



# Service Quality Assessment of Instructional Laboratories in Haramaya University: Basis for Total Quality Management Policy

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**Abstract:** An environment of high service quality laboratory infrastructure management will greatly improve the process of teaching and learning. Haramaya University commits to achieve such major goal of excellence in teaching and learning through service-oriented and conducive learning environment facilities. Thus, this study determines that service quality of the university's instructional laboratories as timely and needed. To gauge its current service quality, SERVQUAL is used as one of the most effective and popular evaluation tool to work on. Thereby, the study adapted five (5) academic colleges (i.e. CCI, CNCS, CAES, CVM, and CHMS) and one (1) IOT institute. There are 375-sample size of college students, Technical Assistants, and Academic Staffs and out of that value, only 283 has been considered for analysis and interpretation. From the returned sample, 236 (83.10%) were males and 48(16.90%) were females. Majority of the respondents were undergraduate students with 171 (60.41%), followed by staff with 58(20.42%), then post-graduate students with 31 (10.92%) and Finally Technical Assistant (TA) with 26 (8.45%). Among all the colleges, in terms of fulfilling the expectation of customer (staff/students) as based on Average mean gap, CNCS rank 1<sup>st</sup> (-1.72), followed by CAES (-1.73), then CCI (-1.77), then IOT (-1.84), then CVM (-2.10), and finally CHMS (-2.13). It is evident from the wide gaps score as perceive by the users' perceptions of service quality offered by the Instructional Laboratories did not meet their expectations in general. The study further recommends that in order to reduce the large gaps in the service areas relating to Customer – Staff and Students, with the management should consider providing more training to staff not only to technical skills in handle facilities in the laboratory but to enhance their customer service skills.

**Keywords:** SERVQUAL, Total Quality Management, Instructional Laboratories, Haramaya University

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## 1. Introduction

Service quality is becoming a major issue to attain in each and every higher educational institution worldwide. In college and universities, students are mainly treated as customers in providing a conducive environment for their learning process. Furthermore, such service quality does not only limit to the teaching competency of the professors but also the service quality of the institution's facilities. As such quality of education services provided by the institution of higher learning can be gauged through the perspective of students who are engaged in various services and activities within the campus. One of those services is the instructional

laboratory facilities as a practical and valid support application of its corresponding theoretical learning done inside the classroom.

According to Feisel and Rosa [1], laboratory instruction has not received a great deal of attention during the last decades of the last century. Studies conducted by Selamatet. al. [2] on the effective management of computer laboratory in a university shows that, on average, respondents agreed that a conducive learning environment would increase their motivation. Students are the primary customers in the education sectors and their perception and expectation of

quality laboratories services is very vital in delivering excellence in teaching and learning process.

To measure the service quality, SERVQUAL is used as one of most effective and popular evaluation tool.

Haramaya University has gone through a series of transformations since its establishment as a higher learning institution. Currently, for more than 50 years after its existence in 1952 its now have eleven (11) academic colleges of the University located in Haramaya main campus and Harar (health) Campus. Specifically the study was employed in the instructional laboratories of 5 colleges namely College of Computing and Informatics (CCI), College of Health and Medical Sciences (CHMS), College of Natural and Computational Sciences (CNCS), College of Agriculture and Environmental Sciences (CAES), College of Veterinary Medicine (CVM) and 1 Institute of Technology(1). The above mentioned has been selected purposely out of the 10 colleges and 1 institute, for the availability of laboratory facilities used in practical simulation or demonstration as part of teaching learning process. However, it does not include laboratories, as support services like medical laboratories and the like, which constitute its limitation.

The conceptual underpinnings of the SERVQUAL model were first published in 1985 [3] and technique on Total Quality Management (TQM). The measurement is divided into 5 unique and related dimension namely Tangibility, Reliability, Responsiveness, Assurance and Empathy [4]. SERVQUAL was used to examined the factors that influence the service quality perceptions of international students in US business schools and the finding suggested that a school's faculty and their ability to interact comfortably with foreign students can positively affect students' perception [5], Educational Service Quality Assessment in an Engineering Program in Turkey [6], the findings suggested that the goal of Systems Engineering faculty members should be to focus on the items with greatest gap between importance and perceived score and make an effort to alter the conditions that provoke negative quality rating. Hughey et al. [7] employed the SERVQUAL instrument to measure the service quality of computer labs, and found out that the items load on three factors: staff, services, and professionalism.

