



TOTAL QUALITY MANAGEMENT APPROACH AS A MEASURE OF QUALITY IN TVET COLLEGES IN KENYA

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Abstract:

The Kenyan government has significantly increased funding for Technical and Vocational Education and Training (TVET) from KSh15.7 billion in 2018/19 to KSh26.9 billion in 2019/20. The number of TVET institutions, including private ones, has risen from 874 in 2015 to 2,191 in 2019, accompanied by a surge in enrolment from 142,418 in 2015 to 430,598 in 2019. Despite these positive developments, the Republic of Kenya Sessional Paper 1 of 2019 acknowledges challenges in TVET, particularly a deficiency in graduates' competencies aligning with the labor market needs. Vision 2030 emphasizes the critical role of TVET in producing skilled professionals to drive economic growth. Total Quality Management (TQM) captures the essence of quality improvement. Studies on TQM show that it improves the quality of educational training, this study aimed to evaluate the TQM approach as a measure of quality in Kenyan TVET colleges. Specifically, the study focused on assessing the quality of leadership and student services within these institutions. The study was guided by Statistical Quality Control theory, which emphasizes the use of statistics for identifying areas of improvement in quality and productivity. Using a descriptive survey research design, the study targeted a population of 120,258, including 42 principals, 342 heads of departments, and 119,874 students. A sample size of 36 principals, 294 heads of departments, and 382 students was determined using Krejcie and Morgan's sampling table. Stratified and simple random

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sampling methods were employed to ensure representation across various strata. Data collection instruments involved questionnaires, interviews, and document analysis, with the validity of the instruments ascertained by experts from Maseno University. The heads of departments questionnaire was rated as reliable at .934, and the student questionnaire was rated as reliable at .799. Quantitative data was analyzed using descriptive statistics such as mean and percentages, the p-control chart was used to identify areas of variability in quality to establish where the problem is and suggest corrective measures. Qualitative data were categorized into emergent themes. The study's findings revealed significant shortcomings in leadership within Kenyan TVET colleges, reaching only 12.11% of the 15% TQM benchmark. Similarly, student services were notably deficient, achieving only 3.21% of the 5% benchmark. These findings underscore potential inadequacies in leadership and a lack of quality service provision. The study's outcomes offer valuable insights for TVET institutions' management to formulate strategies addressing quality challenges through TQM implementation. Additionally, the findings can inform reforms by the Ministry of Education to enhance education and training services in Kenya's tertiary institutions.

Keywords: TQM, quality, leadership, student services, statistical quality control

1. Introduction

United Nations Educational, Scientific and Cultural Organization (UNESCO) defines the term TVET as aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitude understanding, and knowledge relating to occupations in various sectors of economic and social life (Tripney, J.S., & Hombrados, J.G., 2013). Although the number of Technical and Vocational Education and Training (TVET) graduates increases year by year, the quality of training provided and the competency of graduates from the institutes have not met the expectations of employers or the general public (Wondaferew, A., 2014).

Studies across different countries highlight consistent concerns about the quality of TVET programs. In India, graduates from Industrial Training Institutes and Polytechnics lack application-oriented knowledge and problem-solving skills due to poor-quality training (Mehrotra, S., Raman, R., Kalaiyarasan & Kumra, N., 2014). Similar issues are observed in Nigeria (Ayonmike, C.S., 2014), where TVET Institutes suffer from an unstable academic calendar, insufficient collaboration, outdated infrastructure, and weak support structures. South Africa reveals a gap between customer expectations and perceived service quality in Public TVET Colleges, leading to dissatisfaction (Zungu, N., & Lekhanya, M.P., 2018). Additionally, in Uganda (Olema, V., 2018) and Tanzania (Munishi, E., 2016), poor TVET quality has contributed to high graduate unemployment, as employers complain of graduates' inadequate knowledge and skills. This collectively underscores the need for enhanced TVET quality to address employability challenges.

The Kenya Vision 2030 Medium Plan II states that the objective of TVET is skills development programs for youths and adults in relevant technical, commercial, and scientific fields to satisfy the needs of the national economy (Government of Kenya, 2008). However, various reports and strategic plans indicate a widespread consensus that TVET programs are lacking in equipping youth with the necessary skills for success in the labor market. The 2017 British Council report (Hall, S., 2017), along with academic, governmental, and research circles, underscore the inadequacy of TVET institutes in providing relevant skills. The Technical and Vocational Education and Training Authority's (TVETA) strategic plan for 2018-2022 highlights Kenya's low-quality training in TVET (TVETA Strategic Plan 2018-2022, 2018). Further evidence comes from a study led by the European Institute of Business Administration (INSEAD) Business School (Bruno L., & Paul E., 2017) which demonstrates Kenya's underperformance in crucial areas compared to sub-Saharan averages. The challenges facing TVET in Kenya are detailed in Sessional Paper 1 of 2019, revealing deficiencies in graduates' competencies for the labor market and a lack of customized training and learning materials (Parliament of Kenya, 2019).

The TVETA QA manual (TVETA QA, 2018) states the expected quality indicators in TVET institutes, such as employer satisfaction regarding the skills of trainees and sufficient provision of textbooks, learning materials, consumables, and equipment for program delivery. From the studies and reports above, it is evident that the question of quality has now become a burning issue in the TVET colleges in Kenya. If training institutions cannot provide the quality training that produces competent young graduates, and if the training provided cannot equip trainees with marketable skills, then TVET institutes might no longer be accepted by society, thereby endangering the country's overall education system (Haileselassie, B.G., 2015). Therefore, there is a need to isolate the causes of these problems seek solutions before they worsen, and start challenging the very existence of the training institutions (Harteis, C., 2009).

The Education Sector Vision and Mission in Kenya is to provide, promote, and coordinate quality education and training for sustainable development (Government of Kenya, 2008). TVETA Quality Assurance manual defines TVET Quality as a set of characteristics of a TVET programme/competence-based training and its institution, through which mandatory standards set by TVETA and other agencies in charge, as well as stakeholder and labor market expectations, are met. The quality assurance manual and quality are interdependent, with the manual providing structured processes to maintain excellence. It guides organizations to meet set standards, ensuring consistent high-quality outcomes. The TVETA QA Manual is essential for measuring quality in TVET colleges in Kenya. It provides standardized guidelines and criteria, allowing colleges to assess and improve their educational quality (TVETA QA, 2018). The TVET Act No. 29 of 2013 states that every institution shall put in place internal systems to ensure the maintenance of standards, quality, and relevance of training programmes (Republic of Kenya, 2013). Total Quality Management (TQM) is a management approach that captures the essence of quality improvements (Wani, I.A., & Mehraj, H.K., 2014). For a good understanding of

the concept, Witcher (1990) defines the term by breaking the phrase into three parts whereby total implies every person is involved (including customers and suppliers), quality implies customer requirements are met exactly, and management, implies senior executives are committed.

TQM is therefore viewed as a customer-focused process, that seeks continuous improvement. TQM is a management approach that originated in the business world (Deming, W.E., 1994). In the business world, TQM was first introduced in the 1950s and 1960s in Japan, where it was used to improve the quality of manufactured goods. TQM was later adopted by many businesses in the United States and other countries, where it was used to improve processes, reduce waste, and increase customer satisfaction (Dale, B.G., & Plunkett, J.J., 2017). In the 1980s and 1990s, TQM began to be applied to education, where it was used to improve the quality of teaching and learning. TQM in education emphasizes the importance of continuous improvement, teamwork, and the involvement of all stakeholders, including students, teachers, parents, employers, and administrators (Summers, D.L., 1993).

According to Besterfield, et al. (2018), the QA manual plays a pivotal role in the successful implementation of TQM. TQM is a holistic approach that strives for continuous improvement, customer satisfaction, and employee involvement in all aspects of an organization. The quality assurance manual serves as a critical tool within the TQM framework by providing a structured set of documented procedures, guidelines, and standards that guide employees and processes toward achieving and maintaining high-quality outcomes. Thus, the quality assurance manual essentially operationalizes the principles of TQM, acting as a practical tool that guides the implementation of TQM concepts into day-to-day practices.

Studies done on TQM show that it improves the quality of education training in many ways, TQM emphasizes continuous improvement Mumuni, B.Y., & Aboagye, G. K. (2017), student-centered approaches (Yacob, A., Mohd Saman, M.Y., & Yusoff, M.H., 2016), data-driven decision-making (Khurniawan, A. W., Sailah, I., Muljono, P., Indriyanto, B., & Maarif, M.S., 2020) and stakeholder engagement (Hirani, R., Yousuf, N., & Jeeva, S., 2018). For TQM to be effectively implemented in the education sector, the aspects specific to education play a crucial role.

According to Sallis (Sallis, E., 2005), these aspects are categorized as follows:

- Access (5%),
- Services to Customers (5%),
- Leadership (15%),
- Physical Environment and Resources (5%),
- Effective Learning and Teaching (20%),
- Students (15%),
- Staff (15%),
- External Relations (5%),
- Organization (5%),
- Standards (10%).

