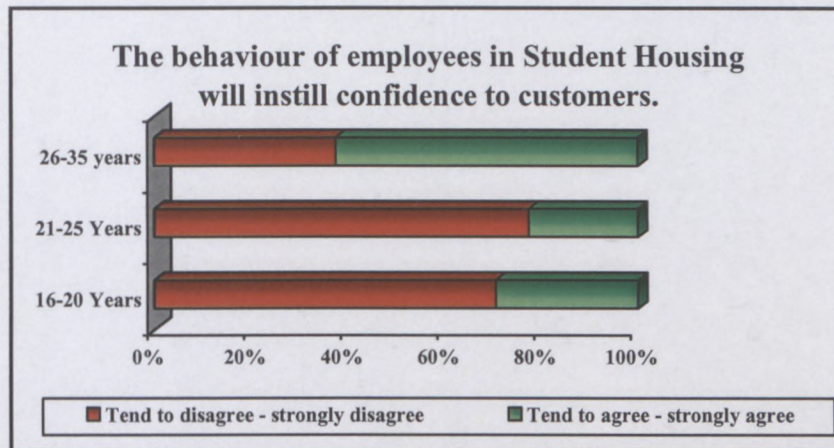


FIGURE 5. 14: 100% stack bar for age groups versus Q04



**FIGURE 5. 15:** 100% stack bar for age groups versus Q02

#### **5.4 FINDINGS AND CONCLUSION FROM THE RESEARCH SURVEY**

The following analogies can be drawn from the survey conducted amongst the heads of the five departments:

- Management is to a great extent committed towards continuous improvement and has to a certain extent create a culture that involves people actively seeking opportunities, for improvement of performance in processes and activities.
- Quality objectives are communicated effectively to all staff members by top management.
- There is a strong opinion that faculty departments do not always adhere to deadlines of submission of results to exam department.
- Student Housing employees involved in registration are motivated to do their job.
- Student Housing employees who are dealing with registration are well trained and that they understand what quality is about.
- Heads of departments always timeously provide inputs on registration and placement of students.

The following analogies can be drawn from the survey conducted amongst the staff of the five departments:

- Top management does not ensure that quality objectives are communicated effectively to all staff members. Management create very little culture that involves people actively seeking

opportunities for improvement of performance in processes and activities, and are very little committed towards continuous improvement.

- The Student Housing Department and its employees do not facilitate on time delivery when it comes to responding to first year and international students. Furthermore, they do not understand what quality is about, those involved in registration are not motivated to do their job, are not consistent when doing their selection for placement of students, their performance are not being measured on a regular basis, they do not do reviews on a regular basis and corrective actions are not implemented.
- Regular meetings are not held with Exams, Registration, Faculty departments, International office and the Student Housing Department to discuss registration processes and procedures.

The following analogies can be drawn from the survey conducted amongst the students:

- The Student Housing Department do not provide an excellent service.
- Students are not satisfied with the Student Housing Department service delivery during the registration period.
- First year and International students are not given the first priority during registration.
- Student Housing employees do not always give instructions to students prior to registration period.
- Student Housing does not insist in error-free records.
- The behaviour of the employees in Student Housing will not instil confidence in customers.
- Employees at Student Housing do not always give customers individual attention.

Heads of departments tend to believe more so than staff that management is committed to continuous improvement and has created a culture that involves people actively seeking opportunities for improvement of performance in processes and activities than the staff.

The older students tend to feel more so than the younger students that the employees at Student Housing always give customers individual attention that they are consistently courteous with customers, and their behaviour will instil confidence in customers

## **6. CHAPTER 6: CONCLUSION**

### **6.1 INTRODUCTION**

This chapter reports on the findings from the questionnaire data, and interviews, as well as observations that were conducted by the researcher. Data returned by the study seems to suggest that in the survey and comments made by the staff, heads of departments and students through statistical analysis seems to prove that the respondents are not satisfied with the Student Housing service delivery during registration and placement period. Also with the comparative statistics, which show that respondent's perceptions are somewhat different when looking at senior students and first year student's response. Controversely staff members and heads of departments, also view the service differently this can be explained by the years of experience as compared to staff with lesser than five years. As a result, one will look at the research problem, research question, investigative questions, and objectives and see if the survey findings have been proven to be true by the study.

### **6.2 RESEARCH PROBLEM REVISITED**

The research problem which has been researched within the ambit of this dissertation, reads as follows:

“Lack of communication between the Registration Department, the Examination Department, the International Office, the Faculty Departments, and the Student Housing Department of the Cape Peninsula University of Technology, adversely impacts on the efficiency of the Housing Department”.

The Housing Department is the primary service provider, therefore the ultimate service that Student Housing department delivers to students who have applied for accommodation is information on whether the student is successful or not on the outcome of the application process. In order to give reliable, accurate and timeous information, Student Housing as a primary service

provider relies on other departments for various inputs, for example Exams Department for senior student results, Faculty Departments for the outcome of the first year's enrolment and so on.

This various inputs require that all stakeholders that contribute to the successful process of application and placement should work closely and communicate effectively. Based on the level of communication, different responses were drawn from the respondents. For example all the heads of departments strongly disagree on question 6 in Table 5.4 on Student housing informing them about the availability of spaces for first year's allocation and placement. Whilst 60%, strongly disagree with respect to question 7 in Table 5.4 that meetings are held with the five departments involved in registration. However 20% of heads of departments tend to agreed that meetings are held during this period. On the other hand 70% of staff from the three departments strongly disagrees because they felt that no meetings are held with them and no discussions on registration and placement process were made.

From the above one can conclude that communication between housing department and other four departments who are involved in the registration process is not only lacking but is non existent, which adversely impacts on the efficiency of Housing Department

### **6.3 RESEARCH QUESTION REVISITED**

The research question to be researched within the ambit of this dissertation, reads as follows: "How can the Student Housing Department registration and placement process be streamlined to improve the efficiency of the department?"

The Institution as well as Student Housing Department needs to do their registration on line, because all manual registration are overburden by too much to do. For example at CPUT students have to go though all the 9 points of registration for enrolment. Whilst on the other hand they still have to go through the same long process for residence accommodation. These long processes are discouraging students and place enough barrier to make it unattractive. Hence, it is vital that every staff member responsible during the registration must be given a right to view all the information

of student needed for registration. All the staff members need to undergo an intense training to be able to understand the online system should it be implemented, so that they can be able to utilise it effectively. Using online registration will help in speeding up the process, and above all it will save the Student Housing Department as well as Faculty departments time in recapturing the same data again. Furthermore, it has been proved in the literature review by (June 2002:27), that Institutions of Higher learning needs to understand their processes and cut on activities that does not add value.

#### **6.4 INVESTIGATIVE QUESTIONS REVISITED**

The research investigative question, which has been researched within the ambit of this dissertation, reads as follows:

##### **To what extent does the Student Housing Department meet customer's expectations?**

All participants were of the opinion that there is no detailed description of the registration process, and no brochure available that stipulates the procedure one needs to follow. Above all, the majority of participants felt that the turn around time to finish the whole process is too long, and the selection process is not fair because it favours certain people. Furthermore, the students who deserve to be accommodated are the ones who are suffering the most. All of the heads of departments and 66.3% of staff members and students are of the opinion that the Student Housing Department is not consistent with their selection criteria. It is evident from the survey findings that the Student Housing Department service delivery is not met.

##### **How can Student Housing Department ensure that the service delivery to internal and external customers is of high standard?**

It is vital for the Student Housing Department to regular measure the quality performance through surveys. The outcome of the survey will help them identify the problem areas and be able to institutes corrective actions. Those corrective actions will be based on facts to make proper

decisions for improvement program plans. Referring to (Table 5.6 question 9), 54.4% of students felt that the Student Housing employees do not understand the specific needs of their customers. As a result, the Student Housing cannot possibly design programs that match customer expectation that constitutes good service. Therefore, citing from the literature review Foster (2002:215), believe that high quality service is essential for competitiveness and can even improve employee satisfaction. As a result, for an organisation to provide high quality service, it needs profound understanding of the needs, wants, and desires of the customers and an understanding of who the customer is. Without that knowledge Student Housing Department cannot deliver service that is of high quality to their customers.

In achieving that they need to institutes the following strategies: Anonymous 2, 2009: Online:

- Regular ask your customers about your business services.
- Provide feedback forms four your customers to complete.
- Welcome customer complaints and managed these promptly and positively to avoid loss of customers and negative word of mouth.
- Keep a list of customer complaints to identify any patterns and the cause of dissatisfaction.
- Learn what your competitors are doing to achieve customer satisfaction.

**What measures should the Housing Department have in place to ensure that employees are empowered in dealing with registration problems, and how do they contribute to overall quality improvement?**

Most researchers emphasises the need to empower the entire workforce in order for quality to survive. Spretzer (1995:1442-1465), believe that inadequate response by frontline service employee could be caused by many factors, one of which is the lack of empowerment. Thus organisations should regularly trained employees especially on issues related to quality. Evans and Lindsay suggested Deming's five of fourteen points for management relates directly relates to the notion of empowerment the five points are as follows:

Point 6: Institutes training.

Point 7: Teach and institutes leadership.

Point 8: Drive out fear. Create trust. Create climate for innovation.

Point 10: Eliminate exhortations for the workforce.

Point 13: Encourage education and self improvement for everyone.

These points suggest involving employees more directly in decision making process, give them security and confidence to make decisions, and provide them with necessary tools and training.

**To what extent does the Housing Department measure its performance in enhancing customer satisfaction?**

The research survey shows that 66 % of staff members from five departments disagreed with the statement that student housing measures their performance. According to Detoro and Tennere (1992:56), organisations need to have a framework to guide its efforts to improve customer satisfaction. The steps that they need to follow are elaborated upon below:

- Begin with an external assessment on the customer's perception of the product and service. By so doing, internal work processes impacting customer satisfaction are identified and improved to remove unwanted variation in performance.
- Unnecessary work steps are eliminated, and variation is minimised so that consistent, reliable delivery of service can be achieved.

Kinlaw (1992:30), on the other hand suggested a team based approach and strategies that organisations can use for improving customer satisfaction. He further maintains that team development is the grand strategy for the critical events that underlie continuous improvement. It is through team developments that teams can:

- Equip themselves for continuous improvement:
- Include customers as part of their teams, improve their output, and assure that the satisfaction of their customers is continuously improved; and
- Include suppliers as part of their teams, improve the input of their suppliers, and assure that the performance of their suppliers is continuously improved.

## **How can Student Housing Department promote effective communication amongst departments that are involved in the registration and placement process?**

The survey findings showed clearly that there is a lack of communication between the five departments, has impacted negatively to the way Student Housing responds to the students in terms of accommodation and placement. There is no cohesion between the departments as they work in silos, even though one department depends on another for information. Therefore, in achieving a shared vision on how quality is to be interpreted and institutionalised, regular feedback and dialogue with all levels of employees are necessary. Furthermore, an appropriate deployment of human resources and allocation of responsibilities are crucial to creating the conditions for achieving quality service in support services

The literature review suggests the need to apply quality improvement principles to the employee communication Bateman, Ponce de Leo, & Troutt (1995:51-60). In achieving a shared cognition on how quality is to be interpreted and institutionalised, regular feedbacks and dialogues with all levels of employees are necessary. The authors suggested the Deming's cycle to be used as one of the quality improvement principles. The Deming cycle consists of the repetitive application of the sequence plan, do, check, act which by its repetitive nature initiates kaizen. The plan and check stages emphasises the problem-solving aspects of quality improvement principles, while do, check sequence call attention to both the importance of trying something, as well as monitoring of results.

### **6.5 KEY RESEARCH OBJECTIVES REVISITED**

#### **To review the current student housing registration and placement process.**

The research survey shows that 66.7% of staff members believed that there are no reviews made by student housing that is shown in table 5.5 question 9. Therefore to review the current Student Housing registration and placement, Camp (1995:15), believes that benchmarking is the integral part of the planning and ongoing review process to ensure a focus on the external environment,

and to strengthen the use of factual information in developing plans. As a result, organisation can use benchmarking to improve performance by understanding the methods and practices required to achieve world class performance levels.

The following steps by Detoro and Tennere (1992:111), can also be used by the Student Housing CPUT, since it can be applied in any operations as namely:

- **Define a problem:** In the context of the process.
- **Identify and document the process:** In understandable terms.
- **Measure performance:** In the absence of documented performance standards, remedial work is needed to quantify how well or poorly the system is performing.
- **Understand why:** The lack of data increases the difficulty of understanding why a system is performing the way it is.
- **Develop and test ideas:** Understanding variations and process capability are the preferred first activities in this step
- **Implement solution and evaluate:** Begin by planning and implementing the improvements identified and verified in step 5.

**To determine client satisfaction as it relates to the current student housing registration and placement system.**

The survey returned (refer Table 5.4) that all of respondents were not satisfied with the way Student Housing Department is handling the registration and placement process, because they felt that the department is not consistent when doing their selection for placement of students.

On the other hand all the heads of departments (refer Table 5.4), as well as 86.7% of staff members (refer Table 5.5) strongly disagree when it comes to the time the Student Housing Department take to respond to students. Whilst 80% (refer Table 5.6 question 11), of students showed their dissatisfaction, by strongly disagreeing with student housing service delivery during the registration period.

**To investigate and design an improved student housing registration and placement system that is efficient, workable, fast and user-friendly.**

According to Johnstone (2008:Online) To be effective, Continuous Process Improvement must look for improvement in a myriad of areas, including managing people, reducing waste or delays, understanding and meeting customer needs, and stewarding financial assets. Elements of effective Continuous Process Improvement programs resonate with Balanced Scorecard principles. Each approach is best tailored to the needs and culture of the institution. The Student Housing Department needs to properly plan their activities, monitor performance and put quality control points where needed. In doing so, problem areas will be easily identified and improvement plan will be instituted to eliminate the root cause of the problem.

**To develop a mechanism to continuously improve the quality of the system.**

In order to continuously improve the quality system, the student housing department should incorporate ISO 9000 standard and principles to its day to day activities, because it creates a solid basis for quality systems. The literature review revealed incorporating ISO standard can become an excellent departing point for continuous improvement system that considers the needs of the external and internal customers. The institution should make the effort aimed at the implementation of quality concepts and practice throughout the organisation. Focus must be on aligning the institution around the set of improvement goals.

According to Kinlaw (1992:13), continuous improvement means undertaking improvement projects that range from fixing things that fail, to creating new processes, service, and products. This means solving the customer's immediate problem and preventing the same problem from happening again. The author suggested five general strategies for improvement. These strategies exist on a continuum from being reactive to being proactive. Kinlaw (1992:15) strategies that can be used to prevent the problems being at the reactive end of the continuum are expanded upon below:

**Responding to an immediate problem:**

- This strategy includes actions such as correcting errors in a procurement request,
- taking care of customer complaints, and
- resolving conflict between team members.

**Preventing the occurrence and recurrence of a problem:**

- Focuses on action such as preventing customer dissatisfaction,
- by inspecting products or service,
- preventing failure of the machines through maintenance.

**Upgrading machines, methods and techniques:**

Work processes and their results often can be improved:

- By replacing machines with new and better ones,
- automating some or all of a work process,

**Experimenting to improve an operation or work process:**

- This strategy for improvement means designing to test the impact of a modification in sequence, timing, and equipment material.

**Creating a new opportunity:** This strategy includes the active search:

- To anticipate the developing needs of a customer,
- the introduction of product or service to meet these needs,
- the total elimination of outmoded work process, and
- breaking out of many limits to inquiry and improvement that typically exist Owen (2002:16).