On the other hand, there has been a scant empirical study on the service quality assessment of instructional laboratories in a university setting. In addition, there were very little information available on topics pertaining to student evaluation of instructional laboratory service. Haramaya University in particular found no assessment or scant study on the service quality assessment of instructional laboratories. Thus, the researchers' literature quest failed to locate any referred journal articles relating to university instructional laboratory services in both Ethiopian and International context.

### 1.1. General Objectives

The overall objective of the study is to assess the level of importance and satisfaction on the services provided by the instructional laboratories in Haramaya University according

to the perspective of the academic staff and students.

### 1.2. Specific Objectives

- (1) Assess the overall service quality of the instructional laboratories in Haramaya University using SERVQUAL gap analysis model from the users' perspectives
- (2) Identify strengths and weaknesses of the quality of the University Laboratory services based gap analysis
- (3) Compare the service quality assessment of each individual colleges in Haramaya University.

## 2. Related Literature

### 2.1. Total Quality Management (TQM)

Quality management is a broad theme that encompasses every sort of organization, multinational or national, eastern or western, large or small, services or manufacturing and public or private [8]. According to Oliveira [9], its concept depends on the context in which it is applied, in face of the subjectivity and complexity of its meaning. Bateson [10] says —quality is generally considered an attribute in consumer choices!. Quality in services can be defined as a customer satisfaction index for any service, and this satisfaction can be measured by any criteria [11].

Total Quality Management (TQM) is generally viewed as a management approach and philosophy that fosters the culture and attitude of an organization into providing customers with quality services and products that satisfy their needs [12]. TQM can be defined as a “process-oriented philosophy of enhancing customer satisfaction through the production of higher quality goods and services” [13] The TQM philosophy has its principles oriented to customer service and quality improvement and has been accredited with changing Japan into a leading economy after the Second World War [14].

### 2.2. SERQUAL Gap Analysis Model

The conceptual underpinnings of the SERVQUAL model were first published in 1985 [3]. In that research, the authors focused their discussion of service quality on what [15] labeled —functional quality, or the expressive performance of a service. They argued that there are 10 distinct dimensions to service quality. However, 3 years later when empirically deriving a service quality definition, the list of 10 was reduced to 5; the 5 dimensions and the descriptions the authors give are listed below [4] namely:

*Tangible*—physical facilities, equipment, and appearance of personnel;

*Reliability*—ability to perform the promised service dependably and accurately;

*Responsiveness*—willingness to help customers and provide prompt service;

*Assurance*—knowledge and courtesy of employees and their ability to inspire trust and confidence; and

*Empathy*—caring, individualized attention the firm provides its customers.

The instrument represents a multi-item scale that since its development has been widely used for measuring consumer importance and perceptions of service quality. It consists of 22 parallel importance (I) and perception (P) statements that represent the five service quality dimensions. In order to obtain views for the statements, consumers are required to select a response on Likert scales that range from strongly agree to strongly disagree.

This instrument is based on the *gap model* of service quality, by which service quality is defined as a function of the gap between customers importance of a service and their perceptions of the actual service delivered.

The SERVQUAL score is defined as:

SERVQUAL score = Perception score - Importance score.

The perception score is usually less than the importance score [16] and most SERVQUAL scores are therefore negative. A firm can use SERVQUAL score to determine the areas of improvement, with the priority of improvement being decided by the (negative) value of the SERVQUAL score.

These differences between perceptions and expectations are addressed in the quality in service model shown in Figure 1.