Studies done on TQM and students include a study done by Dahil, L., & Karabulut, A. (2013) on effects of TQM on teachers and students. Studies done on TQM and Access, External relations, and organization include a study done by Khurniawan, A.W., Sailah, I., Muljono, P., Indriyanto, B., & Maarif, M.S. (2020) on An Analysis of Implementing TQM in Education: Success and Challenging Factors. Studies done on TQM and physical environment and resources include a study done by Fuentes-Fuentes, M.M., Albacete-Sáez, C.A., & Lloréns-Montes, F.J. (2004) on the impact of environmental characteristics on TQM principles and organizational performance. Studies done on standards include a study done by Asawo (2022) on TQM and students' academic performance in vocational institutions in Rivers State, Nigeria, which revealed a significant correlation between the dimensions of TQM and students' academic performance. Studies done on leadership and TQM include a study done by Skafianiki (2018) on Educational Leadership and TQM: Investigating Teacher Leadership Style. Studies done on staff and TQM include a study done by Njeru and Omondi (2016) study on the Relationship between TQM and Employee Performance in Public Universities in Kenya: A case study of Kirinyaga University Colleges. However, there is a notable gap in leadership, and student services as indicated by the studies below:

The study conducted by Ayonmike, Okwelle, and Okeke (2015) on Towards Quality TVET Programmes in Nigeria: Challenges and Improvement Strategies, identified several key challenges in achieving quality TVET programs in Nigeria. These challenges included students' attitudes toward learning, which were found to have a significant impact on program quality. Additionally, school-related factors, such as insufficient teaching/learning facilities, a shortage of qualified educators, subpar evaluation processes, and inadequate counseling services, were acknowledged as impediments to quality TVET. The study also pointed out government-related challenges, encompassing issues like inadequate provision of facilities and equipment, personnel shortages, insufficient incentives, limited funding, and concerns related to curriculum design and delivery. Leadership, particularly at the institutional and administrative levels, plays a pivotal role in shaping the direction and effectiveness of educational institutions. Quality leadership can provide the vision, direction, and strategic planning necessary to improve the learning environment, ensure efficient resource allocation, and facilitate policy development and implementation. The study, conducted by Ayonmike, Okwelle, and Okeke, did not extensively delve into the quality of leadership to establish the reason why these challenges occur. To bridge this gap, this study intends to measure the quality of leadership in TVET colleges in Kenya. The aim is to establish how quality leadership, both at the institutional and administrative levels, can positively impact the quality of TVET.

Ogony, D.A.'s 2017 study on the Factors Influencing the Implementation of Quality Management Systems in Technical Vocational Education and Training Institutions in Nairobi County, Kenya, revealed significant insights. A majority of the respondents acknowledged that their institution provided quality service to customers. Conversely, 15.3% (29) comprising 59.8% (113 individuals) were uncertain, and 24.8%

(47) disagreed. The commitment of top management to ensuring satisfactory service for all customers was evident, with 57.1% (108) in agreement, 14.8% (28) uncertain, and 28% (53) in disagreement. However, a notable finding was the dissatisfaction among students with the institution's customer service, as indicated by 41.3% (78) in agreement, 17.5% (33) uncertain, and 41.2% (78) in disagreement. This study identifies a crucial gap in understanding the quality of student services contributing to dissatisfaction from their perspective.

The following tables indicate some of the milestones the TVET sector in Kenya in collaboration with the government of Kenya has gone through to ensure that the institutes meet the quality standards expected of them to realize Vision 2030. They include the increased number of institutes, increased enrollments, and government expenditure on the institutes.

Table 1: Number of TVET Institutions from 2015 to 2019 in Kenya

Category	2015	2016	2017	2018	2019
Public Vocational Training Centres	816	816	1186	1200	1200
Private Vocational Training Centres	-	29	47	47	47
Public Technical and Vocational Colleges	55	62	91	101	191
Private Technical and Vocational Colleges	-	382	627	628	742
National Polytechnic	3	11	11	11	11
Sub-total	874	1,300	1,962	1,987	2,191

Source: Economic Survey, 2020.

Table 1 showcases the number of vocational training institutions in different categories over the specified years. It indicates variations in the number of institutions in each category, reflecting potential growth and changes in the vocational training sector during that period.

Table 2: Total Enrolment in Technical and TVET Institutions 2015 - 2019

Institution	2015	2016	2017	2018	2019
National Polytechnic	9,645	30,216	40,718	75,346	102,078
Other Technical Vocational Institutes	132,773	165,641	226,647	284,506	328,520
Total	142,418	195,857	267,365	359,852	430,598

Source: Economic Survey, 2020.

Table 2 shows the enrollment numbers for the National Polytechnic and other Technical Vocational Institutes over five years (2015-2019). The enrollment numbers for the National Polytechnic show a steady increase over the years. The institution had 9,645 students in 2015, and this number steadily grew to 102,078 students in 2019. This significant increase suggests a growing interest in technical and vocational education provided by the National Polytechnic. The enrollment numbers for other Technical Vocational Institutes also exhibit an overall increasing trend over the years. From 132,773 students in 2015, the enrollment increased to 328,520 students in 2019. This indicates a rising demand for technical and vocational education in general across various institutes.

The total enrollment, combining the numbers from the National Polytechnic and other Technical Vocational Institutes, shows a consistent growth pattern. The total enrollment increased from 142,418 students in 2015 to 430,598 students in 2019. This highlights the overall popularity and increasing importance of technical and vocational education in Kenya.

Table 3: Expenditure for TVET institutions 2015/16 - 2019/20

Year	2015/016	2016/017	2017/018	2018/019	2019/020
Recurrent Expenditure	2,308.13	2,479.53	2,511.60	7,777.79	17,100.86
Development Expenditure	4,248.17	4,746.18	8,454.88	9,245.20	9,787.14
Total Expenditure	6,556.3	7,225.71	10,966.48	15,727.15	26,888.00

Source: Economic Survey, 2020.

Table 3 represents the total expenditures in two categories, recurrent and development, for the years 2015/016 to 2019/020. Recurrent Expenditure: In 2015/016, recurrent expenditure accounted for 35.19% of the total expenditure. The percentage of recurrent expenditure slightly decreased in 2016/017 to 34.28%. In 2017/018, there was a significant decrease in recurrent expenditure to 22.93%. However, in 2018/019, recurrent expenditure increased significantly to 49.38%. The highest percentage of recurrent expenditure was in 2019/020, reaching 63.57% of the total expenditure. Development Expenditure: In 2015/016, development expenditure accounted for 64.81% of the total expenditure. The percentage of development expenditure increased slightly in 2016/017 to 65.72%. In 2017/018, there was a significant increase in development expenditure to 77.07%. However, in 2018/019, development expenditure decreased to 58.62%. The lowest percentage of development expenditure was in 2019/020, reaching 36.43% of the total expenditure.

1.1 Statement of the Problem

The Kenya Vision 2030 has placed special demands on TVETs in Kenya to produce adequate levels of middle-level professionals to drive the economy towards the attainment of the vision. To achieve this vision, the government of Kenya has increased its capitation on TVET. The TVET sector in Kenya has also witnessed increased enrolments and an increased number of TVET institutions. However, the TVETA strategies plan, British Council report, European Institute of Business Administration (INSEAD), and Republic of Kenya Sessional Paper 1 of 2019 indicate that the quality of training is provided and the competency of graduates from the TVET institutes in Kenya have not met the expectations of employers or the general public. The institutes have not been able to satisfy the skilled manpower demands of the labor market. TVETA QA manual states that the expected quality in TVET institutions in Kenya is; a high-quality competent workforce for sustainable economic social, and environmental development. The TVET Act No. 29 of 2013 states that every institution shall put in place internal systems to ensure the maintenance of standards, quality, and relevance of training programmes. TQM is a management approach that captures the essence of quality

improvements. Studies on TQM show that TQM improves the quality of education training in many ways; TQM emphasizes continuous improvement, student-centered approaches, data-driven decision-making, and stakeholder engagement. Ten aspects of TQM in education are; access (5%); services to customers (5%); leadership (15%); physical environment and resources (5%); effective learning and teaching (20%); students (15%); staff (15%); external relations (5%); organization (5%); standards (10%). Studies done on different aspects of TQM in education show that there is a notable gap in the quality of leadership and quality of student services. This study intends to fill this gap.

1.2 Purpose and the Objective of the Study

The purpose of this study is TQM as a measure of quality in TVET colleges in Kenya. The objectives are to Establish the quality of leadership in TVET colleges in Kenya and Determine the quality of student services in TVET colleges in Kenya.

1.3 Theoretical Framework

This study used Statistical Quality Control (SQC) theory, this theory was introduced by Walter Shewhart in the 1990s, it involves using statistical methods to monitor, control, and improve the quality of products or processes within an organization. SQC is based on the principles of statistical analysis and relies on data collection, analysis, and interpretation to make informed decisions about quality. SQC encompasses three broad categories: descriptive statistics, statistical process control (SPC), and acceptance sampling. This study seeks to establish the TQM approach as a measure of quality in TVET colleges in Kenya. Descriptive statistics will be applied to summarize data into percentages to gain insights into the quality of a process. SPC will be useful in monitoring and controlling the process to ensure it operates within acceptable limits and variations. Acceptance sampling will allow inspection of a sample to determine whether it meets quality requirements. TVETA QA manual outlines the decision rules for accepting or rejecting a service based on predetermined criteria.