## 6.6 RECOMMENDATIONS

- In order to improve the quality of service it is imperative that the Student Housing Department plays a convener role to facilitate better communication and working relationship between itself and the departments at which it depends on for information. That can be done by forming a committee that will convene regularly to share information as well as to evaluate the process as the whole. Each department involved should select a delegate that will serve on the committee.

- All the departments involved must commit themselves by having a service level agreement, where processes and procedure will be stipulated and timelines agreed upon of information, service delivery. If one department fails to meet deadlines, disciplinary action should be taken.
- Satisfaction surveys should be conducted during and after each registration process in order to measure customer satisfaction, so as to be able to implement corrective measure that will continuously improve service delivery.
- Application and selection of senior students must be executed by residence managers, that will alleviate the pressure from student housing and the process will be more easy and faster. Student housing will only be dealing with first years and first time applicants. The registration process will be faster and long queues will be obviated.
- The application period needs to be adjusted and be conducted earlier in August of each year. That will give more time for data capturers to capture the required data. The pre selection can start using the June results for both semester and year student selection. In so doing, students will be able to know the status of their accommodation before they go home during the December holidays. Emails as opposed to letters could be sent to confirm the final selection.
- The Student Housing Department needs to have constant reviews of their processes that can be done on a monthly basis or quarterly to ensure that the process, and hence the product or service it produces, continues to meet customer needs.
- When letters of acceptance for accommodation are sent to students, additional information needs to be added in the likes of explaining clearly the whole procedure of registration. Furthermore, all residence rules and regulations must be attached to the letter and information on what is allowed or not allowed in residences.
- The information of all resident students should be posted on the Intranet so that faculties can access the information and track the residence where the student is staying. This will in particular be helpful when a student cancels and the residence manager needs to be (informed) of the cancellation so that a student can be removed from residence.
- Priority for placement needs to be given to first years as well as international students because they are not familiar with the environment. That can only be achieved by raising the number of allocated space for the placement of first years from 30% to 40% percent. Alternatively

housing managers needs to organise off campus residence that will accommodate senior students, so as to create more spaces on campus for younger or first year students.

- When student information is captured by the admissions office, there must be the option available that captures the information for residence application, so that residence office can be able to get the information of all first years who have applied. In so doing, there will be no need for the Housing Department to recapture the same information again as in terms of current dispensation.
- Online registration would be the best option because it will eliminate most of the problems encountered during registration period.

## **6.7 FINAL CONCLUSION**

Service delivery is one of the major problems in South Africa as it is evident where communities around the country are protesting because of government poor service delivery. One cannot separate what is happening around the country to what is happen in our educational institutions. It is within this framework that in order to avoid the same issues management need to have the ability to manage and have proper measures in place, which will guide them in managing their processes and systems so as to be able to deliver a good quality of service to their customers. One can therefore conclude that the inefficiencies in the registration and placement process do exist and have impacted negatively on quality of service delivered by the Student Housing Department. This results in a negative experience for students, especially first year and international students.

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Annexure A :

Descriptive statistics for each variable  
HOD

Q01	Frequency	Percent	Cumulative Frequency	Cumulative Percent
6-10 yrs	1	20.00	1	20.00
11-15 yrs	1	20.00	2	40.00
16-20 yrs	2	40.00	4	80.00
Above 20 yrs	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.6000  
DF 3  
Pr > ChiSq 0.8964  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q02	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	3	60.00	3	60.00
Some what	1	20.00	4	80.00
Very little	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q03	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	2	40.00	2	40.00
Some what	2	40.00	4	80.00
Very little	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.4000  
DF 2  
Pr > ChiSq 0.8187  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q04	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	1	20.00	1	20.00
Some what	2	40.00	3	60.00
Very little	2	40.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.4000  
DF 2  
Pr > ChiSq 0.8187  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q05	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Tend to disagree	1	20.00	2	40.00
Tend to agree	3	60.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q06	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Strongly disagree	3	60.00	3	60.00
Disagree	1	20.00	4	80.00
Tend to disagree	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q07	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Strongly disagree	2	40.00	3	60.00
Tend to disagree	1	20.00	4	80.00
Tend to agree	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.6000  
DF 3  
Pr > ChiSq 0.8964  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q08	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Tend to disagree	1	20.00	1	20.00
Tend to agree	1	20.00	2	40.00
Agreed	1	20.00	3	60.00
Strongly agree	2	40.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.6000  
DF 3  
Pr > ChiSq 0.8964  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q09	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Strongly disagree	1	20.00	1	20.00
Disagree	1	20.00	2	40.00
Tend to agree	1	20.00	3	60.00
Agreed	1	20.00	4	80.00
Strongly agree	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.0000  
DF 4  
Pr > ChiSq 1.0000  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Tend to agree	1	20.00	2	40.00
Strongly agree	3	60.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Disagree	2	40.00	3	60.00
Tend to disagree	1	20.00	4	80.00
Agreed	1	20.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.6000  
DF 3  
Pr > ChiSq 0.8964  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Strongly disagree	1	20.00	2	40.00
Tend to agree	3	60.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.

Sample Size = 5

Q13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	20.00	1	20.00
Tend to disagree	1	20.00	2	40.00
Tend to agree	3	60.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.6000  
DF 2  
Pr > ChiSq 0.4493  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Disagree	1	20.00	1	20.00
Tend to disagree	2	40.00	3	60.00
Tend to agree	2	40.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 0.4000  
DF 2  
Pr > ChiSq 0.8187  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Q15	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Strongly disagree	1	20.00	1	20.00
Tend to disagree	4	80.00	5	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 1.8000  
DF 1  
Pr > ChiSq 0.1797  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 5

Comments as made by HOD's

- Obs  
1 The policy and procedure guidelines should be strictly adhered to with no waivers/alleviations. Monitoring of the foregoing must be  
And where there are deviations strict measures be implemented. Even if it includes disciplinary hearings.  
2 Make residence available during vacation for research students and for students in cases where the Department requires students to  
Place list of students in residence on the Internet for Dept. to see  
Diploma subjects: MPE010/PIB1015 and MEJ030/ELC3005 and MEJ020/ELC2005 are offered in the evening only. These subjects should be co  
3  
4 The Housing department has considered our students a priority for accommodation in 2008 as we moved from Cape Town campus to Belville  
In 2009 we have had a few students coming from other provinces in South Africa and they were not accommodated in the residences as  
Perhaps with the increase in student numbers, the institution will need to look at the increasing number of residences in the future  
5 There should be more consultation with the academic departments regarding students academic performances. Because students manipulate  
Special care must be taken in placing students where they share rooms. It is preferable to let students who are registered for the  
Applicants must be given placing only after acceptance by the academic department. Applicants must be informed very soon after that.

STAFF

Q01	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0-5 yrs	11	36.67	11	36.67
6-10 yrs	6	20.00	17	56.67
11-15 yrs	8	26.67	25	83.33
16-20 yrs	3	10.00	28	93.33
Above 20 yrs	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 9.0000  
DF 4  
Pr > ChiSq 0.0611  
Sample Size = 30

Q02	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	2	6.67	2	6.67
Some what	13	43.33	15	50.00
Very little	15	50.00	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 9.8000  
DF 2  
Pr > ChiSq 0.0074  
Sample Size = 30

Q03	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	3	10.00	3	10.00
Some what	9	30.00	12	40.00
Very little	18	60.00	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 11.4000  
DF 2  
Pr > ChiSq 0.0033  
Sample Size = 30

Q04	Frequency	Percent	Cumulative Frequency	Cumulative Percent
To great extent	1	3.33	1	3.33
Some what	15	50.00	16	53.33
Very little	12	40.00	28	93.33
Not at all	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 19.8667  
DF 3  
Pr > ChiSq 0.0002  
Sample Size = 30

Q05	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	10.00	3	10.00
Strongly disagree	3	10.00	6	20.00
Disagree	4	13.33	10	33.33
Tend to disagree	4	13.33	14	46.67
Tend to agree	13	43.33	27	90.00
Agreed	3	10.00	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 15.6000  
DF 5  
Pr > ChiSq 0.0081  
Sample Size = 30

Q06	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	10.00	3	10.00
Strongly disagree	2	6.67	5	16.67
Disagree	2	6.67	7	23.33
Tend to disagree	3	10.00	10	33.33
Tend to agree	7	23.33	17	56.67
Agreed	10	33.33	27	90.00
Strongly agree	3	10.00	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 12.9333  
DF 6  
Pr > ChiSq 0.0441

WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 30

Q07	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	10.00	3	10.00

Strongly disagree	2	6.67	5	16.67
Disagree	9	30.00	14	46.67
Tend to disagree	10	33.33	24	80.00
Tend to agree	5	16.67	29	96.67
Agreed	1	3.33	30	100.00

Chi-Square Test  
for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 14.0000  
 DF 5  
 Pr > ChiSq 0.0156  
 Sample Size = 30

Q08	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	10.00	3	10.00
Strongly disagree	2	6.67	5	16.67
Disagree	4	13.33	9	30.00
Tend to disagree	8	26.67	17	56.67
Tend to agree	5	16.67	22	73.33
Agreed	6	20.00	28	93.33
Strongly agree	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 6.8667  
 DF 6  
 Pr > ChiSq 0.3334  
 WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Sample Size = 30

Q09	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	3	10.00	3	10.00
Strongly disagree	2	6.67	5	16.67
Disagree	9	30.00	14	46.67
Tend to disagree	6	20.00	20	66.67
Tend to agree	5	16.67	25	83.33
Agreed	3	10.00	28	93.33
Strongly agree	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 9.2000  
 DF 6  
 Pr > ChiSq 0.1626  
 WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Sample Size = 30

Q10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	3.33	1	3.33
Strongly disagree	5	16.67	6	20.00
Disagree	12	40.00	18	60.00
Tend to disagree	6	20.00	24	80.00
Tend to agree	3	10.00	27	90.00
Agreed	1	3.33	28	93.33
Strongly agree	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 21.3333  
 DF 6  
 Pr > ChiSq 0.0016  
 WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Sample Size = 30

Q11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	3.33	1	3.33
Strongly disagree	4	13.33	5	16.67
Disagree	11	36.67	16	53.33
Tend to disagree	5	16.67	21	70.00
Tend to agree	4	13.33	25	83.33
Agreed	4	13.33	29	96.67
Strongly agree	1	3.33	30	100.00

Chi-Square Test  
for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 15.7333  
 DF 6  
 Pr > ChiSq 0.0153  
 WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Sample Size = 30

Q12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	3.33	1	3.33
Strongly disagree	3	10.00	4	13.33
Disagree	8	26.67	12	40.00
Tend to disagree	9	30.00	21	70.00
Tend to agree	3	10.00	24	80.00
Agreed	4	13.33	28	93.33
Strongly agree	2	6.67	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 12.9333  
DF 6  
Pr > ChiSq 0.0441  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 30

Q13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	3.33	1	3.33
Strongly disagree	4	13.33	5	16.67
Disagree	10	33.33	15	50.00
Tend to disagree	6	20.00	21	70.00
Tend to agree	5	16.67	26	86.67
Agreed	3	10.00	29	96.67
Strongly agree	1	3.33	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 13.8667  
DF 6  
Pr > ChiSq 0.0312  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 30

Q14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	3.33	1	3.33
Strongly disagree	4	13.33	5	16.67
Disagree	10	33.33	15	50.00
Tend to disagree	5	16.67	20	66.67
Tend to agree	4	13.33	24	80.00
Agreed	3	10.00	27	90.00
Strongly agree	3	10.00	30	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 11.0667  
DF 6  
Pr > ChiSq 0.0863  
WARNING: The table cells have expected counts less than 5. Chi-Square may not be a valid test.  
Sample Size = 30

Comments as made by staff  
Obs

- 5 I suggest that every resident coordinator do their own selection, get more involved in the process and get training and equip them
- 6 And cut the long lines at the office.
- 6 Involving res. coordinators, they should have access to information and process their own re-admission forms and submit to central
- 7 Meetings need to take place between different departments, to discuss everybody's processes.
- 8 Housing department need to have meeting after registration and reflect on how the process has been done. And order to correct the p
- 9 Because they don't measure their performance by doing surveys, they wait for another problem to happen, and that is why problems with
- 9 Need for more accommodation as the University is expanding.
- 10 Feedback before time so those who applied can have alternatives.
- 10 I have never seen housing do a survey to measure their service they render to students and customers. Surveys are needed to improve
- 11 Since the merger lots of things has changed a lot and I don't think people are motivated enough to do whatever, so management is fa
- 12 Meeting with the departments mentioned need to take place.
- 13 Because these departments were supposed to share information and work together as a team to be able to do their jobs better and un
- 13 Departments need to do surveys so that they can know which areas need improvement.
- 14 There is no consistency in selection because sometimes students who do not qualify get rooms and some qualify and don't get rooms.
- 15 Housing is not consistent with their selection.
- 16
- 19 Meeting with other department. First year students need more attention. As it is their first time to be in another country. Students who are only doing one subject should not be allowed to stay in the Res.
- 20 Regular minuted meetings should be scheduled. Accommodation for international students should get special attention.
- 20 Accommodation with meals and bedding and accommodation without meals and bedding should be a choice
- 21 A database of private accommodation should be managed by the accommodation office. Transport should be added to selection of reside
- 22 To avoid long lines during registration, they should use the electronic method instead of paying the registration fee to the cashier
- 23 In accordance with the placement process; it should be done before the resume date of the University and the list should be issued/
- 23 Too long lines. Other institutions let the students register from the internet/online.
- 24 The CPUT must improve their systems.
- 24 The students must be placed before the end of the year so that it will be easy in the New Year to deal with the new students.
- 24 Before sending out the acceptance letters to the students, the housing department should make sure that there is enough accommodation
- 25 The student housing staff needs training or motivation, for the way they handle students is not proper.
- 25 Choose adequately trained personnel/train them well in advance. Try and link students coming from the same areas together so that t
- 26 when receiving registration forms supply the housing forms for students that are being accepted. They can pay one time.
- 26 The registered/senior students should be able to apply online to save paper and ensure prompt services. When responses are sent to
- 27 The waiting period for first time applicants should be reduced by having a standby-list when spaces become available.
- 27
- 28 To strive for excellence is a worthwhile objective. The secret lies in sustained and coherent action.
- 29
- 30 Registration: The process of negotiating outstanding fees should start as early as middle of January. Students that did not

apply t  
 And not allowed as normal registration process. Preference should be given to those who applied before the closing date.  
 All staff members involved with registration especially the academics, should be given the necessary training and guidance.  
 There s

## STUDENTS

Residence	Frequency	Percent	Cumulative Frequency	Cumulative Percent	
	0	6	10.00	6	10.00
Freedom Square 1	13	21.67	19	31.67	
Freedom Square 2	6	10.00	25	41.67	
MGR 1	3	5.00	28	46.67	
MGR 2	2	3.33	30	50.00	
Heroes House	2	3.33	32	53.33	
Post Graduate	1	1.67	33	55.00	
Bellco	3	5.00	36	60.00	
Tygerberg	6	10.00	42	70.00	
Anglo	6	10.00	48	80.00	
Richard Sacco	1	1.67	49	81.67	
Not residing on campus	11	18.33	60	100.00	

Chi-Square Test  
 for Equal Proportions  
 Chi-Square 32.4000  
 DF 11  
 Pr > ChiSq 0.0007  
 Sample Size = 60

Age	Frequency	Percent	Cumulative Frequency	Cumulative Percent	
	0	4	6.67	4	6.67
16-20 yrs	17	28.33	21	35.00	
21-25 yrs	31	51.67	52	86.67	
26-30 yrs	7	11.67	59	98.33	
31-35 yrs	1	1.67	60	100.00	

Chi-Square Test  
 for Equal Proportions  
 Chi-Square 49.6667  
 DF 4  
 Pr > ChiSq <.0001  
 Sample Size = 60