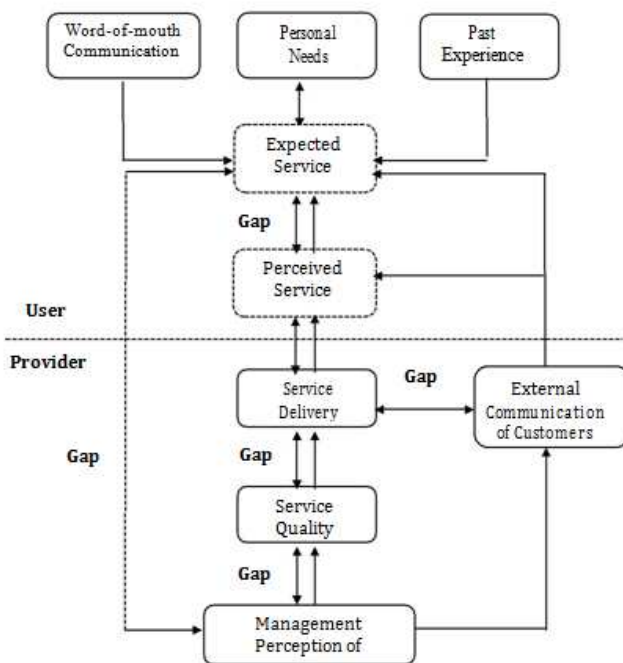


Figure 1. SERVQUAL Gap Analysis [17].

### 2.3 Empirical Studies

Remenyi and Money [18] conducted a study into the computer services offered at Henley Management College in the UK. They examined service quality gap and correspondence analysis as diagnostic tools. Questionnaires were distributed to users of the information system in an attempt to measure user satisfaction with the computer network, the information systems staff, and the other information system services offered by the business school. The result showed that there is indeed a problem with service

provided by the business school's information systems department which suggested the ineffective employment of information resources

O'Neill and Palmer [19] used SERVQUAL to investigate the influence of time on student's perceptions of service quality running a longitudinal study. The results suggest service quality in higher education is influenced by time. Hughey et al. [7] employed the SERVQUAL instrument to measure the service quality of computer labs, and found out that the items load on three factors: staff, services, and professionalism.

Kim [20] conducted a study on SERVQUAL and Saint Louis University Computer Laboratory Service Quality and Customer Satisfaction. It used the SERVQUAL model with the questionnaire as a gathering tool to survey 373 fourth year students who have had the experience of using the computer laboratories. It is found out that their expectation is satisfied but unsatisfied in their perception. There is also no significant difference in their level of satisfaction considering the quality dimensions. However, there is a correlation between the quality dimensions and their level of satisfaction. It is anticipated that the results of this study will be used to enhance the computer laboratory services of SLU by developing a customer care computer laboratory service program that will be published and distributed to all users of the computer laboratories.

In light of the above, the research concludes that all if not most of this research suggest SERVQUAL to be a suitable instrument to assess the service quality in educational setting. One of the obvious gap in related empirical studies is that there has been scant investigation on measuring the service quality of instructional laboratories in higher education. Further, the researchers decided to use SERVQUAL's five dimensions as there is need to assess the service quality on this educational services.

## 3. Methodology

### 3.1. Population and Sampling Technique

Specifically the study was employed in the instructional laboratories of 5 colleges namely College of Computing and Informatics (CCI), College of Health and Medical Sciences (CHMS), College of Natural and Computational Sciences (CNCS), College of Agriculture and Environmental Sciences (CAES), College of Veterinary Medicine (CVM) and 1 Institute of Technology (1).

A descriptive non experimental quantitative approach was used in this study. According to Bless and Higson-Smith [21] a quantitative approach compares different variables and relies on measurement. As aforementioned this quantitative approach is descriptive in nature for the reason that the study intended to describe a phenomenon. He reiterated that the research design as "a specification of the most adequate operations to be performed in order to test a specific hypothesis [research questions] under given conditions." Thus a quantitative approach as earlier explained allowed the

researcher to carry out a survey research [21].

The population refers to the entire set of people who are the focus of the study [21]. The population of this study was defined as Staff, TA and student both undergraduate and post-graduate of the chosen six (6) colleges/institute of Haramaya University. The inclusion criterion was on their engagement the use of instructional laboratories for teaching learning purposes.

Sampling is a technique or procedure carried out in research in an effort to draw a sample that is considered to be representative of the population and allows generalization of the results [21]. There are various sampling techniques available in research and in this study, random sampling was used. Random sampling is whereby each individual has an equal probability of being selected and this ensures that the sample is representative of the population [21]. In this study the subgroups identified were undergraduate and post-graduate students, TA and staff based on respective colleges. Ultimately, the appropriate numbers for each homogeneous subgroup were drawn. This is in line with the suggestion provided by [22] whereby they have explicated that it is important to ensure the appropriate numbers are drawn from each subgroup.