2. Literature Review

2.1 Quality and Total Quality Management

The TVETA definition of TVET quality emphasizes meeting mandatory standards and stakeholder expectations, ensuring graduates' competencies align with the Kenya Qualifications Framework and industry needs. Ensuring quality in TVET colleges in Kenya is of utmost importance for several reasons. Firstly, it enhances the employability of graduates by providing them with the necessary skills demanded by industries and employers. Secondly, it ensures that the training programs align with industry needs, bridging the skills gap and promoting industry-relevant education. Moreover, quality TVET colleges foster innovation, technological advancement, and entrepreneurship by integrating modern technologies and encouraging creative thinking (TVETA QA, 2018). QA is a vital mechanism employed in Kenya to ensure and enhance the quality of TVET

colleges. It involves a systematic and proactive approach to monitoring, evaluating, and improving the standards and outcomes of TVET programs (TVETA QA, 2018). TQM aims to meet customers' expectations and emphasizes QA through conformity to standards. TQM and QA are both essential for effective quality management. The TVETA QA Manual provides a comprehensive framework for maintaining high-quality standards, relevance, and continuous improvement in TVET institutions in Kenya (TVETA QA, 2018).

Terzic (2017) states that the application of TQM to educational institutions through measurement, analysis, achieving student satisfaction, continuous improvement, and upgrading of the system leads to the excellence of such organizations. Compared to conventional concepts of education, TQM has great advantages in developing the education system and in creating qualified individuals who can respond to the demands of society. Terzic also states that the lack of experts in the business world can be solved by the constant improvement of the education system and this improvement seems to be impossible with a conventional education system that is very close to the environment. Notably, studies conducted in Kenya (Rambo, P.A., 2017) and Ethiopia (Fissuh et al., 2016) provide evidence of the practical application of TQM in TVET colleges.

2.2 Quality of Leadership in TVET Colleges in Kenya

Richards and Engle (1986) define leadership as the articulation of visions, embodiment of values, and creation of an enabling environment for achieving organizational goals. Leadership in TVET institutions involves articulating visions through effective communication, embodying values as role models, and creating supportive conditions for productivity (Richards & Engle, 1986). Busher, Harris, and Wise (2000) emphasize that school leaders play a crucial role in program development, resource allocation, employee and student performance improvement, and fostering collaboration with local organizations and families.

The Teachers Service Commission (TSC) (2007) outlines the management structure of TVET institutions which includes the institutional head (also called principal, director, or manager) who is the accounting officer, supervisor, overall planner, and coordinator of all the institution's activities. The deputy head of the institution is responsible to the head for teaching and administering teaching functions, human resources management, administration, financial control, and management. The deputy also acts as institutional head when necessary. Department heads are responsible to heads of institutions for their various departments, while teachers/instructors are mandated to teach various programs assigned by the department heads.

According to Sallis, leadership as an aspect of TQM in education emphasizes the head/principal's visionary role, advocacy for TQM, and hands-on approach underscoring the significance of leadership commitment. Understanding both staff and student dynamics, fostering innovation, and prioritizing quality improvement are pivotal aspects evaluated. Governance, as represented by the Board/Trustees, is integral in shaping the institution's mission and ensuring a framework for continuous quality enhancement. The

emphasis on monitoring key success indicators such as student achievement, retention, recruitment, financial solvency, and the self-assessment process demonstrates a comprehensive approach to governance. Furthermore, the importance of clear institutional values, ensuring understanding among staff, students, and the community, and a strong commitment to equal opportunities and community needs is also emphasized (Sallis, 2005).

Leadership in TVET colleges is vital for meeting the evolving needs of industries and the job market. Effective leadership focuses on aligning the curriculum with industry standards, supporting faculty development, engaging with stakeholders, and managing resources efficiently (TVETA QA, 2018). The significance of leadership in the context of TQM is highlighted by Sallis (2005), who underscores the role of leadership in sustaining the improvement process. The TVETA QA framework in Kenya utilizes criteria such as effective decision-making, resource allocation, stakeholder engagement, ethical conduct, and leadership development to measure leadership quality in TVET institutions (TVETA QA, 2018).

Several studies point out challenges and gaps in leadership within TVET institutions. Karumba (2014) notes challenges related to governance, leadership, and management in tertiary institutions, and UNESCO-UNEVOC (2019) recognizes effective leadership as a bottleneck in advancing the TVET agenda. The study conducted by Ayonmike, Okwelle, and Okeke (2015) identifies challenges such as students' attitudes toward learning, insufficient facilities, shortage of qualified educators, and government-related issues. Leadership, particularly at the institutional and administrative levels, plays a pivotal role in shaping the direction and effectiveness of educational institutions. Quality leadership can provide the vision, direction, and strategic planning necessary to improve the learning environment, ensure efficient resource allocation, and facilitate policy development and implementation. Oduor, Kivutha, and Masese's (2018) study revealed poor equipment and infrastructure in youth polytechnics, indicating a lack of effective leadership in ensuring quality vocational education. The studies mentioned above do not extensively delve into the quality of leadership to establish the reason why these challenges occur. To bridge this gap, this study aims to measure the quality of leadership in TVET colleges in Kenya.

2.3 Quality of Student Services in TVET Colleges in Kenya

The National Association of Student Personnel Administrators (NASPA) defines student affairs or student services as the divisions within higher education institutions that provide support and services to students, ensuring their growth and development throughout their academic journey (NASPA, 2023). In the context of TVET colleges in Kenya, student services encompass academic support, career guidance, counseling, financial aid assistance, student engagement activities, and support for special needs students (TVETA, 2018). The overarching goal is to create a nurturing and supportive environment that fosters students' overall well-being and success during their educational experience.

TQM emphasizes customer focus, continuous improvement, process optimization, employee involvement and training, measurement and feedback, and collaboration (Sallis, 2005). According to Sallis quality of student services as an aspect of TQM includes dimensions such as advice and guidance, learning resources, and social and refreshment facilities. The availability of effective guidance services, well-resourced libraries, open access to learning resources, and affordable canteen facilities, contributes to quality student services. Applying TQM to student services involves meeting student needs, improving service delivery, involving and training staff, collecting data and feedback, and fostering collaboration (Sahney et al., 2004). The TVETA Quality Assurance Manual outlines criteria for measuring the quality of student services, ensuring accessibility, appropriateness, responsiveness, guidance, and continuous improvement (TVETA QA, 2018).

Studies in other countries, such as Akhlaghi, Amini, and Akhlaghi's (2012) research in Iran and Mason, Mbambo, and Pillay's (2018) study in South Africa, have utilized the SERVQUAL model to assess the quality of educational services in technical and vocational colleges. Akhlaghi et al. identified significant quality gaps in dimensions such as Responsiveness and Tangibles, indicating dissatisfaction among students with the staff's responsiveness and physical facilities. Mason et al. found that demographic factors did not significantly influence students' perceptions of service quality, suggesting a widespread issue of poor service quality in TVET colleges. However, the present study aims to provide a more targeted and contextually relevant assessment by using the TVETA QA Manual.

The study conducted by Ogony (2017) in Nairobi County, Kenya, reveals a notable gap in understanding the quality of student services. While a majority of respondents acknowledged the institution's commitment to providing quality service, dissatisfaction among students was evident, indicating a significant gap in understanding service quality from the student perspective. This highlights a crucial aspect of student services that may contribute to overall dissatisfaction. Additionally, Oduor et al.'s (2018) study in Nakuru County indicates challenges in student representation and participation in decision-making processes, potentially affecting the quality of services. Moreover, high levels of dissatisfaction with facilities and materials in certain polytechnics underscore another significant gap in meeting students' expectations regarding the physical resources provided for their education and training. These findings collectively point to the need for a comprehensive assessment of specific areas of concern in student services to identify challenges and propose effective improvement solutions.

3. Methodology

3.1 Research Design

The study utilized a descriptive survey design. According to Orodho (2009), a descriptive survey is a method of collecting information by interviewing individuals or administering questionnaires to a sample. Orodho and Kombo (2002) further explain that

a descriptive survey is suitable for gathering data on people's attitudes, opinions, habits, and various educational or social issues. The researcher employed this design to gather information on the quality of leadership, student services, and effective learning and teaching of TVET Colleges.

3.2 Population of the Study

Wanjohi (2014) defines a study population as individuals, communities, or organizations to whom a problem could be attributed. In this study, the population was drawn from 42 accredited TVET Institutions (TVETA ACT, 2013) and consisted of 12 principals, 342 HODs, 3,480 trainers, and 119,874 students.

3.3 Sample and Sampling Technique

To obtain a sample for this study, the researcher utilized purposive sampling, resulting in the selection of 36 Accredited TVET institutions. These institutions were chosen because of the homogeneity in the courses offered, level of facilities, and year of existence. The sample sizes for principals, heads of departments, and students were determined using Krejcie and Morgan's sampling table (Krejcie, R.V., & Morgan, D.W., 1970). The resulting sample sizes were as follows: 36 principals, 294 heads of department, and 382 students. Data was collected using questionnaires, an interview schedule, and a document analysis guide.