### Gender

Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent	
	0	4	6.67	4	6.67
Male	23	38.33	27	45.00	
Female	33	55.00	60	100.00	

Chi-Square Test  
 for Equal Proportions  
 Chi-Square 21.7000  
 DF 2  
 Pr > ChiSq <.0001  
 Sample Size = 60

Course	Frequency	Percent
2	1	
1.72	3	
1.72	Anal Chem	
1.72	B-Tech Quality	
3.45	B-tech quality	
1.72	Biomedical technology	
1.72	Building	
5.17	Building environment	
1.72	Bussiness management	
1.72	Civil eng.	
3.45	Education	
1.72	Electrical eng.	
6.90	Emergency medical Care	
1.72	Entrepreneurship	
6.90	Environmental management	
1.72	Food technology	
3.45	HRM	
1.72	Industrial engineering	
1.72	Information technology	
3.45	Management	
8.62	Marketing	
13.79	Mechanical	
1.72	Mechanical eng.	
12.07	Public management	
1.72	Public management and law	
1.72	Quality	
3.45	Radiography	
3.45		

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	6	10.00	6	10.00
1	18	30.00	24	40.00
2	13	21.67	37	61.67
3	15	25.00	52	86.67
4	8	13.33	60	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 8.1667  
DF 4  
Pr > ChiSq 0.0857  
Sample Size = 60

Q01	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	20	33.33	21	35.00
Disagree	17	28.33	38	63.33
Tend to disagree	14	23.33	52	86.67
Tend to agree	3	5.00	55	91.67
Agreed	5	8.33	60	100.00

Chi-Square Test  
for Equal Proportions  
Chi-Square 32.0000  
DF 5  
Pr > ChiSq <.0001  
Sample Size = 60

Q02	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	12	20.00	13	21.67
Disagree	10	16.67	23	38.33
Tend to disagree	17	28.33	40	66.67
Tend to agree	8	13.33	48	80.00
Agreed	10	16.67	58	96.67
Strongly agree	2	3.33	60	100.00

Chi-Square Test

for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 21.9000  
 DF 6  
 Pr > ChiSq 0.0013  
 Sample Size = 60

Q03	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	6	10.00	6	10.00
Strongly disagree	10	16.67	16	26.67
Disagree	11	18.33	27	45.00
Tend to disagree	16	26.67	43	71.67
Tend to agree	11	18.33	54	90.00
Agreed	5	8.33	59	98.33
Strongly agree	1	1.67	60	100.00

Chi-Square Test  
 for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 17.0000  
 DF 6  
 Pr > ChiSq 0.0093  
 Sample Size = 60

Q04	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	2	3.33	2	3.33
Strongly disagree	8	13.33	10	16.67
Disagree	11	18.33	21	35.00
Tend to disagree	17	28.33	38	63.33
Tend to agree	14	23.33	52	86.67
Agreed	7	11.67	59	98.33
Strongly agree	1	1.67	60	100.00

Chi-Square Test  
 for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 24.4667  
 DF 6  
 Pr > ChiSq 0.0004  
 Sample Size = 60

Q05	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	20	33.33	21	35.00
Disagree	14	23.33	35	58.33
Tend to disagree	5	8.33	40	66.67
Tend to agree	11	18.33	51	85.00
Agreed	7	11.67	58	96.67
Strongly agree	2	3.33	60	100.00

Chi-Square Test  
 for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 32.8667  
 DF 6  
 Pr > ChiSq <.0001  
 Sample Size = 60

Q06	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	18	30.00	19	31.67
Disagree	10	16.67	29	48.33
Tend to disagree	12	20.00	41	68.33
Tend to agree	6	10.00	47	78.33
Agreed	10	16.67	57	95.00
Strongly agree	3	5.00	60	100.00

Chi-Square Test  
 for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 23.3000  
 DF 6  
 Pr > ChiSq 0.0007  
 Sample Size = 60

Q07	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	10	16.67	11	18.33
Disagree	10	16.67	21	35.00
Tend to disagree	20	33.33	41	68.33
Tend to agree	12	20.00	53	88.33
Agreed	3	5.00	56	93.33
Strongly agree	4	6.67	60	100.00

Chi-Square Test  
 for Equal Proportions  
 ffffffffffffffffffffffff  
 Chi-Square 29.8333  
 DF 6  
 Pr > ChiSq <.0001  
 Sample Size = 60

Q08	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	1.67	1	1.67
Strongly disagree	8	13.33	9	15.00
Disagree	7	11.67	16	26.67



allocations once results h

- 32 The attitude of some staff members is not good.
- 33 Staff doesn't care how students feel. They give rooms to people they know even if they did not apply.
- 34 The department is not consistent with housing selection. Some get rooms that fail.
- 35 If there could be correlation of the housing, exams and finance system so that exclusions and appeals of these systems can run conc
- 36 Make sure that all rooms are occupied.
- 36 Improve quality systems on service delivery.
- 39 Due to lack of accommodation, let the desperate live in Res. They CPUT has been given funds to build new res. Don't let there be em
- 40 Sometimes if you qualify for a room, you won't get one. It seems it is depended upon who you know, or if you are a friend.
- 41 Not enough accommodation, housing should see to it that the residence are increased.
- 42 Students housing does not care.
- 43 Be more accommodative to students.
- 44 Some first years are squatting, and it is horrid conditions and Student Housing give no service, going with standard procedure, but
- 45 The employees at student housing should treat everyone equally.
- 46 More people to help during registration period.
- 47 They must apply and register the current year for the next year. By December in the current year you know how many rooms are available.
- 48 Student housing is not consistent with their selection. There are favouritism and this isn't fair to people who come from far away.
- 49
- 50 The institution must build more residence, because sometimes you are a squatter and become a victim.
- 51 I applied and didn't get a space and now I am squatting.
- 52 The accommodation issue is affecting our studies, because wherever you are staying you get worried as to when you are going to be c
- 53 More residence must be built because student housing can not help us and they are not very patient.
- 54 They don't treat the students well, they have bad customer service.
- 55 Build more residence, many come from far away.
- 56 Late feedback of accommodation must be looked at, coming from another province, it is crucial to know before hand.
- 57 International students must be given priority with in selection or alternative accommodation outside if there is not enough accommodation. There must be communication between International office and housing.
- 58 Employees must show respect to students. They are not professional.
- 59 CPUT should develop appropriate software that can give access to students for online registration. Department of housing should also
- 60 They attitude of front-line employee is not acceptable. They are impatient with students.

## Annexure B :

### HOD

### CRONBACH ALPHA

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
Q02	3	1.33333	0.57735	4.00000	1.00000	2.00000	Q02
Q03	3	1.66667	0.57735	5.00000	1.00000	2.00000	Q03
Q04	3	2.00000	1.00000	6.00000	1.00000	3.00000	Q04
Q05	3	3.66667	0.57735	11.00000	3.00000	4.00000	Q05
Q06	3	2.00000	1.00000	6.00000	1.00000	3.00000	Q06
Q07	3	2.66667	1.52753	8.00000	1.00000	4.00000	Q07
Q09	3	3.66667	1.52753	11.00000	2.00000	5.00000	Q09
Q10	3	5.33333	1.15470	16.00000	4.00000	6.00000	Q10
Q11	3	2.33333	0.57735	7.00000	2.00000	3.00000	Q11
Q13	3	3.66667	0.57735	11.00000	3.00000	4.00000	Q13
Q14	3	3.33333	0.57735	10.00000	3.00000	4.00000	Q14
Q15	3	2.33333	1.15470	7.00000	1.00000	3.00000	Q15

Cronbach Coefficient Alpha  
 Variables Alpha  
 Raw 0.838590  
 Standardized 0.787001

Deleted Variable	Correlation with Total	Alpha	Standardized Variables	Correlation with Total	Alpha	Label
Q02	0.842989	0.814173	Q02	0.831020	0.728691	Q02
Q03	-.082199	0.854730	Q03	-.132613	0.823941	Q03
Q04	1.000000	0.784259	Q04	0.999759	0.709061	Q04
Q05	-.082199	0.854730	Q05	-.132613	0.823941	Q05
Q06	1.000000	0.784259	Q06	0.999759	0.709061	Q06
Q07	0.970725	0.773626	Q07	0.969942	0.712599	Q07
Q09	0.970725	0.773626	Q09	0.969942	0.712599	Q09
Q10	-.162758	0.881457	Q10	-.132613	0.823941	Q10
Q11	-.082199	0.854730	Q11	-.168543	0.826981	Q11
Q13	0.842989	0.814173	Q13	0.806627	0.731451	Q13
Q14	-.082199	0.854730	Q14	-.168543	0.826981	Q14
Q15	0.814152	0.797248	Q15	0.806627	0.731451	Q15

### STAFF

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
Q02n	26	2.53846	0.58177	66.00000	2.00000	4.00000	
Q03n	26	2.46154	0.64689	64.00000	2.00000	4.00000	
Q04n	26	2.50000	0.58310	65.00000	1.00000	3.00000	
Q05	26	3.26923	1.18516	85.00000	1.00000	5.00000	Q05
Q06	26	4.07692	1.41204	106.00000	1.00000	6.00000	Q06
Q07	26	2.80769	0.98058	73.00000	1.00000	5.00000	Q07
Q08	26	3.53846	1.42073	92.00000	1.00000	6.00000	Q08
Q09	26	3.11538	1.42343	81.00000	1.00000	6.00000	Q09
Q10	26	2.57692	1.41910	67.00000	1.00000	6.00000	Q10
Q11	26	2.73077	1.40165	71.00000	1.00000	6.00000	Q11
Q12	26	2.96154	1.42775	77.00000	1.00000	6.00000	Q12
Q13	26	2.80769	1.41476	73.00000	1.00000	6.00000	Q13
Q14	26	2.92308	1.59808	76.00000	1.00000	6.00000	Q14

Cronbach Coefficient Alpha  
 Variables Alpha  
 Raw 0.899011  
 Standardized 0.892796

Deleted Variable	Correlation with Total	Alpha	Standardized Variables	Correlation with Total	Alpha	Label
Q02n	0.482896	0.898173	Q02n	0.519871	0.888137	
Q03n	0.608191	0.894795	Q03n	0.637432	0.882489	
Q04n	0.169136	0.904556	Q04n	0.199337	0.902789	
Q05	-.053665	0.918251	Q05	-.128830	0.916706	Q05
Q06	0.623755	0.890679	Q06	0.578190	0.885354	Q06
Q07	0.523939	0.894989	Q07	0.532624	0.887531	Q07
Q08	0.716078	0.885787	Q08	0.699289	0.879457	Q08
Q09	0.769582	0.882878	Q09	0.739589	0.877458	Q09
Q10	0.631552	0.890289	Q10	0.630214	0.882840	Q10
Q11	0.760517	0.883423	Q11	0.814390	0.873701	Q11
Q12	0.880987	0.876667	Q12	0.872282	0.870751	Q12
Q13	0.826551	0.879780	Q13	0.819021	0.873467	Q13
Q14	0.871668	0.876463	Q14	0.847629	0.872012	Q14

### STUDENTS

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
Q01	51	2.27451	1.18454	116.00000	1.00000	5.00000	Q01
Q02	51	2.90196	1.41781	148.00000	1.00000	6.00000	Q02
Q03	51	2.92157	1.30909	149.00000	1.00000	6.00000	Q03
Q04	51	3.01961	1.28826	154.00000	1.00000	6.00000	Q04
Q05	51	2.49020	1.52804	127.00000	1.00000	6.00000	Q05
Q06	51	2.74510	1.62288	140.00000	1.00000	6.00000	Q06
Q07	51	2.92157	1.27817	149.00000	1.00000	6.00000	Q07
Q08	51	3.86275	1.56230	197.00000	1.00000	6.00000	Q08
Q09	51	3.03922	1.46916	155.00000	1.00000	6.00000	Q09
Q10	51	2.88235	1.43732	147.00000	1.00000	6.00000	Q10
Q11	51	2.11765	1.38054	108.00000	1.00000	6.00000	Q11

Cronbach Coefficient Alpha  
 Variables Alpha  
 Raw 0.895476

Standardized 0.897391

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		
	Correlation with Total	Alpha	Correlation with Total	Alpha	Label
Q01	0.650125	0.885433	0.647947	0.887073	Q01
Q02	0.671151	0.883350	0.673876	0.885557	Q02
Q03	0.473993	0.894291	0.474766	0.896948	Q03
Q04	0.673213	0.883675	0.680080	0.885193	Q04
Q05	0.407056	0.899692	0.407553	0.900666	Q05
Q06	0.697663	0.881619	0.692747	0.884448	Q06
Q07	0.688998	0.882876	0.689644	0.884631	Q07
Q08	0.614463	0.887014	0.626475	0.888321	Q08
Q09	0.665423	0.883634	0.662199	0.886241	Q09
Q10	0.709562	0.880979	0.706104	0.883660	Q10
Q11	0.655702	0.884334	0.651004	0.886895	Q11

Annexure C :

STAFF VS HOD

Inferential statistics

Table of Group by Q01

Frequency, Percent, Row Pct, Col Pct	,0-15 yrs,above 15, yrs		Total
Staff	25	5	30
	71.43	14.29	85.71
	83.33	16.67	
	92.59	62.50	
HOD	2	3	5
	5.71	8.57	14.29
	40.00	60.00	
	7.41	37.50	
Total	27	8	35
	77.14	22.86	100.00

Statistics for Table of Group by Q01

Statistic	DF	Value	Prob
Chi-Square	1	4.5640	0.0326
Likelihood Ratio Chi-Square	1	3.8643	0.0493
Continuity Adj. Chi-Square	1	2.4373	0.1185
Mantel-Haenszel Chi-Square	1	4.4336	0.0352
Phi Coefficient		0.3611	
Contingency Coefficient		0.3396	
Cramer's V		0.3611	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	25
Left-sided Pr <= F	0.9940
Right-sided Pr >= F	0.0665
Table Probability (P)	0.0605
Two-sided Pr <= P	0.0665
Sample Size =	35

Table of Group by Q01c

Frequency, Percent, Row Pct, Col Pct	,Som what,Not at a, - To gr,11 - Ver, eat exte,y little, nt		Total
Staff	15	15	30
	42.86	42.86	85.71
	50.00	50.00	
	78.95	93.75	
HOD	4	1	5
	11.43	2.86	14.29
	80.00	20.00	
	21.05	6.25	
Total	19	16	35
	54.29	45.71	100.00

Statistics for Table of Group by Q01c

Statistic	DF	Value	Prob
Chi-Square	1	1.5343	0.2125
Likelihood Ratio Chi-Square	1	1.6700	0.1963
Continuity Adj. Chi-Square	1	0.5805	0.4461
Mantel-Haenszel Chi-Square	1	1.5099	0.2192
Phi Coefficient		-0.2107	
Contingency Coefficient		0.2062	
Cramer's V		-0.2107	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	15
Left-sided Pr <= F	0.2269
Right-sided Pr >= F	0.9642
Table Probability (P)	0.1910
Two-sided Pr <= P	0.3468
Sample Size =	35

Table of Group by Q02c

Frequency, Percent, Row Pct, Col Pct	,Som what,Not at a, - To gr,11 - Ver, eat exte,y little, nt		Total
Staff	12	18	30
	34.29	51.43	85.71
	40.00	60.00	
	75.00	94.74	

HOD	4	1	5
	11.43	2.86	14.29
	80.00	20.00	
	25.00	5.26	
Staff	16	14	30
	45.71	54.29	100.00