According to Bless and Higson-Smith [21], when deciding on the size of the sample, the most suitable criterion to apply

is one that to a large extent ensures the sample sufficiently represents the population. The authors add that this is expressed as a probability signifying that there is a 95% chance the sample is well distributed and represents the population. Since there is no baseline estimate of the level of satisfaction amongst users, the researcher hypothesized a satisfaction level of 50%, to give maximum sample size at 95% level of confidence with error margin + 5%. Therefore, based on the formula, out of the 16798 population size of combine staff, students and TA, 376 sample size has been included in the study.

### 3.2. Method of Data Collection

The instrument used in the study was a modified SERVQUAL survey [23]. The original SERVQUAL instrument was specifically designed to assess organizations and businesses in the service area. Some changes were made to adapt it to an academic Instructional Laboratories setting. The questionnaire was constructed based on the seven SERVQUAL dimensions with a pair of 23-items each for both desired or expectations and received or perceived services. The scores for expectation and perception items were obtained on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

*Table 1. Sample Variable and Questionnaire.*

		Strongly Disagree Strongly Agree						
Assurance: This assesses the knowledge and courtesy of the Technical Assistant (TA).		1	2	3	4	5	6	7
1	Assuring users of the accuracy and confidentiality of their personal information (AS-1)							
2	Information from Laboratory resources meet users course needs(AS-2)							
3	It is easy to make a compliment, complaint or suggestion about condition (AS-3)							
4	Technical Assistant are always courteous (AS-4)							
5	Technical Assistant are knowledgeable to answer users query (AS-5)							

Bless and Higson-Smith [21] explain that the purpose of a data analysis is to enable the researcher to identify consistent patterns from the data. Through the integration of technology the data was therefore collected and entered in Microsoft Excel and the analysis was carried out by using statistical analysis software known as Statistical Package for Social Science (SPSS) ver. 22. The data was analyzed using both SERVQUAL GAP analysis model and statistical analysis to draw meaningful inferences about the problem under study. Descriptive statistics were depicted using simple percentages, bar charts and frequency tables. Whilst understanding the significance of data analysis in research, it is important not to undertake the data analysis process as merely a description of measurements and statistics but to also ensure that the data collected is aligned to the research questions. In addition there should be discussion and clear explanations as well as integration of the findings to the theoretical framework vis-a-vis literature review of the study

### 4.1. Demographic Information

A total of 322 of the total 375 participants in the sample size completed and returned the questionnaire. Out of the total 322 completed and returned questionnaire, 283 has been accepted for analysis, as some of the them are with incomplete data which can be considered not reliable. participants in the sample size completed and returned the questionnaire. This represents a 75.47% response rate of the sample size which is considered sufficient in research in ensuring that the results are representative [24] [25]. According to Cummings, Savitz and Konrad [26] it is important to report the response rate as this can provide an indication on the quality and validity of the research. Bryman [27] also attests to this view by indicating 60%-70% as an acceptable response rate, and such these study is more than 70% response rate.

## 4. Results and Discussion

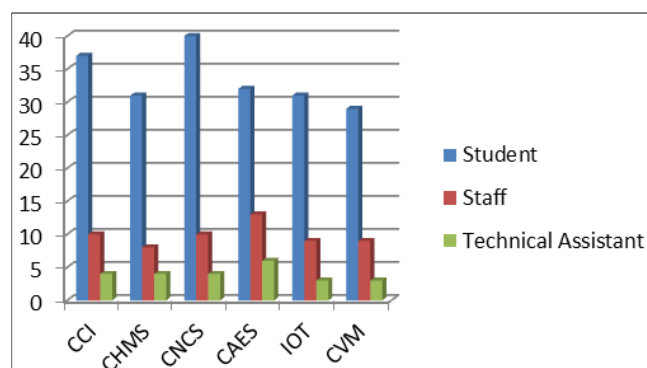


Figure 2. Demographic characteristic of respondents per College/Institute.

Table 2. Demographic Characteristics of Respondents.