3.4 Validity and Reliability

Validity was ensured using content validity by experts. The Content evaluation panel experts composed of three experts. The Content Validity Ratio (CVR) formula was used to calculate the validity ratio of each item as scored by the panel experts (Lawshe, C., 1975). The formula for the content validity ratio is given by Lawshe.

$$CVR = \frac{n_e - \frac{N}{2}}{\frac{N}{2}}$$

where:

n_e is the number of panelists identifying an item as "essential", "useful" or "not necessary", N is the total number of panelists ($N/2$ is half the total number of panelists).

The reliability test involved Cronbach's alpha which measures the consistency of a questionnaire, majorly demonstrated by Likert scale questions. The Heads of Departments Questionnaire was rated as reliable at .934, and the Student Questionnaire was rated as reliable at .799.

3.5 Data Analysis Procedure

Data analysis was done per objective. Descriptive statistics analysis provided valuable information about TQM in TVET colleges. To identify areas of variability in quality to establish where the problem is and suggest corrective measures, a p-control chart was

used. P control charts are specifically designed for attribute data, which is data that can be categorized into distinct categories or attributes (McNeese, 2012). For this reason, ratings of 1 and 2 (Strongly Disagree and Disagree) were considered unfavorable and these were areas where TQM was not efficiently applied per the TVETA QA manual. while ratings of 3 and 4 (Agree and Strongly Agree) were considered favorable and these were areas where TQM was applied per the TVETA QA manual. The results were plotted in a P-control chart which visually displayed the percentage of respondents' ratings on TQM. Qualitative data from interviews were transcribed and categorized into emergent themes. Data from the document analysis were transcribed and categorized into emergent themes. To determine the contribution of leadership and students' services in TVET colleges in Kenya to the percentage rating given by Sallis, the percentage achieved formula was applied. This formula assesses the quality of the TQM aspect as measured through a Likert scale questionnaire, taking into account the Likert scale values, the aspect rating as given by Sallis (2005), and the overall mean score. This percentage reflects the institution's achievement in meeting expectations set on the aspect as given by Sallis.

The percentage achieved formula = (Overall mean / Maximum Likert scale value) * Rating on TQM aspect * 100

Where:

Overall Mean: This is the mean or average score obtained from the questionnaire responses,

Maximum Likert Scale Value: The highest value of the Likert scale,

Rating on TQM aspect: This is the rating or score assigned to the aspect of TQM,

100: This is a constant used to convert the result into a percentage.

4. Findings

Table 4: Quality of Leadership in TVET Colleges in Kenya

	Descriptive Statistics	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
1	I make sure that the professional development activities of trainers are in accordance with the teaching goals of the institution.	4 (2.1%)	10 (5.3%)	113 (60.4%)	60 (32.1%)	3.64
2	I collaborate with my team to align our department's goals and objectives with the institution's mission.	2 (1.1%)	7 (3.7%)	120 (64.4%)	58 (31%)	3.67
3	I use student performance results to develop the institution's educational goals.	5 (2.7%)	22 (11.8%)	90 (48.1%)	70 (37.4%)	3.39
4	I give trainers suggestions as to how they can improve their teaching.	4 (2.1%)	25 (13.4%)	82 (43.9%)	76 (40.6%)	3.28
5	I monitor trainees' work.	44 (23.5%)	65 (34.8%)	12 (6.4%)	66 (35.3%)	3.34

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6	When a trainer has problems in his/her classroom, I take the initiative to discuss matters.	0	10 (5.3%)	80 (42.8)	97 (51.9)	2.95
7	I inform trainers about possibilities for updating their knowledge and skills.	3 (1.6%)	7 (3.7%)	88 (47.1%)	89 (47.6%)	3.57
8	I encourage students and staff to participate in community service and volunteer activities.	14 (7.5%)	50 (26.7%)	44 (23.5%)	79 (42.2%)	3.41
9	I take exam results into account in decisions regarding curriculum development.	10 (5.3%)	17 (9.1%)	90 (48.1%)	70 (37.4%)	3.45
10	I ensure that there is clarity concerning the responsibility for coordinating the curriculum.	0	8 (4.3%)	88 (47.1%)	91 (48.7%)	3.3
11	When a teacher brings up a classroom problem, we solve the problem together.	6 (3.2%)	7 (3.7%)	62 (33.2%)	112 (59.9%)	3.44
12	The board closely tracks student retention rates and takes proactive measures to enhance them.	3 (1.6%)	10 (5.3%)	72 (38.5%)	102 (54.5%)	3.5
13	An important part of my job is to ensure that ministry-approved instructional approaches are explained to new trainers, and that more experienced teachers are using these approaches.	6 (3.2%)	5 (2.7%)	92 (49.2%)	84 (44.9%)	3.44
14	Giving trainers too much freedom to choose their own instructional techniques can lead to poor teaching.	44 (23.5%)	66 (35.3%)	51 (27.3%)	26 (13.9%)	3.36
15	The board encourages the use of the quality improvement framework at all levels within the institution.	0	14 (7.5%)	102 (54.5%)	71 (38%)	2.78
16	I oversee the allocation and utilization of resources.	10 (5.3%)	17 (9.1%)	77 (41.2%)	83 (44.4%)	3.02
17	I observe instruction in classrooms.	19 (10.2%)	80 (42.8%)	27 (14.4%)	61 (32.6%)	3.3
18	An important part of my job is to present new ideas to the parents in a convincing way.	32 (17.1%)	67 (35.8%)	21 (11.2%)	67 (35.8%)	3.35
19	Using test scores of trainees to evaluate a trainer's performance devalues the teacher's professional judgment.	37 (19.8%)	66 (35.3%)	67 (35.8%)	17 (9.1%)	2.87
20	I influence decisions about this institution taken at a higher administrative level.	31 (16.6%)	78 (41.7%)	17 (9.1%)	61 (32.6%)	2.45
21	Regular external audits are conducted to ensure financial transparency and compliance with regulations.	2 (1.1%)	20 (10.7%)	81 (43.3%)	84 (44.9%)	3.32
22	It is important for the institution that I check for mistakes and errors in administrative procedures and reports.	3 2(17.1%)	80 (42.8%)	21 (11.2%)	54 (28.9%)	2.55
23	An important part of my job is to resolve problems with the timetable and/or lesson planning.	3 (1.6%)	9 (1.8%)	77 (41.2%)	98 (52.4%)	3.44

24	The Board actively monitors the quality of provision by regularly analyzing student achievement data.	0	14 (7.5%)	73 (39%)	100 (53.5%)	3.46
25	In this institution, we collaborate with local community organizations and stakeholders to promote equal opportunities and inclusion.	0	2 (1.1%)	86 (46%)	99 (52.9%)	3.51
26	Equal opportunity practices are integrated into recruitment, admissions, and staff development processes.	10 (5.3%)	46 (24.6%)	94 (50.3%)	37 (19.8%)	2.59
27	I stimulate a task-oriented atmosphere in this institution.	26 (13.9%)	55 (29.4%)	66 (35.3%)	40 (21.4%)	2.96
	Overall mean					3.23

4.1 Quality of Leadership in TVET Colleges in Kenya Percentage Favorable

The study findings regarding the alignment of professional development activities of trainers with the institution's teaching goals were highly rated by respondents, with 92.5% either agreeing or strongly agreeing with this statement, indicating a favorable perception. This is per TVETA QA which emphasizes that trainers are supposed to be innovative, engaged, and interested in professional development. Similarly, 95.4% of department heads agreed that they collaborated with their teams to ensure departmental goals and objectives aligned with the institution's mission. This is per TVETA QA which emphasizes that the roles and responsibilities are clearly defined.

Furthermore, using student performance results to develop the institution's educational goals received favorable feedback from 85.5% of the respondents, representing a combined percentage of agree and strongly agree. This is per TVETA QA which emphasizes alignment of training with national competence-based occupational and training standards. The importance of providing suggestions to trainers for improving their teaching received a favorable rating from 84.5% of the respondents while discussing trainers' classroom problems was seen as favorable by 93.9%. This is per TVETA QA which emphasizes that curricula are designed, developed, and approved to meet the needs of labor and employment markets and the community.

The study also revealed that informing trainers about opportunities for updating their knowledge and skills was positively received by 94.7% of the respondents. This is by TVETA QA which emphasizes that trainers are competent to deliver education and training of the programs on offer. However, checking whether students and staff are encouraged to participate in community service and volunteer activities received a comparatively lower rating, with 65.7% of respondents viewing it favorably. This is by TVETA QA which emphasizes involvement of community and society through student activities for environment, sport, arts, and culture.

Taking exam results into account in curriculum development was perceived as favorable by 85.5% of the respondents while ensuring clarity regarding the responsibility for coordinating the curriculum received a high favorable rating of 95.8%. This is by TVETA QA which emphasizes that the delivery of training should be aligned with

national competence-based occupational and training standards. Collaborative problem-solving in response to classroom issues was highly valued, with 93.1% of respondents agreeing or strongly agreeing. This is per TVETA QA which emphasizes that the delivery of training is carried out as planned.