Statistics for Table of Group by Q02c

Statistic	DF	Value	Prob
Chi-Square	1	2.7632	0.0965
Likelihood Ratio Chi-Square	1	2.8781	0.0898
Continuity Adj. Chi-Square	1	1.3864	0.2390
Mantel-Haenszel Chi-Square	1	2.6842	0.1013
Phi Coefficient		-0.2810	
Contingency Coefficient		0.2705	
Cramer's V		-0.2810	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	12
Left-sided Pr <= F	0.1200
Right-sided Pr >= F	0.9865
Table Probability (P)	0.1065
Two-sided Pr <= P	0.1558
Sample Size =	35

Table of Group by Q03c

Frequency,	Percent	Row Pct	Col Pct	Total
Staff	16	14	30	
	45.71	40.00	85.71	
	53.33	46.67		
	84.21	87.50		
HOD	3	2	5	
	8.57	5.71	14.29	
	60.00	40.00		
	15.79	12.50		
Total	19	16	35	
	54.29	45.71	100.00	

Statistics for Table of Group by Q03c

Statistic	DF	Value	Prob
Chi-Square	1	0.0768	0.7817
Likelihood Ratio Chi-Square	1	0.0773	0.7810
Continuity Adj. Chi-Square	1	0.0000	1.0000
Mantel-Haenszel Chi-Square	1	0.0746	0.7848
Phi Coefficient		-0.0468	
Contingency Coefficient		0.0468	
Cramer's V		-0.0468	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	16
Left-sided Pr <= F	0.5850
Right-sided Pr >= F	0.7731
Table Probability (P)	0.3582
Two-sided Pr <= P	1.0000
Sample Size =	35

Table of Group by Q04c

Frequency,	Percent	Row Pct	Col Pct	Total
Staff	7	20	27	
	22.58	64.52	87.10	
	25.93	74.07		
	87.50	86.96		
HOD	1	3	4	
	3.23	9.68	12.90	
	25.00	75.00		
	12.50	13.04		
Total	8	23	31	
	25.81	74.19	100.00	

Statistics for Table of Group by Q04c

Statistic	DF	Value	Prob
Chi-Square	1	0.0016	0.9685
Likelihood Ratio Chi-Square	1	0.0016	0.9684
Continuity Adj. Chi-Square	1	0.0000	1.0000
Mantel-Haenszel Chi-Square	1	0.0015	0.9690
Phi Coefficient		0.0071	
Contingency Coefficient		0.0071	
Cramer's V		0.0071	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

```

Fisher's Exact Test
ffffffffff
Cell (1,1) Frequency (F) 7
Left-sided Pr <= F 0.7186
Right-sided Pr >= F 0.7317
Table Probability (P) 0.4503
Two-sided Pr <= P 1.0000
Effective Sample Size = 31
Frequency Missing = 4

```

WARNING: 11% of the data are missing.

Table of Group by Q05c

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to,	Tend to,	Total
						disagree,agree St,
						- Strongly a,
						gly disagree,
						gree
Staff	21	6				27
	67.74	19.35				87.10
	77.78	22.22				
	87.50	85.71				
HOD	3	1				4
	9.68	3.23				12.90
	75.00	25.00				
	12.50	14.29				
Total	24	7				31
	77.42	22.58				100.00

Statistics for Table of Group by Q05c

Statistic	DF	Value	Prob
Chi-Square	1	0.0154	0.9013
Likelihood Ratio Chi-Square	1	0.0151	0.9023
Continuity Adj. Chi-Square	1	0.0000	1.0000
Mantel-Haenszel Chi-Square	1	0.0149	0.9029
Phi Coefficient		0.0223	
Contingency Coefficient		0.0223	
Cramer's V		0.0223	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

```

Fisher's Exact Test
ffffffffff
Cell (1,1) Frequency (F) 21
Left-sided Pr <= F 0.7880
Right-sided Pr >= F 0.6523
Table Probability (P) 0.4503
Two-sided Pr <= P 1.0000
Effective Sample Size = 31
Frequency Missing = 4

```

WARNING: 11% of the data are missing.

Table of Group by Q06c

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to,	Tend to,	Total
						disagree,agree St,
						- Strongly a,
						gly disagree,
						gree
Staff	23	6				29
	67.65	17.65				85.29
	79.31	20.69				
	88.46	75.00				
HOD	3	2				5
	8.82	5.88				14.71
	60.00	40.00				
	11.54	25.00				
Total	26	8				34
	76.47	23.53				100.00

Statistics for Table of Group by Q06c

Statistic	DF	Value	Prob
Chi-Square	1	0.8838	0.3472
Likelihood Ratio Chi-Square	1	0.8010	0.3708
Continuity Adj. Chi-Square	1	0.1364	0.7119
Mantel-Haenszel Chi-Square	1	0.8578	0.3543
Phi Coefficient		0.1612	
Contingency Coefficient		0.1592	
Cramer's V		0.1612	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

```

Fisher's Exact Test
ffffffffff
Cell (1,1) Frequency (F) 23
Left-sided Pr <= F 0.9279
Right-sided Pr >= F 0.3338
Table Probability (P) 0.2616
Two-sided Pr <= P 0.5702
Effective Sample Size = 34
Frequency Missing = 1

```

Table of Group by Q07c

Frequency,	Percent	Row Pct	Col Pct	Tend to ,	Tend to ,	Total
			disagree,agree St,	- Stron,rongly a,	gly disa,gree	
			gree			
Staff	20	9	29	60.61	27.27	87.88
	68.97	31.03		95.24	75.00	
HOD	1	3	4	3.03	9.09	12.12
	25.00	75.00		4.76	25.00	
Total	21	12	33	63.64	36.36	100.00

Statistics for Table of Group by Q07c

Statistic	DF	Value	Prob
Chi-Square	1	2.9363	0.0866
Likelihood Ratio Chi-Square	1	2.8393	0.0920
Continuity Adj. Chi-Square	1	1.3437	0.2464
Mantel-Haenszel Chi-Square	1	2.8473	0.0915
Phi Coefficient		0.2983	
Contingency Coefficient		0.2858	
Cramer's V		0.2983	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	20
Left-sided Pr <= F	0.9879
Right-sided Pr >= F	0.1250
Table Probability (P)	0.1129
Two-sided Pr <= P	0.1250
Effective Sample Size =	33
Frequency Missing =	2

Table of Group by Q08c

Frequency,	Percent	Row Pct	Col Pct	Tend to ,	Tend to ,	Total
			disagree,agree St,	- Stron,rongly a,	gly disa,gree	
			gree			
Staff	20	9	29	60.61	27.27	87.88
	68.97	31.03		95.24	75.00	
HOD	1	3	4	3.03	9.09	12.12
	25.00	75.00		4.76	25.00	
Total	21	12	33	63.64	36.36	100.00

Statistics for Table of Group by Q08c

Statistic	DF	Value	Prob
Chi-Square	1	2.9363	0.0866
Likelihood Ratio Chi-Square	1	2.8393	0.0920
Continuity Adj. Chi-Square	1	1.3437	0.2464
Mantel-Haenszel Chi-Square	1	2.8473	0.0915
Phi Coefficient		0.2983	
Contingency Coefficient		0.2858	
Cramer's V		0.2983	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	20
Left-sided Pr <= F	0.9879
Right-sided Pr >= F	0.1250
Table Probability (P)	0.1129
Two-sided Pr <= P	0.1250
Effective Sample Size =	33
Frequency Missing =	2

Table of Group by Q09c

Frequency,	Percent	Row Pct	Col Pct	Tend to ,	Tend to ,	Total
			disagree,agree St,	- Stron,rongly a,	gly disa,gree	
			gree			
Staff	19	10	29	55.88	29.41	85.29
	65.52	34.48		79.17	100.00	
HOD	5	0	5			

```

, 14.71 , 0.00 , 14.71
, 100.00 , 0.00 ,
20.83 , 0.00
ffffffff' ffffffff' ffffffff'
Total 24 10 34
70.59 29.41 100.00

```

```

Statistics for Table of Group by Q09c
Statistic DF Value Prob
Chi-Square 1 2.4425 0.1181
Likelihood Ratio Chi-Square 1 3.8315 0.0503
Continuity Adj. Chi-Square 1 1.0640 0.3023
Mantel-Haenszel Chi-Square 1 2.3707 0.1236
Phi Coefficient -0.2680
Contingency Coefficient 0.2589
Cramer's V -0.2680

```

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

```

Fisher's Exact Test
ffffffffffffffffffffffffffffffff
Cell (1,1) Frequency (F) 19
Left-sided Pr <= F 0.1528
Right-sided Pr >= F 1.0000
Table Probability (P) 0.1528
Two-sided Pr <= P 0.2908
Effective Sample Size = 34
Frequency Missing = 1

```

Comparisons of students in different age groups

Table of Age by Q01

Frequency	Percent	Row Pct	Col Pct	Tend to	Tend to	Total
			,disagree,agree St,			
			, - Stron,rongly a,			
			,gly disa,gree			
			,gree			
16-20 yrs	15	2	17	26.79	3.57	30.36
	88.24	11.76		31.25	25.00	
21-25 yrs	28	3	31	50.00	5.36	55.36
	90.32	9.68		58.33	37.50	
26-35 yrs	5	3	8	8.93	5.36	14.29
	62.50	37.50		10.42	37.50	
Total	48	8	56	85.71	14.29	100.00

Statistics for Table of Age by Q01

Statistic	DF	Value	Prob
Chi-Square	2	4.1467	0.1258
Likelihood Ratio Chi-Square	2	3.3208	0.1901
Mantel-Haenszel Chi-Square	1	1.7791	0.1823
Phi Coefficient		0.2721	
Contingency Coefficient		0.2626	
Cramer's V		0.2721	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
Effective Sample Size = 56  
Frequency Missing = 4

Table of Age by Q02

Frequency	Percent	Row Pct	Col Pct	Tend to	Tend to	Total
			,disagree,agree St,			
			, - Stron,rongly a,			
			,gly disa,gree			
			,gree			
16-20 yrs	11	6	17	19.64	10.71	30.36
	64.71	35.29		28.21	35.29	
21-25 yrs	26	5	31	46.43	8.93	55.36
	83.87	16.13		66.67	29.41	
26-35 yrs	2	6	8	3.57	10.71	14.29
	25.00	75.00		5.13	35.29	
Total	39	17	56	69.64	30.36	100.00

Statistics for Table of Age by Q02

Statistic	DF	Value	Prob
Chi-Square	2	10.7058	0.0047
Likelihood Ratio Chi-Square	2	10.2887	0.0058
Mantel-Haenszel Chi-Square	1	1.4723	0.2250
Phi Coefficient		0.4372	
Contingency Coefficient		0.4006	
Cramer's V		0.4372	

Effective Sample Size = 56  
Frequency Missing = 4

Table of Age by Q03

Frequency	Percent	Row Pct	Col Pct	Tend to	Tend to	Total
			,disagree,agree St,			
			, - Stron,rongly a,			
			,gly disa,gree			
			,gree			
16-20 yrs	10	3	13	19.61	5.88	25.49
	76.92	23.08		27.78	20.00	
21-25 yrs	22	9	31	43.14	17.65	60.78
	70.97	29.03		61.11	60.00	
26-35 yrs	3	3	7	7.84	5.88	13.73
	57.14	42.86		11.11	20.00	

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ffffffffff~ffffffffff~ffffffffff~
Total          36      15      51
              70.59  29.41 100.00

```

Statistics for Table of Age by Q03

Statistic	DF	Value	Prob
Chi-Square	2	0.8630	0.6495
Likelihood Ratio Chi-Square	2	0.8340	0.6590
Mantel-Haenszel Chi-Square	1	0.7622	0.3826
Phi Coefficient		0.1301	
Contingency Coefficient		0.1290	
Cramer's V		0.1301	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
Effective Sample Size = 51  
Frequency Missing = 9  
WARNING: 15% of the data are missing.

Table of Age by Q04

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
16-20 yrs	11	6	17	20.00	10.91	30.91
	64.71	35.29	30.56	31.58		
21-25 yrs	22	8	30	40.00	14.55	54.55
	73.33	26.67	61.11	42.11		
26-35 yrs	3	5	8	5.45	9.09	14.55
	37.50	62.50	8.33	26.32		
Total	36	19	55	65.45	34.55	100.00

Statistics for Table of Age by Q04

Statistic	DF	Value	Prob
Chi-Square	2	3.5926	0.1659
Likelihood Ratio Chi-Square	2	3.4502	0.1782
Mantel-Haenszel Chi-Square	1	0.8210	0.3649
Phi Coefficient		0.2556	
Contingency Coefficient		0.2476	
Cramer's V		0.2556	

Effective Sample Size = 55  
Frequency Missing = 5

Table of Age by Q05

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
16-20 yrs	12	5	17	21.43	8.93	30.36
	70.59	29.41	31.58	27.78		
21-25 yrs	21	10	31	37.50	17.86	55.36
	67.74	32.26	55.26	55.56		
26-35 yrs	5	3	8	8.93	5.36	14.29
	62.50	37.50	13.16	16.67		
Total	38	18	56	67.86	32.14	100.00

Statistics for Table of Age by Q05

Statistic	DF	Value	Prob
Chi-Square	2	0.1636	0.9215
Likelihood Ratio Chi-Square	2	0.1618	0.9223
Mantel-Haenszel Chi-Square	1	0.1524	0.6962
Phi Coefficient		0.0540	
Contingency Coefficient		0.0540	
Cramer's V		0.0540	

Effective Sample Size = 56  
Frequency Missing = 4

Table of Age by Q06

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total

	gree		
16-20 yrs	12	5	17
	21.43	8.93	30.36
	70.59	29.41	
	30.77	29.41	
21-25 yrs	24	7	31
	42.86	12.50	55.36
	77.42	22.58	
	61.54	41.18	
26-35 yrs	3	5	8
	5.36	8.93	14.29
	37.50	62.50	
	7.69	29.41	
Total	39	17	56
	69.64	30.36	100.00

Statistics for Table of Age by Q06

Statistic	DF	Value	Prob
Chi-Square	2	4.8034	0.0906
Likelihood Ratio Chi-Square	2	4.4523	0.1079
Mantel-Haenszel Chi-Square	1	1.4723	0.2250
Phi Coefficient		0.2929	
Contingency Coefficient		0.2811	
Cramer's V		0.2929	
Effective Sample Size = 56			
Frequency Missing = 4			

Table of Age by Q07

Frequency			Total
Percent			
Row Pct			
Col Pct	Tend to disagree	Tend to agree	Total
	- Strongly disagree	Strongly agree	
	gly disagree	gree	
16-20 yrs	12	5	17
	21.43	8.93	30.36
	70.59	29.41	
	30.77	29.41	
21-25 yrs	24	7	31
	42.86	12.50	55.36
	77.42	22.58	
	61.54	41.18	
26-35 yrs	3	5	8
	5.36	8.93	14.29
	37.50	62.50	
	7.69	29.41	
Total	39	17	56
	69.64	30.36	100.00

Statistics for Table of Age by Q07

Statistic	DF	Value	Prob
Chi-Square	2	4.8034	0.0906
Likelihood Ratio Chi-Square	2	4.4523	0.1079
Mantel-Haenszel Chi-Square	1	1.4723	0.2250
Phi Coefficient		0.2929	
Contingency Coefficient		0.2811	
Cramer's V		0.2929	
Effective Sample Size = 56			
Frequency Missing = 4			

Table of Age by Q08

Frequency			Total
Percent			
Row Pct			
Col Pct	Tend to disagree	Tend to agree	Total
	- Strongly disagree	Strongly agree	
	gly disagree	gree	
16-20 yrs	5	12	17
	8.93	21.43	30.36
	29.41	70.59	
	27.78	31.58	
21-25 yrs	13	18	31
	23.21	32.14	55.36
	41.94	58.06	
	72.22	47.37	
26-35 yrs	0	8	8
	0.00	14.29	14.29
	0.00	100.00	
	0.00	21.05	
Total	18	38	56
	32.14	67.86	100.00

Statistics for Table of Age by Q08

Statistic	DF	Value	Prob
Chi-Square	2	5.2106	0.0739
Likelihood Ratio Chi-Square	2	7.5672	0.0227
Mantel-Haenszel Chi-Square	1	0.8488	0.3569
Phi Coefficient		0.3050	
Contingency Coefficient		0.2918	

Cramer's V 0.3050  
 Effective Sample Size = 56  
 Frequency Missing = 4

Table of Age by Q09

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
16-20 yrs	11	6	17	19.64	10.71	30.36
21-25 yrs	20	11	31	35.71	19.64	55.36
26-35 yrs	2	6	8	3.57	10.71	14.29
Total	33	23	56	58.93	41.07	100.00

Statistics for Table of Age by Q09

Statistic	DF	Value	Prob
Chi-Square	2	4.4393	0.1086
Likelihood Ratio Chi-Square	2	4.4411	0.1085
Mantel-Haenszel Chi-Square	1	2.3541	0.1250
Phi Coefficient		0.2816	
Contingency Coefficient		0.2710	
Cramer's V		0.2816	

WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 56  
 Frequency Missing = 4

Table of Age by Q10

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
16-20 yrs	12	5	17	21.82	9.09	30.91
21-25 yrs	20	10	30	36.36	18.18	54.55
26-35 yrs	4	4	8	7.27	7.27	14.55
Total	36	19	55	65.45	34.55	100.00

Statistics for Table of Age by Q10

Statistic	DF	Value	Prob
Chi-Square	2	1.0627	0.5878
Likelihood Ratio Chi-Square	2	1.0263	0.5986
Mantel-Haenszel Chi-Square	1	0.8210	0.3649
Phi Coefficient		0.1390	
Contingency Coefficient		0.1377	
Cramer's V		0.1390	

Effective Sample Size = 55  
 Frequency Missing = 5

Table of Age by Q11

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
16-20 yrs	13	4	17	23.21	7.14	30.36
21-25 yrs	28	3	31	50.00	5.36	55.36
26-35 yrs	4	4	8	6.22	27.27	