No	Characteristics	Frequency	%
1	Gender		
	Male	236	83.10%
	Female	48	16.90%
	Total	284	100%
2	Type		
	Staff	58	20.42%
	TA	26	8.45%
	Postgraduate	31	10.92%
	Undergraduate	171	60.21%
	Total	284	100%
3	Age		
	Between 18 and 25	189	66.55%
	Between 26 and 35	89	31.34%
	Between 36 and 45	6	4.35%
	Between 46 and 55	0	0%
	Between 56 and 65	0	0%
	Total	284	100%
4	Lab Contact Hours		
	Less or equal to 5	138	53.08%
	Between 6 to 10	46	17.69%
	Between 11 to 15	38	14.62%
	Between 16 and 20	28	10.77%
	Between 21 and 25	6	2.31%
	Between 26 and 30	4	1.54%

Results from the survey indicated from Figure 2 that from the 284 completed and returned questionnaire, CCI composed of 37 students, 10 staff and 4 TA for a total 51

(18.02%) respondents; CHMS composed of 31 students, 8 staff and 4 TA for a total 43 (15.19%) respondents; CNCS composed of 40 students, 10 staff and 4 TA for a total 54 (19.08%) respondents; CAES composed of 32 students, 13 staff and 6 TA for a total 51 (18.02%) respondents; IOT composed 31 students, 9 staff and 3 TA for a total 43 (15.19%) respondents; CVM composed 29 students, 9 staff and 3 TA for a total 41 (14.49%) respondents.

From the 283 sample populations, as indicated below in Table 2, 236 (83.10%) were males and 48 (16.90%) were females. Majority of the respondents were undergraduate students with 171 (60.41%), followed by staff with 58 (20.42%), then post-graduate students with 31 (10.92%) and Finally Technical Assistant (TA) with 26 (8.45%). Table 2 also shows that majority are in the age of between 18 and 25 with 189 (66.55%), between 26 and 35 with 89 (31.34%), between 36 and 45 with 6 (4.35%) while the other age range have zero. Finally, the result shows in that 138 (53.08%) have lab contact hours to less than or equal to 5 hours, 46 (17.69%) have lab contact hours between 6 to 10 hours, 38 (14.62%) have lab contact hours between 11 to 15 hours, 28 (10.77%) have lab contact hours between 16 to 20 hours, 6 (2.31%) have lab contact hours between 21 to 25 hours and 4 (1.54%) have lab contact hours between 26 to 30 hours.

#### 4.2. Variables That Determine User's Perceptions and Expectations on the Service Quality of HU Instructional Laboratories

According to the findings of the study therefore, HU Instructional Laboratories users perceive the aforementioned seven service quality variables as important features of an Instructional Laboratory. The findings of the study also indicate that HU Instructional Laboratories has made considerable effort towards meeting the expectations of users. This indication of the considerable effort of HU Instructional Laboratories is represented by the mean and standard deviation of based on users' perception as analyzed in the study.

Table 3. Variable that determine the perception and expectation.

CODE	DIMENSION AND QUESTIONNAIRE VARIABLE
AS	ASSURANCE
AS-1	Assuring users of the accuracy and confidentiality of their personal information
AS-2	Information from Laboratory resources meet users course needs
AS-3	It is easy to make a compliment, complaint or suggestion about condition
AS-4	Technical Assistant are always courteous
AS-5	Technical Assistant are knowledgeable to answer users query
EM	EMPATHY
EM-1	Convenient opening hours (closing and opening hours) or time allotment is enough
EM-2	Giving priority to the users interests
EM-3	Technical Assistant give individual attention to the users
EM-4	Technical Assistant understand the needs of the users
EM-5	Technical Assistant who deals with users in a concerned or considerate manner
RL	RELIABILITY
RL-1	Dependability in handling users service problems
RL-2	Technical Assistant provide services accurately with minimum interruption
RL-3	Technical Assistant provide services as promised
RL-4	Providing services at the promised time
RS	RESPONSIVENESS

CODE	DIMENSION AND QUESTIONNAIRE VARIABLE
RS-1	Technical Assistant have willingness to help user
RS-2	Technical Assistant keep users informed about when services will be perform
RS-3	Technical Assistant serve promptly to the users
RS-4	Readiness to respond to user's questions
TA	TANGIBILITY
TA-1	Equipment is modern, complete and in good condition
TA-2	Facilities are visually appealing (such as computer, medical facilities, engineering equipment, audio-visual
TA-3	Emergency Facilities are available (First-Aid Kit or Fire Extinguisher)
TA-4	Facilities such as equipment, materials, tools, and consumables are organize / arrange in shelf or cabinet
TA-5	Laboratories physical environment is clean, neat and untidy