The board closely tracks student retention rates and takes proactive measures to enhance them received a favorable rating from 93% of the respondents. This is by TVETA QA which emphasizes that the TVET institution has sufficient facilities for its education and training programs. The importance of explaining ministry-approved instructional approaches and the board's encouragement of the use of the quality improvement framework at all levels within the institution was recognized by 94.1% and 92.5% of the respondents, respectively. This is by TVETA QA which emphasizes appropriate training methods are used, and that teaching and learning are supportive to trainees.

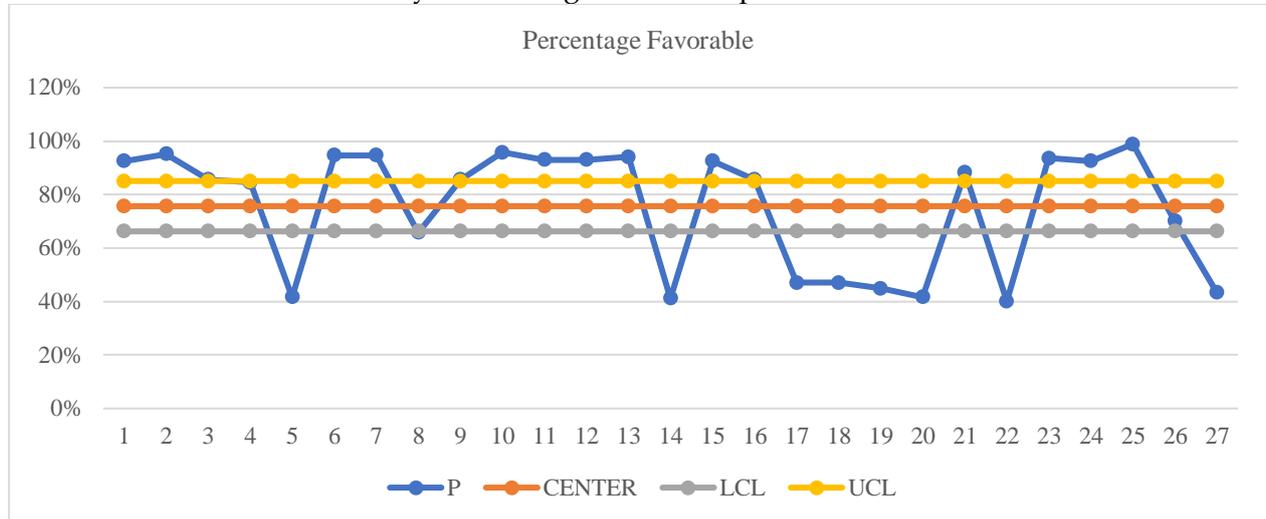
"I oversee the allocation and utilization of resources" received an 85.6% favorable rating. This is by TVETA QA which emphasizes that the financial management of the institution is robust and supports smooth operation, investment, and liquidity. Additionally, "regular external audits are conducted to ensure financial transparency and compliance with regulations," and "resolving timetable and lesson planning problems" was rated at 96% favorability. This is by TVETA QA which emphasizes that budget utilization is effective and efficient and training are quality assured as part of the institution's quality management system respectively.

The board actively monitors the quality of provision by regularly analyzing student achievement data, which was rated at 95% favorability. This is by TVETA QA which emphasizes the evaluation of training methods and mechanisms for improvement in place. The institution's collaboration with local community organizations and stakeholders to promote equal opportunities and inclusion was rated at 98.9% favorability. This is per TVETA QA which emphasizes collaborations with local community organizations and stakeholders to promote equal opportunities and inclusion. Lastly, equal opportunity practices integrated into recruitment, admissions, and staff development processes received a 70.1% favorable rating. This is in accordance with TVETA QA which emphasizes that the staff should be sufficient for the purposes and operations of the TVET institutions.

The favorable ratings from the statements above highlight several aspects of the TVETA Quality Assurance criteria in the context of head, governance, and values. These aspects include alignment of professional development activities with teaching goals, collaboration between department heads and teams to ensure alignment with the institution's mission, utilization of student performance results to shape educational goals, providing support and feedback to trainers for continuous improvement, and involving stakeholders in promoting equal opportunities and inclusion. The statements also emphasize the importance of monitoring and analyzing student achievement data, maintaining clarity in curriculum coordination, and addressing classroom issues collaboratively. These practices demonstrate the institution's commitment to aligning

objectives, supporting competent trainers, and ensuring quality in training and education delivery in line with TVETA Quality Assurance criteria.

Figure 1: Quality of Leadership in TVET Colleges in Kenya Percentage Favorable p Control Chart



The p-control chart for % Favorable in Figure 1 indicates that the system is not in control, as a significant number of points fall outside the control limits. In a process that is in control, the majority of sample sizes would fall within the control limits, indicating stability and consistency. However, in this case, only 4 points fall within the control limits, while 13 points exceed the upper control limit and 8 points fall below the lower control limit. This suggests that the process is currently out of control. Since this is a % Favorable p-control chart, the interpretation is that the ratings for 13 statements are significantly more favorable compared to the other questions. This means that TVET institutions should recognize the positive aspects highlighted in these 13 statements and continue implementing the practices that have led to favorable ratings in those areas. These successful practices can potentially be replicated or expanded to improve the ratings for the statements that were rated as unfavorable. The findings from the p-control chart highlight the need for the TVET institutions to focus on areas where favorable ratings are lacking and take corrective actions to address the underlying issues. By learning from the successful practices and working towards improving the ratings in the areas that require attention, the institutions can strive for better overall performance and align more closely with the guidelines outlined in the TVETA Quality Assurance Manual.

4.2 Quality of Leadership in TVET Colleges in Kenya Percentage Unfavorable

The respondents' ratings for the statement "I monitor trainees' work" were unfavorable, with 23.5% strongly disagreeing and 34.8% disagreeing, totaling 58.3% of respondents. This finding contradicts the TQM approaches in education, which emphasize the use of formal monitoring results to establish the validity of programs (Sallis, 2005). Additionally, the TVETA Quality Assurance Manual (2018) specifically states that a

monitoring mechanism for training delivery should be in place. Therefore, the study results indicate a misalignment with both TQM and the TVETA QA Manual, suggesting a potential gap in the implementation of monitoring practices within the institution.

The study also examined whether giving trainers excessive freedom in choosing instructional techniques can result in poor teaching. The findings indicated that 23.5% of respondents strongly disagreed, while 35.3% disagreed, totaling 58.8% of HODs rating the statement as unfavorable. This contradicts TQM approaches in education, which emphasize that quality is maintained by adhering to the procedures outlined in the Quality Assurance system (Sallis, 2005). Furthermore, the TVETA QA manual (2018) explicitly states that the delivery of training should align with national competence-based occupational and training standards, as well as workplace training outlined in the curriculum. This implies that appropriate training methods should be utilized. Therefore, the study results suggest a misalignment between the excessive freedom given to trainers and the principles outlined in both TQM and the TVETA Quality Assurance manual.

The findings regarding "I observe instruction in the classroom" indicated that 10.2% of the respondents strongly disagreed, while 42.8% disagreed, resulting in 53% of the respondents rating the statement as unfavorable. According to TQM, senior managers play a critical role in monitoring quality. They oversee various aspects such as process outcomes, retention rates, success rates, and customer satisfaction, rather than solely focusing on resource control (Sallis, 2005). This perspective is also supported by the TVETA QA guidelines, which emphasize the importance of internal monitoring and verification. This involves verifying whether planned activities align with agreed terms and responsibilities and evaluating the training and learning process through classroom observations.

The findings regarding "An important part of my job is to present new ideas to the parents in a convincing way" revealed that 17.1% of the respondents strongly disagreed, while 35.8% disagreed, resulting in 52.9% of the respondents rating the statement as unfavorable. TQM emphasizes the importance of mutually beneficial supplier relationships, which entails organizations establishing partnerships that create value for both parties involved. This is achieved through clear and open communication, joint projects, and pooling of expertise (Sallis, 2005). The TVETA QA guidelines also support this concept by highlighting the significance of cooperation between TVET providers and secondary schools to attract potential trainees among their graduates. In addition to traditional activities like open days, some training providers implement active recruitment strategies by organizing information days at local secondary schools. These events serve as opportunities for training providers to present their programs to parents and prospective trainees.