```

, 7.14 , 7.14 , 14.29
, 50.00 , 50.00 ;
, 8.89 , 36.36 ;
Total 45 11 56
80.36 19.64 100.00

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Statistics for Table of Age by Q11

Statistic	DF	Value	Prob
Chi-Square	2	6.7838	0.0336
Likelihood Ratio Chi-Square	2	6.1334	0.0466
Mantel-Haenszel Chi-Square	1	0.8256	0.3635
Phi Coefficient		0.3481	
Contingency Coefficient		0.3287	
Cramer's V		0.3481	

WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
Effective Sample Size = 56  
Frequency Missing = 4

Wilcoxon Scores (Rank Sums) for Variable Q01  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	493.50	484.50	53.847458	29.029412
21-25 yrs	31	856.00	883.50	58.218269	27.612903
26-35 yrs	8	246.50	228.00	40.980198	30.812500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 0.2937  
DF 2  
Pr > Chi-Square 0.8634

Wilcoxon Scores (Rank Sums) for Variable Q02  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	538.50	484.50	54.751321	31.676471
21-25 yrs	31	702.50	883.50	59.195499	22.661290
26-35 yrs	8	355.00	228.00	41.668076	44.375000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 12.8138  
DF 2  
Pr > Chi-Square 0.0017

Wilcoxon Scores (Rank Sums) for Variable Q03  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	13	347.00	338.0	44.946295	26.692308
21-25 yrs	31	792.50	806.0	50.353106	25.564516
26-35 yrs	7	186.50	182.0	35.489982	26.642857

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 0.0719  
DF 2  
Pr > Chi-Square 0.9647

Wilcoxon Scores (Rank Sums) for Variable Q04  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	484.50	476.0	53.505568	28.500000
21-25 yrs	30	735.50	840.0	57.651864	24.516667
26-35 yrs	8	320.00	224.0	40.820342	40.000000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 6.2372  
DF 2  
Pr > Chi-Square 0.0442

Wilcoxon Scores (Rank Sums) for Variable Q05  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	467.00	484.50	54.194132	27.470588
21-25 yrs	31	828.50	883.50	58.593083	26.725806
26-35 yrs	8	300.50	228.00	41.244031	37.562500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 3.1145  
DF 2  
Pr > Chi-Square 0.2107

Wilcoxon Scores (Rank Sums) for Variable Q06  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	524.50	484.50	54.683459	30.852941
21-25 yrs	31	802.50	883.50	59.122129	25.887097
26-35 yrs	8	269.00	228.00	41.616430	33.625000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 2.0425  
DF 2  
Pr > Chi-Square 0.3601

Wilcoxon Scores (Rank Sums) for Variable Q07  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	531.00	484.50	54.513928	31.235294
21-25 yrs	31	750.50	883.50	58.938837	24.209677
26-35 yrs	8	314.50	228.00	41.487410	39.312500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 6.5061  
DF 2  
Pr > Chi-Square 0.0387

Wilcoxon Scores (Rank Sums) for Variable Q08  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	503.50	484.50	53.634164	29.617647
21-25 yrs	31	808.00	883.50	57.987662	26.064516
26-35 yrs	8	284.50	228.00	40.817872	35.562500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 2.4865  
DF 2  
Pr > Chi-Square 0.2884

Wilcoxon Scores (Rank Sums) for Variable Q09  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	451.00	484.50	54.895617	26.529412
21-25 yrs	31	817.50	883.50	59.351508	26.370968
26-35 yrs	8	327.50	228.00	41.777891	40.937500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 5.6733  
DF 2  
Pr > Chi-Square 0.0586

Wilcoxon Scores (Rank Sums) for Variable Q10  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	529.00	476.00	53.815654	31.117647
21-25 yrs	30	748.50	840.00	57.985979	24.950000
26-35 yrs	8	262.50	224.00	41.056912	32.812500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 2.5534  
DF 2  
Pr > Chi-Square 0.2790

Wilcoxon Scores (Rank Sums) for Variable Q11  
Classified by Variable Age

Age	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
16-20 yrs	17	560.00	484.50	52.828425	32.941176
21-25 yrs	31	765.50	883.50	57.116522	24.693548
26-35 yrs	8	270.50	228.00	40.204671	33.812500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 4.2857  
DF 2  
Pr > Chi-Square 0.1173

Comparisons of student gender

Table of Gender by Q01

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
Male	20	35.71	41.67	3	17	23
Female	28	50.00	58.33	5	23	33
Total	48	85.71	100.00	8	40	56

Statistics for Table of Gender by Q01

Statistic	DF	Value	Prob
Chi-Square	1	0.0492	0.8245
Likelihood Ratio Chi-Square	1	0.0496	0.8238
Continuity Adj. Chi-Square	1	0.0000	1.0000
Mantel-Haenszel Chi-Square	1	0.0483	0.8260
Phi Coefficient		0.0296	
Contingency Coefficient		0.0296	
Cramer's V		0.0296	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test

Cell (1,1) Frequency (F)	20
Left-sided Pr <= F	0.7238
Right-sided Pr >= F	0.5721
Table Probability (P)	0.2959
Two-sided Pr <= P	1.0000

Effective Sample Size = 56  
 Frequency Missing = 4

Table of Gender by Q02

Frequency, Percent, Row Pct, Col Pct	Tend to , disagree , - Stron , gly disa , gree	Tend to , agree St , rongly a , gree	Total
Male	13 , 23.21 , 56.52 , 35.14	10 , 17.86 , 43.48 , 52.63	23 41.07
Female	24 , 42.86 , 72.73 , 64.86	9 , 16.07 , 27.27 , 47.37	33 58.93
Total	37 66.07	19 33.93	56 100.00

Statistics for Table of Gender by Q02

Statistic	DF	Value	Prob
Chi-Square	1	1.5878	0.2076
Likelihood Ratio Chi-Square	1	1.5776	0.2091
Continuity Adj. Chi-Square	1	0.9472	0.3304
Mantel-Haenszel Chi-Square	1	1.5595	0.2117
Phi Coefficient		-0.1684	
Contingency Coefficient		0.1660	
Cramer's V		-0.1684	

Fisher's Exact Test

Cell (1,1) Frequency (F)	13
Left-sided Pr <= F	0.1652
Right-sided Pr >= F	0.9387
Table Probability (P)	0.1039
Two-sided Pr <= P	0.2573
Effective Sample Size =	56
Frequency Missing =	4

Table of Gender by Q03

Frequency, Percent, Row Pct, Col Pct	Tend to , disagree , - Stron , gly disa , gree	Tend to , agree St , rongly a , gree	Total
Male	15 , 29.41 , 71.43 , 42.86	6 , 11.76 , 28.57 , 37.50	21 41.18
Female	20 , 39.22 , 66.67 , 57.14	10 , 19.61 , 33.33 , 62.50	30 58.82
Total	35 68.63	16 31.37	51 100.00

Statistics for Table of Gender by Q03

Statistic	DF	Value	Prob
Chi-Square	1	0.1301	0.7183
Likelihood Ratio Chi-Square	1	0.1308	0.7176
Continuity Adj. Chi-Square	1	0.0029	0.9569
Mantel-Haenszel Chi-Square	1	0.1276	0.7210
Phi Coefficient		0.0505	
Contingency Coefficient		0.0504	
Cramer's V		0.0505	

Fisher's Exact Test

Cell (1,1) Frequency (F)	15
Left-sided Pr <= F	0.7460
Right-sided Pr >= F	0.4813
Table Probability (P)	0.2272
Two-sided Pr <= P	0.7681
Effective Sample Size =	51
Frequency Missing =	9

WARNING: 15% of the data are missing.

Table of Gender by Q04

Frequency, Percent, Row Pct, Col Pct	Tend to , disagree , - Stron , gly disa , gree	Tend to , agree St , rongly a , gree	Total
Male	15 , 27.27 , 65.22 , 44.12	8 , 14.55 , 34.78 , 38.10	23 41.82
Female	19 , 34.55 , 68.18 , 57.14	13 , 23.64 , 54.55 , 62.50	32

	, 34.55 ,	23.64 ,	58.18
	, 59.38 ,	40.63 ,	
	, 55.88 ,	61.90 ,	
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Total	34	21	55
	61.82	38.18	100.00

Statistics for Table of Gender by Q04

Statistic	DF	Value	Prob
Chi-Square	1	0.1935	0.6600
Likelihood Ratio Chi-Square	1	0.1943	0.6594
Continuity Adj. Chi-Square	1	0.0251	0.8740
Mantel-Haenszel Chi-Square	1	0.1900	0.6629
Phi Coefficient		0.0593	
Contingency Coefficient		0.0592	
Cramer's V		0.0593	

Fisher's Exact Test

TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Cell (1,1) Frequency (F)			15
Left-sided Pr <= F			0.7638
Right-sided Pr >= F			0.4386
Table Probability (P)			0.2023
Two-sided Pr <= P			0.7808
Effective Sample Size =			55
Frequency Missing =			5

Table of Gender by Q05

Frequency,			
Percent,			
Row Pct,			
Col Pct	,Tend to ,Tend to ,	Total	
	,disagree,agree St,		
	, - Stron,rongly a,		
	,gly disa,gree ,		
	,gree		
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Male	15	8	23
	26.79	14.29	41.07
	65.22	34.78	
	40.54	42.11	
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Female	22	11	33
	39.29	19.64	58.93
	66.67	33.33	
	59.46	57.89	
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Total	37	19	56
	66.07	33.93	100.00

Statistics for Table of Gender by Q05

Statistic	DF	Value	Prob
Chi-Square	1	0.0127	0.9103
Likelihood Ratio Chi-Square	1	0.0127	0.9103
Continuity Adj. Chi-Square	1	0.0000	1.0000
Mantel-Haenszel Chi-Square	1	0.0125	0.9111
Phi Coefficient		-0.0151	
Contingency Coefficient		0.0151	
Cramer's V		-0.0151	

Fisher's Exact Test

TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Cell (1,1) Frequency (F)			15
Left-sided Pr <= F			0.5668
Right-sided Pr >= F			0.6567
Table Probability (P)			0.2235
Two-sided Pr <= P			1.0000
Effective Sample Size =			56
Frequency Missing =			4

Table of Gender by Q06

Frequency,			
Percent,			
Row Pct,			
Col Pct	,Tend to ,Tend to ,	Total	
	,disagree,agree St,		
	, - Stron,rongly a,		
	,gly disa,gree ,		
	,gree		
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Male	13	10	23
	23.21	17.86	41.07
	56.52	43.48	
	34.21	55.56	
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Female	25	8	33
	44.64	14.29	58.93
	75.76	24.24	
	65.79	44.44	
TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
Total	38	18	56
	67.86	32.14	100.00

Statistics for Table of Gender by Q06

Statistic	DF	Value	Prob
Chi-Square	1	2.2993	0.1294
Likelihood Ratio Chi-Square	1	2.2825	0.1308
Continuity Adj. Chi-Square	1	1.5019	0.2204
Mantel-Haenszel Chi-Square	1	2.2582	0.1329
Phi Coefficient		-0.2026	
Contingency Coefficient		0.1986	
Cramer's V		-0.2026	

Fisher's Exact Test

TTTTTTTTT	TTTTTTTTT	TTTTTTTTT	TTTTTTTTT
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Cell (1,1) Frequency (F) 13  
 Left-sided Pr <= F 0.1105  
 Right-sided Pr >= F 0.9643  
 Table Probability (P) 0.0748  
 Two-sided Pr <= P 0.1548  
 Effective Sample Size = 56  
 Frequency Missing = 4

Table of Gender by Q07

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to,	Tend to,	Total
				disagree,	agree St,	
				- Stron,	rongly a,	
				gly disa,	gree	
				gree		
Male	14	9				23
	25.00	16.07				41.07
	60.87	39.13				
	36.84	50.00				
Female	24	9				33
	42.86	16.07				58.93
	72.73	27.27				
	63.16	50.00				
Total	38	18				56
	67.86	32.14				100.00

Statistics for Table of Gender by Q07

Statistic	DF	Value	Prob
Chi-Square	1	0.8737	0.3499
Likelihood Ratio Chi-Square	1	0.8675	0.3516
Continuity Adj. Chi-Square	1	0.4146	0.5196
Mantel-Haenszel Chi-Square	1	0.8581	0.3543
Phi Coefficient		-0.1249	
Contingency Coefficient		0.1239	
Cramer's V		-0.1249	

Fisher's Exact Test

Cell (1,1) Frequency (F) 14  
 Left-sided Pr <= F 0.2590  
 Right-sided Pr >= F 0.8895

Table Probability (P) 0.1484  
 Two-sided Pr <= P 0.3941  
 Effective Sample Size = 56  
 Frequency Missing = 4

Table of Gender by Q08

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to,	Tend to,	Total
				disagree,	agree St,	
				- Stron,	rongly a,	
				gly disa,	gree	
				gree		
Male	6	17				23
	10.71	30.36				41.07
	26.09	73.91				
	35.29	43.59				
Female	11	22				33
	19.64	39.29				58.93
	33.33	66.67				
	64.71	56.41				
Total	17	39				56
	30.36	69.64				100.00

Statistics for Table of Gender by Q08

Statistic	DF	Value	Prob
Chi-Square	1	0.3366	0.5618
Likelihood Ratio Chi-Square	1	0.3400	0.5598
Continuity Adj. Chi-Square	1	0.0811	0.7758
Mantel-Haenszel Chi-Square	1	0.3306	0.5653
Phi Coefficient		-0.0775	
Contingency Coefficient		0.0773	
Cramer's V		-0.0775	