#### 4.3. SERVQUAL Gap Analysis (Per College)

The gap scores analyses enable us to find out how users perceive service quality in the Instructional Laboratories environment and try to identify what dimensions of service quality satisfy or do not satisfy them. The higher the difference between perception score and expectation score, the higher is the service quality and thereby the higher the level of user satisfaction. In this regard, the gap scores were calculated based on the difference between the users' perceptions and expectations of services offered by the Instructional Laboratories.

**Table 4.** CNCS Highest to Lowest Mean Perception, Expectation and Gap Analysis.

	PER	EXP	GAP
1	AS3 5.27	EM4 6.83	RS3 -2.79
2	RL3 5.21	AS4 6.81	TA3 -2.56
3	AS1 5.16	AS5 6.8	TA2 -2.53
4	EM1 5.1	RL3 6.8	TA5 -2.43
5	RL2 5.1	EM5 6.75	RS1 -2.36
6	EM2 5.09	RS4 6.75	RS4 -2.36
7	RL1 5.06	TA2 6.72	TA1 -2.32
8	AS2 4.92	EM1 6.67	RS2 -2.27
9	EM5 4.9	EM3 6.67	TA4 -2.24
10	AS4 4.86	TA5 6.67	EM4 -2.05
11	AS5 4.81	RS2 6.67	AS5 -1.99
12	EM3 4.8	RS3 6.67	AS4 -1.95
13	EM4 4.78	AS1 6.65	RL4 -1.89
14	RL4 4.73	AS2 6.65	EM3 -1.86
15	TA4 4.41	TA4 6.65	EM5 -1.85
16	RS2 4.4	AS3 6.62	AS2 -1.73
17	RS4 4.39	RL1 6.62	RL3 -1.59
18	TA1 4.28	RL4 6.62	EM1 -1.57
19	RS1 4.26	RS1 6.62	RL1 -1.56
20	TA5 4.23	TA1 6.6	AS1 -1.5
21	TA2 4.19	EM2 6.57	EM2 -1.48
22	RS3 3.87	RL2 6.57	RL2 -1.47
23	TA3 3.76	TA3 6.32	AS3 -1.35

Table 4 arranges the respondents' expectation mean, perception mean and gap analysis from the highest to the lowest for ease of identifying the service statement that are rated high as well as those rated low. Of the majority statement in expectation, the statement with the highest mean is found under the service quality attribute "Empathy" namely: Facilities such as equipment, materials, tools, and consumables are organize / arrange in shelf or cabinet. According to the respondents' expectations, this statement has the highest mean of 6.83 and hence can be considered as the most important service that HU Instructional Laboratories

should possess.

In contrast, generally the mean of the respondents' perception of the quality of CNCS Instructional Laboratories services is not as high as the mean of the respondents' expectation of what CNCS Instructional Laboratories should possess. This is evident from the results that recorded only 7 service quality statements within a mean score of above 5 or "somewhat agree", as shown on Table 4. The findings shows two (2) service statement under the service quality attribute "assurance" and two (2) service statements under the service quality attribute "Empathy" and three (3) service statements under the service quality attribute "Reliability" this may imply that these are the service quality attributes of CNCS Instructional Laboratories that meet the expectations of the respondents. Among the 7 service statement that has good result, the statement with the highest mean 5.27 is found under the service quality attribute "Assurance" namely: It is easy to make a compliment, complaint or suggestion about condition.

Services that fall short of the users' expectations can be depicted from the respondents' perceptions. As shown in Table 4, the survey results demonstrate the respondents perceptions of CNCS Instructional Laboratory and the service statement items with the lowest perception mean can be depicted as those that fall short of the users' expectations. From this study the 2 service statement items with the lowest perception means based on the gauge below 4 or "somewhat disagree". Among the 2 service statement that has low result, the statement with the lowest mean 3.67 is found under the service quality attribute "Tangibility" namely: Emergency Facilities are available (First-Aid Kit or Fire Extinguisher).