The findings regarding "Using test scores of trainees to evaluate a trainer's performance devalues the teacher's professional judgment" showed that 19.8% of the respondents strongly disagreed, while 35.3% disagreed. In total, 55.1% of the respondents rated the statement as unfavorable. This finding contradicts TQM approaches in education, which assert that excellent examination results serve as a key indicator of

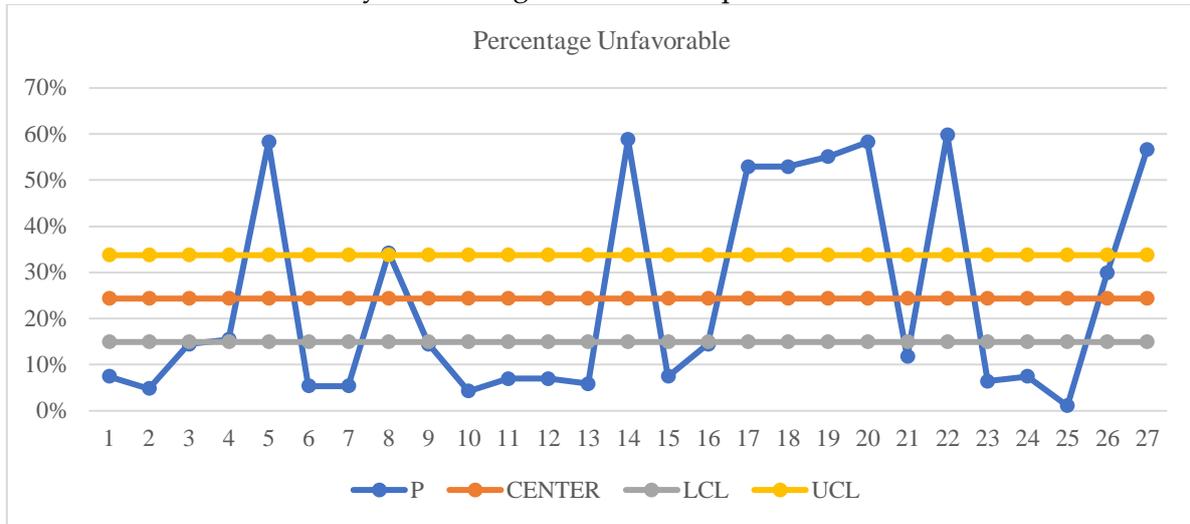
quality in education (Sallis, 2005). The TVETA QA guidelines also state that individuals possess the necessary vocational skills, knowledge, and qualifications if they have passed the final examination in a technical field relevant to the training occupation. Therefore, the test scores of trainees can provide insights into the level of effort trainers put into delivering their courses. In essence, while some respondents expressed disagreement with the notion that test scores should be used as the sole measure of a trainer's performance, TQM and TVETA QA emphasize the importance of examination results as a valuable component in assessing the quality of education and the acquisition of necessary skills.

The findings regarding "Influencing decisions about this institution taken at a higher administrative level" indicated that 16.6% of the respondents strongly disagreed, while 41.7% disagreed. In total, 58.3% of the respondents rated the statement as unfavorable. In contrast to the study results, TQM in education emphasizes that a quality-based approach involves shareholders sharing in decision-making and assuming greater responsibilities. They are granted more authority and autonomy in their actions (Sallis, 2005). Similarly, according to the TVETA QA manual, TVET institutions should foster strong partnerships with stakeholders to make well-informed decisions concerning identified needs and overall sector developments. HODs are internal stakeholders as described in the TVETA QA manual. Therefore, while a significant proportion of respondents expressed disagreement with the influence of higher-level administrative decisions, both TQM and TVETA QA stress the importance of involving stakeholders in the decision-making process, granting them greater autonomy and establishing collaborative partnerships to ensure informed and effective decision-making within the institution.

The study results regarding "It is important for the institution that I check for mistakes and errors in administrative procedures and reports" showed that 17.1% of the respondents strongly disagreed, while 42.8% disagreed. In total, 59.9% of the respondents rated the statement as unfavorable. In line with the importance of a feedback loop, TQM in education emphasizes the need for a system that addresses complaints, investigates significant mistakes, and ensures that the underlying issues are resolved to prevent their recurrence. It also highlights that honest mistakes should not be subject to blame. Instead, the focus should be on minimizing mistakes through clear systems, well-defined procedures, and effective teamwork (Sallis 2005).

TVETA QA manual, emphasizes the significance of internal monitoring and verification. This includes verifying whether planned activities are carried out according to agreed terms and responsibilities, as well as evaluating the training and learning process through lesson observations. This implies that checking for mistakes and errors in administrative procedures and reports is an integral part of the quality as outlined by the TVETA QA manual.

Figure 2: Quality of Leadership in TVET Colleges in Kenya Percentage Unfavorable p Control Chart



Based on Figure 2, the p-control chart for the percentage unfavorable indicates that the quality of leadership in TVET colleges in Kenya is not under control. This is evident from the 21 data points that fall outside the control limits. The control limits are set in a way that if the process is in control, the majority of the sample points will fall within these limits. When the points plot within the control limits, it signifies a stable and controlled process, requiring no immediate action. Looking at the figure, we observe that 4 points fall within the control limits, indicating that these areas are in control. However, 8 points exceed the upper control limits, indicating that the process is out of control.

This implies that the ratings for these 8 statements are significantly more unfavorable compared to the other questions. It is crucial to take action to address the issues raised in those statements. These findings align with a similar study conducted by Chisi in 2017, which assessed the quality assurance in the TVET system in Malawi. Chisi's study revealed that leadership and governance systems were inefficient, leading to the ineffective implementation of internal quality management systems. Additionally, the study indicated that there was a lack of commitment by management to drive the implementation of quality management systems in TVET institutions, as reported by academic staff during focus group discussions.

To determine the contribution of leadership in TVET colleges in Kenya to the 15% leadership aspect, the percentage achieved formula was applied.

The percentage achieved formula = (Overall mean / Maximum Likert scale value) * Rating on TQM aspect * 100

The percentage achieved formula = (3.23 / 4 * 0.15 * 100 = 12.11%)

Based on the calculated results, the leadership in TVET colleges in Kenya falls significantly short, achieving only 12.11% of the stipulated 15% benchmark set for

leadership quality under TQM. This deficit highlights potential inadequacies in the leadership standards within these institutions.

The document analysis results from the TVET institutions highlight their commitment to quality leadership. The presence of a Strategic Plan demonstrates that the institutions have established a clear vision and objectives aligned with industry needs and community development. The availability of a Quality Management Handbook emphasizes their dedication to maintaining high standards and continuous improvement. The presence of an Organizational Chart ensures a clear and functional management structure, facilitating effective communication and accountability. The implementation of an Equipment Maintenance Schedule reflects their commitment to ensuring the reliability and optimal performance of equipment. Collectively, these documents contribute to effective leadership practices, quality assurance, and the provision of excellent education and training within the TVET institutions.

The discussion with the principals regarding strategies implemented to achieve the institution's vision and mission highlighted several key points. Firstly, the mission and vision were prominently displayed and effectively communicated throughout the institution, ensuring that all individuals were familiar with them and less likely to overlook their significance. The principals mentioned the development of strategic plans with specific timelines, typically spanning five years, to guide the implementation of various activities and budgets in alignment with the strategic plan.

Importantly, these plans were not merely created and forgotten but were regularly reviewed to ensure their continued relevance and effectiveness. All principals emphasized that their institutions were ISO-certified, indicating a commitment to quality standards. They mentioned the presence of quality manuals in all departments, tailored to the specific vision and mission of each department. Furthermore, an internal quality review committee was established to oversee adherence to established procedures across all areas of operation. To enhance the understanding and application of quality assurance strategies, training programs were conducted for staff members. These programs aimed to equip trainers with the necessary knowledge and skills to employ quality strategies within their classrooms and departments effectively.

In some instances, specific procedures were implemented to monitor attendance, such as written class attendance records. One principal noted a notable improvement in class attendance, with a current rate of 78% compared to 50% the previous year, demonstrating a progressive trend. While the interview with principals indicated that the institution's management was fully aware of the importance of quality and had implemented various strategies to ensure quality leadership, further investigation using the HODs questionnaire revealed that the quality of leadership in TVETs was out of control. This discrepancy suggests that the monitoring and evaluation of these strategies after their implementation might be lacking.

This study finding is similar to Ogony's (2017) study on "The Impact of Leadership Practices of Principals on Quality and Relevance in TVET colleges in Kenya," the findings regarding the continuous monitoring and evaluation of ISO standards revealed several

key points. The respondents agreed that it was the responsibility of top management to monitor and evaluate ISO standards and that the top management had received training specifically related to monitoring and evaluation of ISO standards. These aspects were rated with mean values of 3.9605 and 4.000 respectively, indicating a positive perception of the management's role and their training in this regard. However, the study also found that the keen observation of ISO standards by the top management was not up to the expected level, as indicated by a mean value of 3.8026. This suggests that although the top management acknowledged their duty and had received appropriate training, there was room for improvement in their adherence to ISO standards.