Fisher's Exact Test

Cell (1,1) Frequency (F) 6  
 Left-sided Pr <= F 0.3907  
 Right-sided Pr >= F 0.8086  
 Table Probability (P) 0.1994  
 Two-sided Pr <= P 0.7684  
 Effective Sample Size = 56  
 Frequency Missing = 4

Table of Gender by Q09

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to,	Tend to,	Total
				disagree,	agree St,	
				- Stron,	rongly a,	
				gly disa,	gree	
				gree		

Male	12	11	23
	21.82	20.00	41.82
	52.17	47.83	
	36.36	50.00	
Female	21	11	32
	38.18	20.00	58.18
	65.63	34.38	
	63.64	50.00	
Total	33	22	55
	60.00	40.00	100.00

Statistics for Table of Gender by Q09

Statistic	DF	Value	Prob
Chi-Square	1	1.0088	0.3152
Likelihood Ratio Chi-Square	1	1.0065	0.3157
Continuity Adj. Chi-Square	1	0.5262	0.4682
Mantel-Haenszel Chi-Square	1	0.9905	0.3196
Phi Coefficient		-0.1354	
Contingency Coefficient		0.1342	
Cramer's V		-0.1354	

Fisher's Exact Test

Cell (1,1) Frequency (F)	12
Left-sided Pr <= F	0.2339
Right-sided Pr >= F	0.9002
Table Probability (P)	0.1341
Two-sided Pr <= P	0.4055
Effective Sample Size =	55
Frequency Missing =	5

Table of Gender by Q10

Frequency,			
Percent,			
Row Pct,			
Col Pct	Tend to ,Tend to ,	Total	
	disagree,agree St,		
	- Stron,rongly a,		
	gly disa,gree ,		
	gree		
Male	13	10	23
	23.64	18.18	41.82
	56.52	43.48	
	37.14	50.00	
Female	22	10	32
	40.00	18.18	58.18
	68.75	31.25	
	62.86	50.00	
Total	35	20	55
	63.64	36.36	100.00

Statistics for Table of Gender by Q10

Statistic	DF	Value	Prob
Chi-Square	1	0.8647	0.3524
Likelihood Ratio Chi-Square	1	0.8611	0.3534
Continuity Adj. Chi-Square	1	0.4170	0.5184
Mantel-Haenszel Chi-Square	1	0.8490	0.3568
Phi Coefficient		-0.1254	
Contingency Coefficient		0.1244	
Cramer's V		-0.1254	

Fisher's Exact Test

Cell (1,1) Frequency (F)	13
Left-sided Pr <= F	0.2587
Right-sided Pr >= F	0.8874
Table Probability (P)	0.1461
Two-sided Pr <= P	0.4034
Effective Sample Size =	55
Frequency Missing =	5

Table of Gender by Q11

Frequency,			
Percent,			
Row Pct,			
Col Pct	Tend to ,Tend to ,	Total	
	disagree,agree St,		
	- Stron,rongly a,		
	gly disa,gree ,		
	gree		
Male	17	6	23
	30.36	10.71	41.07
	73.91	26.09	
	37.78	54.55	
Female	28	5	33
	50.00	8.93	58.93
	84.85	15.15	
	62.22	45.45	
Total	45	11	56
	80.36	19.64	100.00

Statistics for Table of Gender by Q11

Statistic	DF	Value	Prob
Chi-Square	1	1.0268	0.3109
Likelihood Ratio Chi-Square	1	1.0120	0.3144
Continuity Adj. Chi-Square	1	0.4509	0.5019
Mantel-Haenszel Chi-Square	1	1.0085	0.3153

Phi Coefficient -0.1354  
Contingency Coefficient 0.1342  
Cramer's V -0.1354  
WARNING: 25% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Fisher's Exact Test  
Cell (1,1) Frequency (F) 17  
Left-sided Pr <= F 0.2494  
Right-sided Pr >= F 0.9115  
Table Probability (P) 0.1609  
Two-sided Pr <= P 0.3305  
Effective Sample Size = 56  
Frequency Missing = 4

Wilcoxon Scores (Rank Sums) for Variable Q01  
Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	877.0	940.50	57.733810	26.575758
Male	23	719.0	655.50	57.733810	31.260870

Average scores were used for ties.

Wilcoxon Two-Sample Test  
Statistic 719.0000  
Normal Approximation  
Z 1.0912  
One-Sided Pr > Z 0.1376  
Two-Sided Pr > |Z| 0.2752  
t Approximation  
One-Sided Pr > Z 0.1400  
Two-Sided Pr > |Z| 0.2799  
Z includes a continuity correction of 0.5.

Kruskal-Wallis Test  
Chi-Square 1.2097  
DF 1  
Pr > Chi-Square 0.2714

Wilcoxon Scores (Rank Sums) for Variable Q02  
Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	864.50	940.50	58.630669	26.196970
Male	23	731.50	655.50	58.630669	31.804348

Average scores were used for ties.

Wilcoxon Two-Sample Test  
Statistic 731.5000  
Normal Approximation  
Z 1.2877  
One-Sided Pr > Z 0.0989  
Two-Sided Pr > |Z| 0.1978  
t Approximation  
One-Sided Pr > Z 0.1016  
Two-Sided Pr > |Z| 0.2032  
Z includes a continuity correction of 0.5.

Kruskal-Wallis Test  
Chi-Square 1.6803  
DF 1  
Pr > Chi-Square 0.1949

Wilcoxon Scores (Rank Sums) for Variable Q03  
Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	30	753.50	780.0	50.896088	25.116667
Male	21	572.50	546.0	50.896088	27.261905

Average scores were used for ties.

Wilcoxon Two-Sample Test  
Statistic 572.5000  
Normal Approximation  
Z 0.5108  
One-Sided Pr > Z 0.3047  
Two-Sided Pr > |Z| 0.6095  
t Approximation  
One-Sided Pr > Z 0.3059  
Two-Sided Pr > |Z| 0.6117  
Z includes a continuity correction of 0.5.

Kruskal-Wallis Test  
Chi-Square 0.2711  
DF 1  
Pr > Chi-Square 0.6026

Wilcoxon Scores (Rank Sums) for Variable Q04  
Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	32	896.50	896.0	57.132936	28.015625
Male	23	643.50	644.0	57.132936	27.978261

Average scores were used for ties.

Wilcoxon Two-Sample Test  
Statistic 643.5000  
Normal Approximation  
Z 0.0000  
One-Sided Pr < Z 0.5000  
Two-Sided Pr > |Z| 1.0000  
t Approximation  
One-Sided Pr < Z 0.5000  
Two-Sided Pr > |Z| 1.0000  
Z includes a continuity correction of 0.5.

Kruskal-Wallis Test  
Chi-Square 0.0001  
DF 1  
Pr > Chi-Square 0.9930

Wilcoxon Scores (Rank Sums) for Variable Q05  
Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	904.0	940.50	58.224719	27.393939

Male 23 692.0 655.50 58.224719 30.086957  
 Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 692.0000  
 Normal Approximation  
 Z 0.6183  
 One-Sided Pr > Z 0.2682  
 Two-Sided Pr > |Z| 0.5364  
 t Approximation  
 One-Sided Pr > Z 0.2695  
 Two-Sided Pr > |Z| 0.5389

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 0.3930  
 DF 1  
 Pr > Chi-Square 0.5307

Wilcoxon Scores (Rank Sums) for Variable Q06  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	877.0	940.50	58.705226	26.575758
Male	23	719.0	655.50	58.705226	31.260870

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 719.0000  
 Normal Approximation  
 Z 1.0732  
 One-Sided Pr > Z 0.1416  
 Two-Sided Pr > |Z| 0.2832  
 t Approximation  
 One-Sided Pr > Z 0.1439  
 Two-Sided Pr > |Z| 0.2879

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 1.1700  
 DF 1  
 Pr > Chi-Square 0.2794

Wilcoxon Scores (Rank Sums) for Variable Q07  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	900.0	940.50	58.316700	27.272727
Male	23	696.0	655.50	58.316700	30.260870

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 696.0000  
 Normal Approximation  
 Z 0.6859  
 One-Sided Pr > Z 0.2464  
 Two-Sided Pr > |Z| 0.4928  
 t Approximation  
 One-Sided Pr > Z 0.2478  
 Two-Sided Pr > |Z| 0.4957

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 0.4823  
 DF 1  
 Pr > Chi-Square 0.4874

Wilcoxon Scores (Rank Sums) for Variable Q08  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	853.0	940.50	57.586364	25.848485
Male	23	743.0	655.50	57.586364	32.304348

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 743.0000  
 Normal Approximation  
 Z 1.5108  
 One-Sided Pr > Z 0.0654  
 Two-Sided Pr > |Z| 0.1308  
 t Approximation  
 One-Sided Pr > Z 0.0683  
 Two-Sided Pr > |Z| 0.1366

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 2.3087  
 DF 1  
 Pr > Chi-Square 0.1286

Wilcoxon Scores (Rank Sums) for Variable Q09  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	32	843.0	896.0	57.390434	26.343750
Male	23	697.0	644.0	57.390434	30.304348

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 697.0000  
 Normal Approximation  
 Z 0.9148  
 One-Sided Pr > Z 0.1802

Two-Sided Pr > |Z| 0.3603  
 t Approximation  
 One-Sided Pr > Z 0.1822  
 Two-Sided Pr > |Z| 0.3644  
 Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 0.8529  
 DF 1  
 Pr > Chi-Square 0.3557

Wilcoxon Scores (Rank Sums) for Variable Q10  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	32	864.50	896.0	57.377479	27.015625
Male	23	675.50	644.0	57.377479	29.369565

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 675.5000  
 Normal Approximation  
 Z 0.5403  
 One-Sided Pr > Z 0.2945  
 Two-Sided Pr > |Z| 0.5890  
 t Approximation  
 One-Sided Pr > Z 0.2956  
 Two-Sided Pr > |Z| 0.5912

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 0.3014  
 DF 1  
 Pr > Chi-Square 0.5830

Wilcoxon Scores (Rank Sums) for Variable Q11  
 Classified by Variable Gender

Gender	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Female	33	898.0	940.50	56.839059	27.212121
Male	23	698.0	655.50	56.839059	30.347826

Average scores were used for ties.

Wilcoxon Two-Sample Test  
 Statistic 698.0000  
 Normal Approximation  
 Z 0.7389  
 One-Sided Pr > Z 0.2300  
 Two-Sided Pr > |Z| 0.4600  
 t Approximation  
 One-Sided Pr > Z 0.2315  
 Two-Sided Pr > |Z| 0.4631

Z includes a continuity correction of 0.5.

Kruskal-wallis Test  
 Chi-Square 0.5591  
 DF 1  
 Pr > Chi-Square 0.4546

Comparison of student year of study

Table of Year by Q01

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
1	15	27.78	83.33	5.56	16.67	18
2	12	22.22	92.31	1.85	7.69	13
3	14	25.93	93.33	1.85	6.67	15
4	6	11.11	75.00	3.70	25.00	8
Total	47	87.04	12.96	100.00		54

Statistics for Table of Year by Q01

Statistic	DF	Value	Prob
Chi-Square	3	2.0933	0.5533
Likelihood Ratio Chi-Square	3	2.0373	0.5647
Mantel-Haenszel Chi-Square	1	0.0139	0.9060
Phi Coefficient		0.1969	
Contingency Coefficient		0.1932	
Cramer's V		0.1969	

WARNING: 50% of the cells have expected counts less

than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 54  
 Frequency Missing = 6

Table of Year by Q02

Frequency,	Percent	Tend to ,Tend to ,	Total
Row Pct	Col Pct	disagree,agree St,	
		- Stron,rongly a,	
		gly disa,gree	
		gree	
1	13	5	18
	24.07	9.26	33.33
	72.22	27.78	
	35.14	29.41	
2	7	6	13
	12.96	11.11	24.07
	53.85	46.15	
	18.92	35.29	
3	13	2	15
	24.07	3.70	27.78
	86.67	13.33	
	35.14	11.76	
4	4	4	8
	7.41	7.41	14.81
	50.00	50.00	
	10.81	23.53	
Total	37	17	54
	68.52	31.48	100.00

Statistics for Table of Year by Q02

Statistic	DF	Value	Prob
Chi-Square	3	4.9740	0.1737
Likelihood Ratio Chi-Square	3	5.1874	0.1586
Mantel-Haenszel Chi-Square	1	0.0606	0.8056
Phi Coefficient		0.3035	
Contingency Coefficient		0.2904	
Cramer's V		0.3035	

WARNING: 38% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 54  
 Frequency Missing = 6

Table of Year by Q03

Frequency,	Percent	Tend to ,Tend to ,	Total
Row Pct	Col Pct	disagree,agree St,	
		- Stron,rongly a,	
		gly disa,gree	
		gree	
1	12	4	16
	24.00	8.00	32.00
	75.00	25.00	
	33.33	28.57	
2	8	4	12
	16.00	8.00	24.00
	66.67	33.33	
	22.22	28.57	
3	10	5	15
	20.00	10.00	30.00
	66.67	33.33	
	27.78	35.71	
4	6	1	7
	12.00	2.00	14.00
	85.71	14.29	
	16.67	7.14	
Total	36	14	50
	72.00	28.00	100.00

Statistics for Table of Year by Q03

Statistic	DF	Value	Prob
Chi-Square	3	1.1054	0.7758
Likelihood Ratio Chi-Square	3	1.1872	0.7561
Mantel-Haenszel Chi-Square	1	0.0358	0.8499
Phi Coefficient		0.1487	
Contingency Coefficient		0.1471	
Cramer's V		0.1487	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 50  
 Frequency Missing = 10  
 WARNING: 17% of the data are missing.