The study sought to determine the gaps between users' perceptions and expectations. As indicated in Chapter 3, using the formula  $G = P - E$ , the SERVQUAL questionnaire was based on the basic assumption that if a negative score is obtained this would mean that the performance is below expectations, translating into a low service quality perception. Table 4 also shows the results of the service quality gap score for each service statement item. The gap scores have been arranged from the largest to the smallest in order to easily identify the largest positive gap and largest negative gap. Results from this table that most service quality statements with a negative score. Those that are negatively marked indicate the service statements that do not meet the expectations of the respondents and hence low service quality. Though most of the service quality statements have a negative gap we can identify the five (5) service quality



statements with the largest as follows:

- (1) Technical Assistant understand the needs of the users - Empathy
- (2) Technical Assistant serve promptly to the users - Reliability
- (3) Technical Assistant are knowledgeable to answer users query - Assurance
- (4) Technical Assistant provide services accurately with minimum interruption - Reliability
- (5) Technical Assistant are always courteous - Assurance

#### 4.4. SERVQUAL GAP Analysis for Each College

The gap scores analyses enable us to find out how users perceive service quality in the Instructional Laboratories environment and try to identify what dimensions of service quality satisfy or do not satisfy them. The higher the difference between perception score and expectation score, the higher is the service quality and thereby the higher the level of user satisfaction. Results shows in the Figure 3 below that each colleges has this average gap based on the five dimension of service quality namely: reliability, tangibility, assurance, empathy and responsiveness. Among the five dimension of service quality, for CNCS there is a good perception on reliability, for CAES it is empathy, for IOT it is reliability, for CVM both reliability and assurance, for CCI it is responsiveness, and CHMS it is tangibility and assurance.

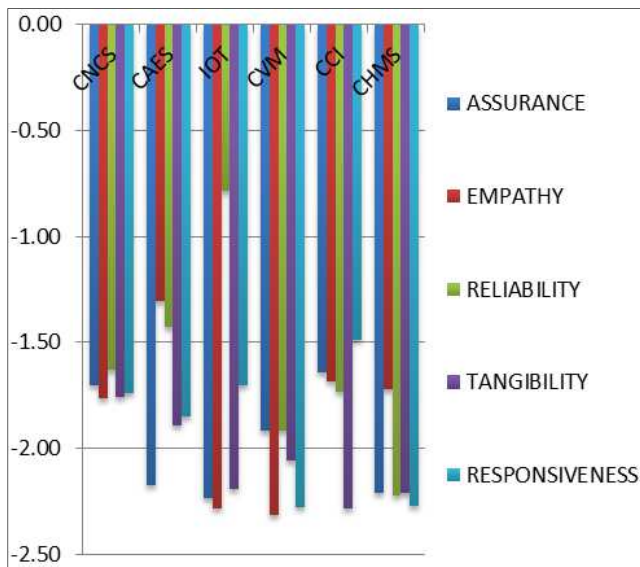


Figure 3. SERVQUAL Gap Analysis.

#### 4.5. TOTAL GAP Score (University Level)

Figure 4 reflects that among all the colleges, in terms of fulfilling the expectation of customer (staff/students), based on Average mean gap, CNCS rank 1<sup>st</sup> (-1.56), followed by CCI (-1.92), then CAES (-1.99), then CVM (-2.00), then IOT (-2.21) and finally CHMS (-2.44). In the University Level, users' perceptions of service quality offered by the Instructional Laboratories did not meet their expectations. It is evident from the wide gaps score as perceive by the users.

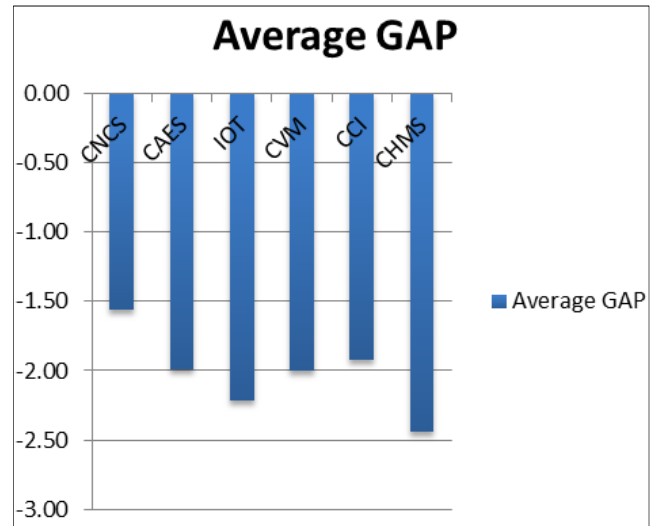


Figure 4. Total Gap Analysis.