Table 5: Quality of Student Services in TVET Colleges in Kenya

	Descriptive Statistics	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
1	The college actively encourages and supports student-led initiatives and activities.	46 (15.2%)	55 (18.2%)	168 (55.6%)	33 (10.9%)	2.62
2	The library facilities cater to my learning needs.	60 (19.9%)	102 (33.8%)	100 (33.1%)	40 (13.2%)	2.39
3	I can purchase institutes needs comfortable.	76 (25.1%)	140 (46.3%)	62 (20.5%)	24 (8.1%)	2.12
4	Guidance and counseling offices' operating hours are convenient for trainees.	13 (4.2%)	64 (21.2%)	109 (36.2%)	116 (38.4%)	3.09
5	The physical infrastructure and facilities are accessible to all, including individuals with disabilities.	21 (7%)	87 (28.8%)	142 (47%)	52 (17.2%)	2.75
6	Trainers guide trainees in setting personal targets and developing strategies to achieve the target.	35 (11.7%)	146 (48.2%)	72 (23.8%)	49 (16.3%)	2.45
7	Administrative clerks are always willing to assist, providing prompt service, and are never too busy to respond.	85 (28.3%)	122 (40.4%)	65 (21.5%)	30 (9.8%)	2.13
8	When trainees have a problem, administrative clerks will show a sincere interest in solving it.	63 (20.8%)	74 (24.4%)	104 (34.5%)	61 (20.2%)	2.54
9	Administration takes trainees' suggestions into account when making decisions.	70 (23.1%)	126 (41.7%)	50 (16.6%)	56 (18.6%)	2.31
10	Administrative clerks perform the service right the first time (attending to queries, providing quotes, etc.).	41 (13.7%)	146 (48.2%)	80 (26.4%)	35 (11.7%)	2.36
11	There is a spacious playing ground for the trainees.	18 (5.9%)	80 (26.4%)	106 (35.2%)	98 (32.6%)	2.94
12	Administrative clerks always inform trainees exactly when the administrative services will be offered.	24 (7.8%)	47 (15.6%)	109 (36.2%)	122 (40.4%)	3.09
13	I participate in extracurricular activities.	11 (3.6%)	24 (8.1%)	137 (45.3%)	130 (43.0%)	3.28
14	The process of course registration is easy.	47 (15.6%)	126 (41.7%)	95 (31.6%)	34 (11.1%)	2.38

15	Administrative clerks are consistently courteous with trainee's inquiries.	31 (10.4%)	158 (52.4%)	80 (26.4%)	32 (10.7%)	2.37
16	Administrative clerks have knowledge of trainees' questions.	23 (7.5%)	89 (29.6%)	127 (42.0%)	63 (20.8%)	2.76
17	Administrative clerks give each trainee individual attention.	33 (10.9%)	110 (36.4%)	105 (34.8%)	54 (17.9%)	2.32
18	Administrative clerks understand the specific needs of each trainee.	46 (15.3%)	52 (17.3%)	127 (42.0%)	77 (25.4%)	2.22
19	The institute has a spacious and equipped computer library.	72 (23.8%)	116 (38.4%)	49 (16.2%)	65 (21.5%)	2.36
20	The Institute cafeteria is clean and a variety of food items are available in the cafeteria.	95 (31.3%)	88 (29.3%)	55 (18.2%)	64 (21.2%)	2.29
21	The institution offers guidance and assistance in participation in extracurricular activities.	38 (12.7%)	76 (25.1%)	114 (37.8%)	74 (24.4%)	2.74
22	The staff at the campus health center are always available for assistance.	59 (19.5%)	50 (16.6%)	112 (37.1%)	81 (26.7%)	2.71
23	The services offered by the institute's career counselor help guide my career choice.	23 (7.5%)	47 (15.6%)	117 (38.8%)	115 (38.1%)	3.07
24	I am happy with the choice of institute-sponsored extracurricular activities.	31 (10.4%)	60 (19.9%)	127 (42.0%)	84 (27.7%)	2.87
25	I am happy with the policies the institute sets.	88 (29.0%)	99 (32.9%)	71 (23.5%)	44 (14.7%)	2.24
26	I am satisfied with the experience at this institute.	55 (18.2%)	126 (41.7%)	75 (24.8%)	46 (15.3%)	2.37
	Overall mean					2.57

4.3 Quality of Student Services in TVET Colleges in Kenya Percentage Favorable

The students' ratings on various aspects of student services in TVET colleges in Kenya indicate evidence of TQM being implemented. The college actively encourages and supports student-led initiatives and activities. Approximately 55.6% agree, and an additional 10.9% strongly agree, totaling 66.5% in favor. Concerning the convenience of guidance and counseling offices' operating hours, 36.2% of the respondents agreed, and 38.4% strongly agreed, resulting in a total of 74.6% rating the statement as favorable. This suggests that a significant majority of the students found the operating hours of the guidance and counseling offices convenient for their needs.

The physical infrastructure and facilities are accessible to all, including individuals with disabilities, with a combined rating of 64.2% in favor, consisting of 47% agreeing and 17.2% strongly agreeing. The students' responses regarding administrative clerks showing sincere interest in solving trainees' problems revealed that 34.5% agreed, and 20.2% strongly agreed, amounting to 54.7% of the respondents rating this statement as favorable. This indicates that a significant percentage of the students perceived the administrative clerks as genuinely interested in assisting them with their concerns. The study also found that there is a spacious playing ground for the trainees. Approximately 35.2% agreed, and 32.6% strongly agreed, resulting in a total of 67.8% rating the statement as favorable. This suggests that a majority of the students have access to a spacious playing ground.

The rating results for administrative clerks always informing trainees exactly when the administrative services will be offered showed that 36.2% agreed, and 40.4% strongly agreed, totaling 76.6% of the respondents rating the statement as favorable. This indicates that a significant majority of the students felt well-informed about the availability of administrative services. Approximately 45.3% agreed and 43.0% strongly agreed that they participate in extracurricular activities, resulting in a total of 88.3% of the respondents rating the statement as favorable. This indicates that an overwhelming majority of the students participate in extracurricular activities. The study also assessed the students' perceptions of administrative clerks' knowledge of trainees' questions. The results showed that 42.0% agreed, and 20.8% strongly agreed, totaling 62.8% of the respondents rating the statement as favorable. This suggests that a significant majority of the students believed that the administrative clerks possessed adequate knowledge to address their inquiries.

Regarding administrative clerks giving individual attention to each trainee, 34.8% agreed, and 17.8% strongly agreed, amounting to 52.7% of the respondents rating the statement as favorable. This indicates that a substantial percentage of the students felt that the administrative clerks provided individualized attention. The study also revealed favorable ratings regarding administrative clerks' understanding of the specific needs of each trainee. The ratings showed that 42.0% agreed, and 25.4% strongly agreed, totaling 67.4% of the respondents rating the statement as favorable. This indicates that a significant majority of the students perceived the administrative clerks as understanding their individual needs.

Regarding the institution's guidance and assistance in participating in extracurricular activities, 37.8% agreed, and 24.4% strongly agreed, resulting in a total of 62.2% of the respondents rating the statement as favorable. This suggests that a considerable proportion of the students felt supported in their involvement in extracurricular activities. The ratings for the availability of staff at the campus health center for assistance revealed that 37.1% agreed, and 26.7% strongly agreed, totaling 63.8% of the respondents rating the statement as favorable. This indicates that a significant majority of the students believed that the staff at the health center were readily available to assist.

Regarding the statement on the services offered at the Institute's career counselor helping guide career choices, 38.8% of the respondents agreed, and 38.1% strongly agreed, resulting in 76.9% of the respondents rating the statement as favorable. This indicates that a substantial majority of the students found the career counselor's services beneficial in guiding their career decisions. Finally, when asked if they were happy with the choice of institute-sponsored extracurricular activities, 42.0% agreed, and 27.7% strongly agreed, totaling 69.7% of the respondents rating the statement as favorable. This suggests that a significant majority of the students expressed satisfaction with the variety of extracurricular activities offered by the institution.

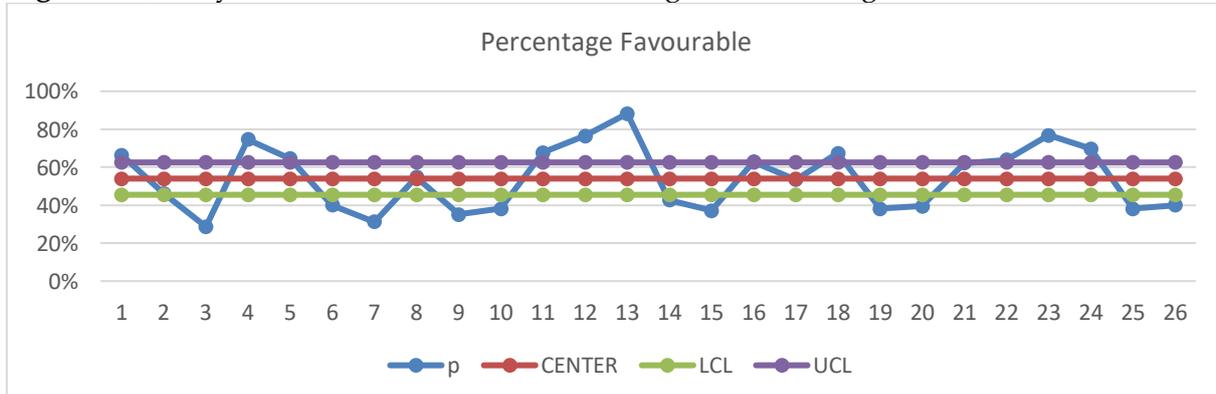
The students' ratings on the quality of student services in TVET colleges provide valuable insights into various aspects such as advice and guidance, learning resources,

and social and refreshment, all in alignment with TVETA Quality Assurance criteria. For instance, the statement concerning the encouragement of student-led initiatives and activities corresponds to the "Student Activities for Environment, Sport, Arts, and Culture" criterion within the "Trainee Support" category.