Table of Year by Q04

Frequency,	Percent	Tend to ,Tend to ,	Total
Row Pct	Col Pct	disagree,agree St,	
		- Stron,rongly a,	
		gly disa,gree	
		gree	



	20.37	7.41	27.78
	73.33	26.67	
	28.95	25.00	
4	4	4	8
	7.41	7.41	14.81
	50.00	50.00	
	10.53	25.00	
Total	38	16	54
	70.37	29.63	100.00

Statistics for Table of Year by Q06

Statistic	DF	Value	Prob
Chi-Square	3	1.9526	0.5823
Likelihood Ratio Chi-Square	3	1.8275	0.6090
Mantel-Haenszel Chi-Square	1	0.7540	0.3852
Phi Coefficient		0.1902	
Contingency Coefficient		0.1868	
Cramer's V		0.1902	

WARNING: 38% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 54  
 Frequency Missing = 6

Table of Year by Q07

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
1	12	6	18	22.22	11.11	33.33
	66.67	33.33		32.43	35.29	
2	9	4	13	16.67	7.41	24.07
	69.23	30.77		24.32	23.53	
3	12	3	15	22.22	5.56	27.78
	80.00	20.00		32.43	17.65	
4	4	4	8	7.41	7.41	14.81
	50.00	50.00		10.81	23.53	
Total	37	17	54	68.52	31.48	100.00

Statistics for Table of Year by Q07

Statistic	DF	Value	Prob
Chi-Square	3	2.2202	0.5280
Likelihood Ratio Chi-Square	3	2.2079	0.5304
Mantel-Haenszel Chi-Square	1	0.0606	0.8056
Phi Coefficient		0.2028	
Contingency Coefficient		0.1987	
Cramer's V		0.2028	

WARNING: 38% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 54  
 Frequency Missing = 6

Table of Year by Q08

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
1	5	13	18	9.26	24.07	33.33
	27.78	72.22		27.78	36.11	
2	4	9	13	7.41	16.67	24.07
	30.77	69.23		22.22	25.00	
3	7	8	15	12.96	14.81	27.78
	46.67	53.33		38.89	22.22	
4	2	6	8	3.70	11.11	14.81
	25.00	75.00		11.11	16.67	
Total	18	36	54	33.33	66.67	100.00

Statistics for Table of Year by Q08

Statistic	DF	Value	Prob
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```

#####
Chi-Square 3 1.7385 0.6284
Likelihood Ratio Chi-Square 3 1.6999 0.6370
Mantel-Haenszel Chi-Square 1 0.1983 0.6561
Phi Coefficient 0.1794
Contingency Coefficient 0.1766
Cramer's V 0.1794
WARNING: 25% of the cells have expected counts less
than 5. Chi-Square may not be a valid test.
Effective Sample Size = 54
Frequency Missing = 6

```

Table of Year by Q09

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to ,	Tend to ,	Total
			,disagree,agree St,			
			, - Stron,rongly a,			
			,gly disa,gree ,			
			,gree			
1	11	7	18			
	20.75	13.21	33.96			
	61.11	38.89				
	34.38	33.33				
2	8	5	13			
	15.09	9.43	24.53			
	61.54	38.46				
	25.00	23.81				
3	10	5	15			
	18.87	9.43	28.30			
	66.67	33.33				
	31.25	23.81				
4	3	4	7			
	5.66	7.55	13.21			
	42.86	57.14				
	9.38	19.05				
Total	32	21	53			
	60.38	39.62	100.00			

```

#####
Statistics for Table of Year by Q09
Statistic DF Value Prob
Chi-Square 3 1.1576 0.7632
Likelihood Ratio Chi-Square 3 1.1376 0.7680
Mantel-Haenszel Chi-Square 1 0.1882 0.6644
Phi Coefficient 0.1478
Contingency Coefficient 0.1462
Cramer's V 0.1478
WARNING: 25% of the cells have expected counts less
than 5. Chi-Square may not be a valid test.
Effective Sample Size = 53
Frequency Missing = 7
WARNING: 12% of the data are missing.

```

Table of Year by Q10

Frequency,	Percent,	Row Pct,	Col Pct,	Tend to ,	Tend to ,	Total
			,disagree,agree St,			
			, - Stron,rongly a,			
			,gly disa,gree ,			
			,gree			
1	13	5	18			
	24.53	9.43	33.96			
	72.22	27.78				
	38.24	26.32				
2	9	3	12			
	16.98	5.66	22.64			
	75.00	25.00				
	26.47	15.79				
3	8	7	15			
	15.09	13.21	28.30			
	53.33	46.67				
	23.53	36.84				
4	4	4	8			
	7.55	7.55	15.09			
	50.00	50.00				
	11.76	21.05				
Total	34	19	53			
	64.15	35.85	100.00			