Overall, by summarizing gaps implied in each colleges, though most of the service quality statements have a negative gap we can identify the five (5) service quality statements with the largest as follows: (1) Technical Assistant serve promptly to the users

## 5. Conclusion and Recommendation

### 5.1. Summary and Conclusion

The purpose of this study was to investigate the quality of service delivery of HU Instructional Laboratories based on the satisfaction of the users with the services and as expressed by and based on the users' expectations and perceptions. This was according to Total Quality Management (TQM), the underlying philosophy that guided the study; a philosophy that is customer oriented and lays great emphasis on enhancing customer satisfaction. Out of the total 322 completed and returned questionnaire, 283 has been accepted for analysis, as some of the them are with incomplete data which can be considered not reliable. participants in the sample size completed and returned the questionnaire. From the returned sample, 236 (83.10%) were males and 48(16.90%) were females. Majority of the respondents were undergraduate students with 171 (60.41%), followed by staff with 58(20.42%), then post-graduate students with 31 (10.92%) and Finally Technical Assistant (TA) with 26 (8.45%).

With this, the gap scores analyses enable us to find out how users perceive service quality in the Instructional Laboratories environment and try to identify what dimensions of service quality satisfy or do not satisfy them. In the University Level, users' perceptions of service quality offered by the Instructional Laboratories did not meet their expectations. It is evident from the wide gaps score as perceive by the users. Among all the colleges, in terms of fulfilling the expectation of customer (staff/students), based on Average mean gap, CNCS rank 1<sup>st</sup> (-1.56), followed by CCI (-1.92), then CAES (-1.99), then CVM (-2.00), then IOT

(-2.21) and finally CHMS (-2.44).

Overall, by summarizing gaps implied in each colleges, though most of the service quality statements have a negative gap we can identify the five (5) service quality statements with the largest as follows: (1) Technical Assistant serve promptly to the users – Responsiveness, (2) Laboratories physical environment is clean, neat and untidy Tangibility, (3) Facilities are visually appealing (such as computer, medical facilities, engineering equipment, audio-visual) – Tangibility, (4) Emergency Facilities are available (First-Aid Kit or Fire Extinguisher) – Tangibility, and (5) Readiness to respond to user's questions – Responsiveness

### 5.2. Recommendation

In line with the above summary and conclusion, the study recommends that University Instructional Laboratories adopt user based assessment tools in the evaluation of service quality as opposed to input based evaluation methods. As the words *Quality* and *Management* are predominant in the TQM philosophy emphasizing the need to continuously identify customers' needs and expectations and to ensure that the customer is satisfied, the study therefore recommends the adoption of TQM philosophy in the ensuring continuous assessment of the service quality of University Instructional Laboratories in Ethiopia. The culture of continuous improvement and evaluation of service quality in University Instructional Laboratories can be realized through the application of quality management principles. Total Quality Management for example is one such management philosophy that advocates for continuous improvement and hence resulting to service quality.

The study further recommends that in order to reduce the large gaps in the service areas relating to Customer – Staff and Students, the management should consider providing more training to technical assistant not only skills in handle facilities in the laboratory but to enhance their customer service skills as well. The training should specifically must focus on how to handle needs of different users, courtesy to their demands as well as being more caring to the facilities.

The study suggests that HU Instructional Laboratories may have not invested much in the physical facilities, equipment etc. in particular on the maintenance and hence recommends the need to provide adequate most modern and up-to-date facilities for students and staff academic purposes.

Finally since this study was based on a case study conducted at the HU Instructional Laboratories and hence the findings cannot therefore necessarily be generalized to other University Instructional Laboratories in Ethiopia. Thus, further research is therefore recommended to investigate service quality using user based assessment tools such as SERVQUAL in other University Instructional Laboratories in Ethiopia. This further research may also employ qualitative research approach whereby in-depth data can be collected using open-ended questionnaires or interviews in order to gain further understanding of the matter.

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