```

#####
Statistics for Table of Year by Q10
Statistic DF Value Prob
Chi-Square 3 2.5839 0.4603
Likelihood Ratio Chi-Square 3 2.5853 0.4601
Mantel-Haenszel Chi-Square 1 1.9679 0.1607
Phi Coefficient 0.2208
Contingency Coefficient 0.2156
Cramer's V 0.2208
WARNING: 25% of the cells have expected counts less
than 5. Chi-Square may not be a valid test.
Effective Sample Size = 53
Frequency Missing = 7
WARNING: 12% of the data are missing.

```

Table of Year by Q11

Frequency	Percent	Row Pct	Col Pct	Tend to disagree	Tend to agree	Total
1	16	2	18	29.63	3.70	33.33
	88.89	11.11		36.36	20.00	
2	10	3	13	18.52	5.56	24.07
	76.92	23.08		22.73	30.00	
3	12	3	15	22.22	5.56	27.78
	80.00	20.00		27.27	30.00	
4	6	2	8	11.11	3.70	14.81
	75.00	25.00		13.64	20.00	
Total	44	10	54	81.48	18.52	100.00

Statistics for Table of Year by Q11

Statistic	DF	Value	Prob
Chi-Square	3	1.0781	0.7824
Likelihood Ratio Chi-Square	3	1.1372	0.7681
Mantel-Haenszel Chi-Square	1	0.7066	0.4006
Phi Coefficient		0.1413	
Contingency Coefficient		0.1399	
Cramer's V		0.1413	

WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.  
 Effective Sample Size = 54  
 Frequency Missing = 6

Wilcoxon Scores (Rank Sums) for Variable Q01  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	483.50	495.00	52.368434	26.861111
3	15	455.50	412.50	49.757667	30.366667
2	13	338.00	357.50	47.494759	26.000000
4	8	208.00	220.00	39.464444	26.000000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 0.7783  
DF 3  
Pr > Chi-Square 0.8547

Wilcoxon Scores (Rank Sums) for Variable Q02  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	454.50	495.00	53.230364	25.250000
3	15	376.50	412.50	50.576628	25.100000
2	13	415.00	357.50	48.276474	31.923077
4	8	239.00	220.00	40.113989	29.875000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 2.0200  
DF 3  
Pr > Chi-Square 0.5683

Wilcoxon Scores (Rank Sums) for Variable Q03  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	16	438.00	408.00	46.736779	27.375000
3	15	411.50	382.50	45.913350	27.433333
2	12	304.50	306.00	42.789947	25.375000
4	7	121.00	178.50	34.765028	17.285714

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 2.9130  
DF 3  
Pr > Chi-Square 0.4052

Wilcoxon Scores (Rank Sums) for Variable Q04  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	527.00	486.00	51.912166	29.277778
3	15	349.00	405.00	49.378319	23.266667
2	13	339.50	351.00	47.162905	26.115385
4	7	215.50	189.00	37.113064	30.785714

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 1.8215  
DF 3  
Pr > Chi-Square 0.6103

Wilcoxon Scores (Rank Sums) for Variable Q05  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	458.00	495.00	52.445120	25.444444
3	15	421.50	412.50	49.830530	28.100000
2	13	315.00	357.50	47.564308	24.230769
4	8	290.50	220.00	39.522234	36.312500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 3.6721  
DF 3  
Pr > Chi-Square 0.2991

Wilcoxon Scores (Rank Sums) for Variable Q06  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	530.50	495.00	53.098342	29.472222
3	15	383.50	412.50	50.451188	25.566667
2	13	279.50	357.50	48.156738	21.500000
4	8	291.50	220.00	40.014498	36.437500

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 5.2483  
DF 3  
Pr > Chi-Square 0.1545

Wilcoxon Scores (Rank Sums) for Variable Q07  
Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	547.00	495.00	52.791509	30.388889
3	15	341.50	412.50	50.159651	22.766667
2	13	340.50	357.50	47.878460	26.192308
4	8	256.00	220.00	39.783270	32.000000

Average scores were used for ties.

Kruskal-wallis Test  
Chi-Square 5.2483  
DF 3  
Pr > Chi-Square 0.1545

Kruskal-wallis Test  
 Chi-Square 2.8871  
 DF 3  
 Pr > Chi-Square 0.4094

wilcoxon Scores (Rank Sums) for Variable Q08  
 Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	513.0	495.00	52.228814	28.500000
3	15	355.0	412.50	49.625009	23.666667
2	13	373.0	357.50	47.368133	28.692308
4	8	244.0	220.00	39.359228	30.500000

Average scores were used for ties.

Kruskal-wallis Test  
 Chi-Square 1.4468  
 DF 3  
 Pr > Chi-Square 0.6946

wilcoxon Scores (Rank Sums) for Variable Q09  
 Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	482.00	486.0	52.002358	26.777778
3	15	395.00	405.0	49.464109	26.333333
2	13	310.50	351.0	47.244846	23.884615
4	7	243.50	189.0	37.177544	34.785714

Average scores were used for ties.

Kruskal-wallis Test  
 Chi-Square 2.4530  
 DF 3  
 Pr > Chi-Square 0.4839

wilcoxon Scores (Rank Sums) for Variable Q10  
 Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	481.50	486.0	52.116524	26.750000
3	15	397.50	405.0	49.572702	26.500000
2	12	283.00	324.0	46.056159	23.583333
4	8	269.00	216.0	39.396389	33.625000

Average scores were used for ties.

Kruskal-wallis Test  
 Chi-Square 2.1710  
 DF 3  
 Pr > Chi-Square 0.5377

wilcoxon Scores (Rank Sums) for Variable Q11  
 Classified by Variable Year

Year	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	18	506.00	495.00	51.665470	28.111111
3	15	400.50	412.50	49.089749	26.700000
2	13	329.50	357.50	46.857216	25.346154
4	8	249.00	220.00	38.934696	31.125000

Average scores were used for ties.

Kruskal-wallis Test  
 Chi-Square 0.8171  
 DF 3  
 Pr > Chi-Square 0.8454

## ANNEXURE D

**TABLE 5. 4: Descriptive statistics for categorical variables of HOD questionnaire**

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
1. Years of experience	6-10 Years	1	20.0%
	11-15 Years	1	20.0%
	16-20 Years	2	40.0%
	Above 20 Years	1	20.0%
<b>MEASURING INSTRUMENT</b>			
2. Management is committed towards continuous improvement.	To great extent	3	60.0%
	Somewhat	1	20.0%
	Very little	1	20.0%
	Not at all	0	0.0%
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	To great extent	2	40.0%
	Somewhat	2	40.0%
	Very little	1	20.0%
	Not at all	0	0.0%
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	To great extent	1	20.0%
	Somewhat	2	40.0%
	Very little	2	40.0%
	Not at all	0	0.0%
5. Student housing employees who are dealing with registration are well trained.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
6. Student Housing informed Faculty	Strongly disagree	3	60.0%

Variables	Categories	Frequency	Percentage out of total
Departments on time about number of spaces available for each department for allocation of first year students.	Disagree	1	20.0%
	Tend to disagree	1	20.0%
	Tend to agree	0	0.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Strongly disagree	2	40.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	1	20.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
8. Faculty departments always adhere to deadlines of submission of results to Exam department.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	1	20.0%
	Agree	1	20.0%
	Strongly agree	2	40.0%
9. Heads of Departments always have their inputs on Registration and Placement of students.	Strongly disagree	1	20.0%
	Disagree	1	20.0%
	Tend to disagree	0	0.0%
	Tend to agree	1	20.0%
	Agree	1	20.0%
	Strongly agree	1	20.0%
10. Delays of exam results impacts negatively on student's registration and placement for accommodation of students.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	0	0.0%
	Tend to agree	1	20.0%
	Agree	0	0.0%
	Strongly agree	3	60.0%

Variables	Categories	Frequency	Percentage out of total
	Unknown	1	20.0%
11. If there is anticipation of delay in results, Faculty Departments will always inform exams department about the matter.	Strongly disagree	0	0.0%
	Disagree	2	40.0%
	Tend to disagree	1	20.0%
	Tend to agree	0	0.0%
	Agree	1	20.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
12. Student Housing employees understands what quality is about.	Strongly disagree	1	20.0%
	Disagree	0	0.0%
	Tend to disagree	0	0.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
13. Student Housing employees involved in registration are motivated to do their job.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
14. Student Housing facilitates on time delivery when it comes to responding to first year's application and international students.	Strongly disagree	0	0.0%
	Disagree	1	20.0%
	Tend to disagree	2	40.0%
	Tend to agree	2	40.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
15. Student housing department are consistent when doing their selection for placement	Strongly disagree	1	20.0%
	Disagree	0	0.0%

Variables	Categories	Frequency	Percentage out of total
of students.	Tend to disagree	4	80.0%
	Tend to agree	0	0.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%

**TABLE 5. 5: Descriptive statistics for categorical variables of Staff questionnaire**

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
1. Years of experience	0-5 Years	11	36.7%
	6-10 Years	6	20.0%
	11-15 Years	8	26.7%
	16-20 Years	3	10.0%
	Above 20 Years	2	6.7%
<b>MEASURING INSTRUMENT</b>			
2. Management is committed towards continuous improvement.	To great extent	2	6.7%
	Somewhat	13	43.3%
	Very little	15	50.0%
	Not at all	0	0.0%
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	To great extent	3	10.0%
	Somewhat	9	30.0%
	Very little	18	60.0%
	Not at all	0	0.0%
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	To great extent	1	3.3%
	Somewhat	15	50.0%
	Very little	12	40.0%
	Not at all	2	6.7%
5. Student housing has flexible policies and procedures that can easily be adapted to changing customer needs.	Strongly disagree	3	10.0%
	Disagree	4	13.3%
	Tend to disagree	4	13.3%

Variables	Categories	Frequency	Percentage out of total
	Tend to agree	13	43.3%
	Agree	3	10.0%
	Strongly agree	0	0.0%
	Unknown	3	10.0%
6. Student Housing employees who are dealing with registration are trained well.	Strongly disagree	2	6.7%
	Disagree	2	6.7%
	Tend to disagree	3	10.0%
	Tend to agree	7	23.3%
	Agree	10	33.3%
	Strongly agree	3	10.0%
	Unknown	3	10.0%
7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Strongly disagree	2	6.7%
	Disagree	9	30.0%
	Tend to disagree	10	33.3%
	Tend to agree	5	16.7%
	Agree	1	3.3%
	Strongly agree	0	0.0%
	Unknown	3	10.0%
8. Student Housing hire enough personnel to assist during registration.	Strongly disagree	2	6.7%
	Disagree	4	13.3%
	Tend to disagree	8	26.7%
	Tend to agree	5	16.7%
	Agree	6	20.0%
	Strongly agree	2	6.7%
	Unknown	3	10.0%
9. Student Housing do reviews on a regular basis and corrective actions are implemented.	Strongly disagree	2	6.7%
	Disagree	9	30.0%
	Tend to disagree	6	20.0%
	Tend to agree	5	16.7%
	Agree	3	10.0%

Variables	Categories	Frequency	Percentage out of total
	Strongly agree	2	6.7%
	Unknown	3	10.0%
10. Student Housing facilitates on time delivery when it comes to responding to first year's applications and international students.	Strongly disagree	5	16.7%
	Disagree	12	40.0%
	Tend to disagree	6	20.0%
	Tend to agree	3	10.0%
	Agree	1	3.3%
	Strongly agree	2	6.7%
	Unknown	1	3.3%
11. Student Housing employees involved in registration are motivated to do their job.	Strongly disagree	4	13.3%
	Disagree	11	36.7%
	Tend to disagree	5	16.7%
	Tend to agree	4	13.3%
	Agree	4	13.3%
	Strongly agree	1	3.3%
	Unknown	1	3.3%
12. Student Housing employees understands what quality is about.	Strongly disagree	3	10.0%
	Disagree	8	26.7%
	Tend to disagree	9	30.0%
	Tend to agree	3	10.0%
	Agree	4	13.3%
	Strongly agree	2	6.7%
	Unknown	1	3.3%
13. Student Housing department measures their performance on a regular basis.	Strongly disagree	4	13.3%
	Disagree	10	33.3%
	Tend to disagree	6	20.0%
	Tend to agree	5	16.7%
	Agree	3	10.0%
	Strongly agree	1	3.3%
	Unknown	1	3.3%

Variables	Categories	Frequency	Percentage out of total
14. Student housing department are consistent when doing their selection for placement of students.	Strongly disagree	4	13.3%
	Disagree	10	33.3%
	Tend to disagree	5	16.7%
	Tend to agree	4	13.3%
	Agree	3	10.0%
	Strongly agree	3	10.0%
	Unknown	1	3.3%

**TABLE 5. 6: Descriptive statistics for categorical variables of the student questionnaire**

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
Residence	Freedom Square 1	13	21.7%
	Freedom Square 2	6	10.0%
	MGR 1	3	5.0%
	MGR 2	2	3.3%
	Heroes House	2	3.3%
	Post Graduate	1	1.7%
	Bellco	3	5.0%
	Tygerberg	6	10.0%
	Anglo	6	10.0%
	Richard Sacco	1	1.7%
	Not residing on campus	11	18.3%
	Unknown	6	10.0%
Age	16-20 Years	17	28.3%
	21-25 Years	31	51.7%
	26-30 Years	7	11.7%
	31-35 Years	1	1.7%
	Unknown	4	6.7%

Variables	Categories	Frequency	Percentage out of total
Gender	Male	23	38.3%
	Female	33	55.0%
	Unknown	4	6.7%
Years of study	1	18	30.0%
	2	13	21.7%
	3	15	25.0%
	4	8	13.3%
	Unknown	6	10.0%
<b>MEASURING INSTRUMENT</b>			
1. Student Housing Department provides an excellent service.	Strongly disagree	20	33.3%
	Disagree	17	28.3%
	Tend to disagree	14	23.3%
	Tend to agree	3	5.0%
	Agree	5	8.3%
	Strongly agree	0	0.0%
	Unknown	1	1.7%
2. Employees at Student Housing always give customers individual attention.	Strongly disagree	12	20.0%
	Disagree	10	16.7%
	Tend to disagree	17	28.3%
	Tend to agree	8	13.3%
	Agree	10	16.7%
	Strongly agree	2	3.3%
	Unknown	1	1.7%
3. Student housing insist in the error-free records.	Strongly disagree	10	16.7%
	Disagree	11	18.3%
	Tend to disagree	16	26.7%
	Tend to agree	11	18.3%
	Agree	5	8.3%
	Strongly agree	1	1.7%
	Unknown	6	10.0%

Variables	Categories	Frequency	Percentage out of total
4. Employees at Student Housing are consistently courteous with customers.	Strongly disagree	8	13.3%
	Disagree	11	18.3%
	Tend to disagree	17	28.3%
	Tend to agree	14	23.3%
	Agree	7	11.7%
	Strongly agree	1	1.7%
	Unknown	2	3.3%
5. First year and International students are given the first priority during registration.	Strongly disagree	20	33.3%
	Disagree	14	23.3%
	Tend to disagree	5	8.3%
	Tend to agree	11	18.3%
	Agree	7	11.7%
	Strongly agree	2	3.3%
	Unknown	1	1.7%
6. Student Housing employees always give instructions to students prior the registration period.	Strongly disagree	18	30.0%
	Disagree	10	16.7%
	Tend to disagree	12	20.0%
	Tend to agree	6	10.0%
	Agree	10	16.7%
	Strongly agree	3	5.0%
	Unknown	1	1.7%
7. The behaviour of the employees in Student Housing will instil confidence to customers.	Strongly disagree	10	16.7%
	Disagree	10	16.7%
	Tend to disagree	20	33.3%
	Tend to agree	12	20.0%
	Agree	3	5.0%
	Strongly agree	4	6.7%
	Unknown	1	1.7%
8. All the employees in Student Housing will have the knowledge to answer customer's	Strongly disagree	8	13.3%
	Disagree	7	11.7%

Variables	Categories	Frequency	Percentage out of total
questions.	Tend to disagree	3	5.0%
	Tend to agree	14	23.3%
	Agree	23	38.3%
	Strongly agree	4	6.7%
	Unknown	1	1.7%
9. Student Housing employees understand the specific needs of their customers.	Strongly disagree	13	21.7%
	Disagree	7	11.7%
	Tend to disagree	15	25.0%
	Tend to agree	12	20.0%
	Agree	9	15.0%
	Strongly agree	2	3.33%
	Unknown	2	3.33%
10. Information provided by Student Housing to assist during registration is clear and understandable.	Strongly disagree	11	18.3%
	Disagree	11	18.3%
	Tend to disagree	15	25.0%
	Tend to agree	11	18.3%
	Agree	6	10.0%
	Strongly agree	4	6.7%
	Unknown	2	3.3%
11. Students are satisfied with Student Housing service delivery during the registration period.	Strongly disagree	25	41.7%
	Disagree	17	28.3%
	Tend to disagree	6	10.0%
	Tend to agree	2	3.3%
	Agree	6	10.0%
	Strongly agree	3	5.0%
	Unknown	1	1.7%

**TABLE 5. 7: Descriptive statistics for categorical variables of HOD questionnaire**

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
1. Years of experience	6-10 Years	1	20.0%
	11-15 Years	1	20.0%
	16-20 Years	2	40.0%
	Above 20 Years	1	20.0%
<b>MEASURING INSTRUMENT</b>			
2. Management is committed towards continuous improvement.	To great extent	3	60.0%
	Somewhat	1	20.0%
	Very little	1	20.0%
	Not at all	0	0.0%
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	To great extent	2	40.0%
	Somewhat	2	40.0%
	Very little	1	20.0%
	Not at all	0	0.0%
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	To great extent	1	20.0%
	Somewhat	2	40.0%
	Very little	2	40.0%
	Not at all	0	0.0%
5. Student housing employees who are dealing with registration are well trained.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
6. Student Housing informed Faculty Departments on time about number of spaces available for each department for	Strongly disagree	3	60.0%
	Disagree	1	20.0%
	Tend to disagree	1	20.0%

Variables	Categories	Frequency	Percentage out of total
allocation of first year students.	Tend to agree	0	0.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Strongly disagree	2	40.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	1	20.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
8. Faculty departments always adhere to deadlines of submission of results to Exam department.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	1	20.0%
	Agree	1	20.0%
	Strongly agree	2	40.0%
9. Heads of Departments always have their inputs on Registration and Placement of students.	Strongly disagree	1	20.0%
	Disagree	1	20.0%
	Tend to disagree	0	0.0%
	Tend to agree	1	20.0%
	Agree	1	20.0%
	Strongly agree	1	20.0%
10. Delays of exam results impacts negatively on student's registration and placement for accommodation of students.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	0	0.0%
	Tend to agree	1	20.0%
	Agree	0	0.0%
	Strongly agree	3	60.0%
	Unknown	1	20.0%
11. If there is anticipation of delay in results,	Strongly disagree	0	0.0%

Variables	Categories	Frequency	Percentage out of total
Faculty Departments will always inform exams department about the matter.	Disagree	2	40.0%
	Tend to disagree	1	20.0%
	Tend to agree	0	0.0%
	Agree	1	20.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
12. Student Housing employees understands what quality is about.	Strongly disagree	1	20.0%
	Disagree	0	0.0%
	Tend to disagree	0	0.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
13. Student Housing employees involved in registration are motivated to do their job.	Strongly disagree	0	0.0%
	Disagree	0	0.0%
	Tend to disagree	1	20.0%
	Tend to agree	3	60.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
	Unknown	1	20.0%
14. Student Housing facilitates on time delivery when it comes to responding to first year's application and international students.	Strongly disagree	0	0.0%
	Disagree	1	20.0%
	Tend to disagree	2	40.0%
	Tend to agree	2	40.0%
	Agree	0	0.0%
	Strongly agree	0	0.0%
15. Student housing department are consistent when doing their selection for placement of students.	Strongly disagree	1	20.0%
	Disagree	0	0.0%
	Tend to disagree	4	80.0%
	Tend to agree	0	0.0%

Variables	Categories	Frequency	Percentage out of total
	Agree	0	0.0%
	Strongly agree	0	0.0%

**TABLE 5. 8: Descriptive statistics for categorical variables of Staff questionnaire**

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
1. Years of experience	0-5 Years	11	36.7%
	6-10 Years	6	20.0%
	11-15 Years	8	26.7%
	16-20 Years	3	10.0%
	Above 20 Years	2	6.7%
<b>MEASURING INSTRUMENT</b>			
2. Management is committed towards continuous improvement.	To great extent	2	6.7%
	Somewhat	13	43.3%
	Very little	15	50.0%
	Not at all	0	0.0%
3. Management has created a culture that involves people actively seeking opportunities, for improvement of performance in process and activities.	To great extent	3	10.0%
	Somewhat	9	30.0%
	Very little	18	60.0%
	Not at all	0	0.0%
4. Top management always ensures that quality objectives are communicated effectively to all staff members.	To great extent	1	3.3%
	Somewhat	15	50.0%
	Very little	12	40.0%
	Not at all	2	6.7%
5. Student housing has flexible policies and procedures that can easily be adapted to changing customer needs.	Strongly disagree	3	10.0%
	Disagree	4	13.3%
	Tend to disagree	4	13.3%
	Tend to agree	13	43.3%
	Agree	3	10.0%

Variables	Categories	Frequency	Percentage out of total
	Strongly agree	0	0.0%
	Unknown	3	10.0%
6. Student Housing employees who are dealing with registration are trained well.	Strongly disagree	2	6.7%
	Disagree	2	6.7%
	Tend to disagree	3	10.0%
	Tend to agree	7	23.3%
	Agree	10	33.3%
	Strongly agree	3	10.0%
	Unknown	3	10.0%
	7. Regular meetings are held with Exams, Registration, Faculty departments, International Office and Student Housing to discuss registration processes and procedures.	Strongly disagree	2
Disagree		9	30.0%
Tend to disagree		10	33.3%
Tend to agree		5	16.7%
Agree		1	3.3%
Strongly agree		0	0.0%
Unknown		3	10.0%
8. Student Housing hire enough personnel to assist during registration.	Strongly disagree	2	6.7%
	Disagree	4	13.3%
	Tend to disagree	8	26.7%
	Tend to agree	5	16.7%
	Agree	6	20.0%
	Strongly agree	2	6.7%
	Unknown	3	10.0%
9. Student Housing do reviews on a regular basis and corrective actions are implemented.	Strongly disagree	2	6.7%
	Disagree	9	30.0%
	Tend to disagree	6	20.0%
	Tend to agree	5	16.7%
	Agree	3	10.0%
	Strongly agree	2	6.7%
	Unknown	3	10.0%

Variables	Categories	Frequency	Percentage out of total
10. Student Housing facilitates on time delivery when it comes to responding to first year's applications and international students.	Strongly disagree	5	16.7%
	Disagree	12	40.0%
	Tend to disagree	6	20.0%
	Tend to agree	3	10.0%
	Agree	1	3.3%
	Strongly agree	2	6.7%
	Unknown	1	3.3%
11. Student Housing employees involved in registration are motivated to do their job.	Strongly disagree	4	13.3%
	Disagree	11	36.7%
	Tend to disagree	5	16.7%
	Tend to agree	4	13.3%
	Agree	4	13.3%
	Strongly agree	1	3.3%
	Unknown	1	3.3%
12. Student Housing employees understands what quality is about.	Strongly disagree	3	10.0%
	Disagree	8	26.7%
	Tend to disagree	9	30.0%
	Tend to agree	3	10.0%
	Agree	4	13.3%
	Strongly agree	2	6.7%
	Unknown	1	3.3%
13. Student Housing department measures their performance on a regular basis.	Strongly disagree	4	13.3%
	Disagree	10	33.3%
	Tend to disagree	6	20.0%
	Tend to agree	5	16.7%
	Agree	3	10.0%
	Strongly agree	1	3.3%
	Unknown	1	3.3%
14. Student housing department are consistent when doing their selection for placement	Strongly disagree	4	13.3%
	Disagree	10	33.3%

Variables	Categories	Frequency	Percentage out of total
of students.	Tend to disagree	5	16.7%
	Tend to agree	4	13.3%
	Agree	3	10.0%
	Strongly agree	3	10.0%
	Unknown	1	3.3%

**TABLE 5. 9:** Descriptive statistics for categorical variables of the student questionnaire

Variables	Categories	Frequency	Percentage out of total
<b>Biographic Variables</b>			
Residence	Freedom Square 1	13	21.7%
	Freedom Square 2	6	10.0%
	MGR 1	3	5.0%
	MGR 2	2	3.3%
	Heroes House	2	3.3%
	Post Graduate	1	1.7%
	Bellco	3	5.0%
	Tygerberg	6	10.0%
	Anglo	6	10.0%
	Richard Sacco	1	1.7%
	Not residing on campus	11	18.3%
	Unknown	6	10.0%
Age	16-20 Years	17	28.3%
	21-25 Years	31	51.7%
	26-30 Years	7	11.7%
	31-35 Years	1	1.7%
	Unknown	4	6.7%
Gender	Male	23	38.3%
	Female	33	55.0%

Variables	Categories	Frequency	Percentage out of total
	Unknown	4	6.7%
Years of study	1	18	30.0%
	2	13	21.7%
	3	15	25.0%
	4	8	13.3%
	Unknown	6	10.0%
<b>MEASURING INSTRUMENT</b>			
1. Student Housing Department provides an excellent service.	Strongly disagree	20	33.3%
	Disagree	17	28.3%
	Tend to disagree	14	23.3%
	Tend to agree	3	5.0%
	Agree	5	8.3%
	Strongly agree	0	0.0%
	Unknown	1	1.7%
2. Employees at Student Housing always give customers individual attention.	Strongly disagree	12	20.0%
	Disagree	10	16.7%
	Tend to disagree	17	28.3%
	Tend to agree	8	13.3%
	Agree	10	16.7%
	Strongly agree	2	3.3%
	Unknown	1	1.7%
3. Student housing insist in the error-free records.	Strongly disagree	10	16.7%
	Disagree	11	18.3%
	Tend to disagree	16	26.7%
	Tend to agree	11	18.3%
	Agree	5	8.3%
	Strongly agree	1	1.7%
	Unknown	6	10.0%
4. Employees at Student Housing are consistently courteous with customers.	Strongly disagree	8	13.3%
	Disagree	11	18.3%

Variables	Categories	Frequency	Percentage out of total
	Tend to disagree	17	28.3%
	Tend to agree	14	23.3%
	Agree	7	11.7%
	Strongly agree	1	1.7%
	Unknown	2	3.3%
5. First year and International students are given the first priority during registration.	Strongly disagree	20	33.3%
	Disagree	14	23.3%
	Tend to disagree	5	8.3%
	Tend to agree	11	18.3%
	Agree	7	11.7%
	Strongly agree	2	3.3%
	Unknown	1	1.7%
6. Student Housing employees always give instructions to students prior the registration period.	Strongly disagree	18	30.0%
	Disagree	10	16.7%
	Tend to disagree	12	20.0%
	Tend to agree	6	10.0%
	Agree	10	16.7%
	Strongly agree	3	5.0%
	Unknown	1	1.7%
7. The behaviour of the employees in Student Housing will instil confidence to customers.	Strongly disagree	10	16.7%
	Disagree	10	16.7%
	Tend to disagree	20	33.3%
	Tend to agree	12	20.0%
	Agree	3	5.0%
	Strongly agree	4	6.7%
	Unknown	1	1.7%
8. All the employees in Student Housing will have the knowledge to answer customer's questions.	Strongly disagree	8	13.3%
	Disagree	7	11.7%
	Tend to disagree	3	5.0%
	Tend to agree	14	23.3%

Variables	Categories	Frequency	Percentage out of total
	Agree	23	38.3%
	Strongly agree	4	6.7%
	Unknown	1	1.7%
9. Student Housing employees understand the specific needs of their customers.	Strongly disagree	13	21.7%
	Disagree	7	11.7%
	Tend to disagree	15	25.0%
	Tend to agree	12	20.0%
	Agree	9	15.0%
	Strongly agree	2	3.33%
	Unknown	2	3.33%
10. Information provided by Student Housing to assist during registration is clear and understandable.	Strongly disagree	11	18.3%
	Disagree	11	18.3%
	Tend to disagree	15	25.0%
	Tend to agree	11	18.3%
	Agree	6	10.0%
	Strongly agree	4	6.7%
	Unknown	2	3.3%
11. Students are satisfied with Student Housing service delivery during the registration period.	Strongly disagree	25	41.7%
	Disagree	17	28.3%
	Tend to disagree	6	10.0%
	Tend to agree	2	3.3%
	Agree	6	10.0%
	Strongly agree	3	5.0%
	Unknown	1	1.7%

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