Similarly, the favorable ratings regarding administrative clerks' competence and their understanding of trainees' needs directly relate to the "Staff Competence" and "Understanding Specific Needs of Trainees" criteria in the "Human Resources" category. Moreover, the ratings that emphasize the convenience of guidance and counseling office hours reflect the importance of well-established procedures for admittance, enrolment, course registration, feedback, and complaints, as stipulated in the TVETA guidelines for "Procedures for Admittance, Enrolment, Course Registration, Feedback, and Complaints." The commendation for physical infrastructure accessibility, particularly for individuals with disabilities, aligns with the criterion for "Access to Facilities for All, Including Individuals with Disabilities" in the "Physical Resources" category. The high rating for participation in extracurricular activities supports the fulfillment of "Student Activities for Environment, Sport, Arts, and Culture," underscoring the institution's commitment to holistic student development.

Furthermore, the positive feedback on administrative clerks' clear communication and information provision is indicative of robust "Procedures for Information, Feedback, and Complaints," a vital component of effective "Trainee Support." The acknowledgment of a spacious playing ground for trainees reinforces the notion of an institution that ensures "Availability of Facilities and Playing Grounds," addressing the physical resources required for a well-rounded educational experience. The approval ratings for the career counseling services align with the "Career Guidance and Assistance" criterion, emphasizing the importance of offering guidance in career choices within the "Trainee Support" category. Lastly, the recognition of staff availability at the campus health center underscores the "Access to Health and Wellness Services," demonstrating the institution's commitment to trainee well-being. Collectively, these favorable student ratings reflect the institution's dedication to meeting TVETA Quality Assurance standards and enhancing the overall quality of education and support services in TVET colleges.

Figure 3: Quality of student services in TVET colleges in Percentage Favorable P control chart



Based on Figure 3, the p-control chart for % Favorable indicates that the system is not in control. Out of the total points plotted, only 6 fall within the control limit, while 20 points lie outside the control limits. In a controlled process, the majority of the sample sizes would fall within these limits, requiring no further action. However, since this chart represents the % Favorable, the 9 statements that fall above the upper control limit have significantly higher ratings compared to the other questions. The interpretation of these findings suggests that TVET institutions should continue their current practices in these areas, as they have been rated favorably. It is recommended to examine these successful practices and explore how they can be implemented in the statements that received unfavorable ratings. By spreading effective strategies and approaches to other areas, the institution can strive to improve the overall favorability ratings and enhance the quality of its services.

4.4 Quality of Student Services in TVET Colleges in Kenya Percentage Unfavorable

According to Table 1.12, the results indicate that a significant portion of trainees expressed dissatisfaction with the library facilities' ability to meet their learning needs. Specifically, 19.9% of the respondents strongly disagreed, while 33.9% disagreed with the statement. This resulted in a total of 53.8% of the trainees rating the statement as unfavorable. TQM emphasizes the importance of adhering to established procedures outlined in the QA system (Sallis, 2005). However, this finding contradicts the guidelines set forth by the TVETA QA. According to the TVETA QA guidelines, it is expected that the library should be adequately equipped with a comprehensive range of up-to-date literature, books, documents, journals, and other relevant resources to support the educational and training programs offered (TVETA QA, 2018).

The study findings on whether the trainees can purchase institutes needs comfortably revealed that 25.1% of the respondents strongly disagreed with the statement while 46.3% disagreed which contributed to 71.1% of the respondents rating the statement as unfavorable. According to Sallis, TQM promotes a culture of continuous improvement and feedback. Institutions can regularly seek feedback from trainees regarding their experiences and challenges in purchasing institute needs. By collecting and analyzing this feedback, institutions can identify areas for improvement and make necessary adjustments to ensure that trainees can comfortably access the required resources. TVETA QA encourages stakeholder engagement, including trainees, in decision-making processes. By involving trainees in financial discussions, organizations can gain a better understanding of their financial concerns, gather suggestions for improvement, and develop strategies that address their specific needs.

The study investigated whether the trainers effectively guided the trainees in setting personal targets and developing strategies to achieve those targets. The findings revealed that a considerable proportion of the respondents expressed dissatisfaction in this regard. Specifically, 28.3% of the respondents strongly disagreed with the statement, while 48.2% disagreed. This amounted to 59.9% of the respondents rating the statement as unfavorable. In the context of TQM, setting targets for students is considered crucial

as it provides evidence of value added. Value-added refers to the difference between students' performance at the beginning of their course and their performance upon completion. By setting targets, institutions aim to enhance students' progress and achievement throughout their educational journey (Sallis, 2005). Furthermore, the TVETA QA guidelines also emphasize the importance of setting targets for trainees' achievement levels or specific satisfaction benchmarks. This highlights the significance of establishing clear goals and objectives to drive student success and ensure quality in TVET programs (TVETA QA, 2018). However, the study's findings indicate a misalignment between the respondents' experience and TQM and the TVETA QA guidelines regarding setting targets for trainee development.

The study findings regarding the willingness of administrative clerks to provide prompt services and their availability to respond without being too busy showed that a significant proportion of the respondents expressed dissatisfaction. Specifically, 20.8% of the respondents disagreed with the statement, while 40.4% disagreed. This resulted in 68.7% of the students rating the statement as unfavorable. In the context of TQM, quality is closely associated with several factors, including convenience, promptness, courtesy, and reliability. These elements contribute to the overall quality of service delivery (Sallis 2005). Furthermore, the TVETA QA emphasizes the importance of providing TVET services promptly, ensuring they are utilized at the moment of provision. This aspect is considered as significant as the technical specifications of the services themselves (TVETA QA, 2018). However, the study's results indicate a misalignment between the respondents' experience regarding prompt and convenient assistance and TQM and the TVETA QA guidelines.

The study results revealed that 33.6% of the respondents strongly disagreed with the statement that when administrative clerks promise to do something by a certain time, they do so. Additionally, 43.0% of the respondents disagreed with the statement. These figures indicate that a significant majority of 76.6% of the respondents rated the statement as unfavorable. According to TQM, time is considered a crucial element of service quality, and services need to be delivered promptly. Timeliness is as important as meeting the physical specifications of the services provided (Sallis, 2005). However, this finding conflicts with the TVETA QA, which emphasizes the importance of timely feedback in workplace training.

The study aimed to determine whether the administration takes trainees' suggestions into account when making decisions. The responses from the trainees revealed that 23.1% of the respondents strongly disagreed with the statement, while 41.7% of the respondents disagreed. In total, 64.8% of the respondents rated the statement as unfavorable. According to Sallis, TQM establishes customers' needs by regularly seeking their views and considering their feedback in decision-making processes. Similarly, the TVETA QA guidelines state that all stakeholders involved in TVET, including training providers, awarding bodies, QA service providers, trainees, their families, society, as well as ministries and TVET regulatory agencies, should be actively engaged in the development and progress of TVET towards national development goals.

The findings of the study suggest a misalignment between the trainees' experience and the current practices of the administration.

The study examined whether the process of course registration is perceived as easy by the respondents. The findings revealed that 15.6% of the respondents strongly disagreed with the statement, while 44.7% of the respondents disagreed. In total, 57.3% of the respondents rated the statement as unfavorable. According to TQM, quality encompasses various aspects such as convenience, promptness, courtesy, and reliability. These elements contribute to an overall positive experience for the customers. In the context of course registration, TQM emphasizes the importance of ensuring a streamlined and user-friendly process that is convenient and reliable for customers. Furthermore, the TVETA QA guidelines highlight the significance of appropriate quality indicators that are relevant to the TVET provider's specific context. One such indicator mentioned is trainee satisfaction with the programs and services offered. This suggests that the ease of course registration is an important aspect to consider when assessing the quality of TVET services. The study findings indicate a misalignment between the perceived ease of course registration and reliability outlined in TQM and TVETA QA.

The study aimed to determine whether the administrative clerks consistently demonstrate courtesy when dealing with trainees' inquiries. The findings revealed that 10.4% of the respondents strongly disagreed with the statement, while 52.4% of the respondents disagreed. In total, 62.8% of the respondents rated the statement as unfavorable. TQM emphasizes that care, usefulness, courtesy, concern, friendliness, and helpfulness are crucial in assessing the overall quality of services. This implies that the courteous behavior of administrative clerks towards trainees plays a significant role in ensuring quality service delivery. In line with the TQM principles, the TVETA QA states that there should be a robust feedback and complaints procedure in place. This procedure should be both robust and student-friendly, allowing trainees to provide feedback and lodge complaints effectively.

The statement "The institute has a spacious and equipped computer library" was rated as 62.2% unfavorable. This statement indicates a misalignment with TVETA QA and TQM. In the context of TVETA QA, this statement is related to the criterion of availability of a spacious and well-equipped institute library. TVETA QA states that the TVET institution should have sufficient facilities for its education and training programs. Having such a library is crucial for students and trainers to access necessary learning resources, materials, and information, which, in turn, supports the delivery of quality education. According to Sallis (2005), TQM emphasizes understanding and meeting the needs and expectations of customers. In this context, "customers" could refer to the students who use the computer library. TQM thus encourages institutions to ensure that the library is designed and equipped to meet the needs of students, providing the necessary resources, technology, and space to support their learning and research.

The study findings on the Institute cafeteria are clean and a variety of food items are available in the cafeterias. Revealed that 31.3% of the respondents strongly disagreed with the statement while 29.3% of the respondents disagreed. This amounted to 60.6% of

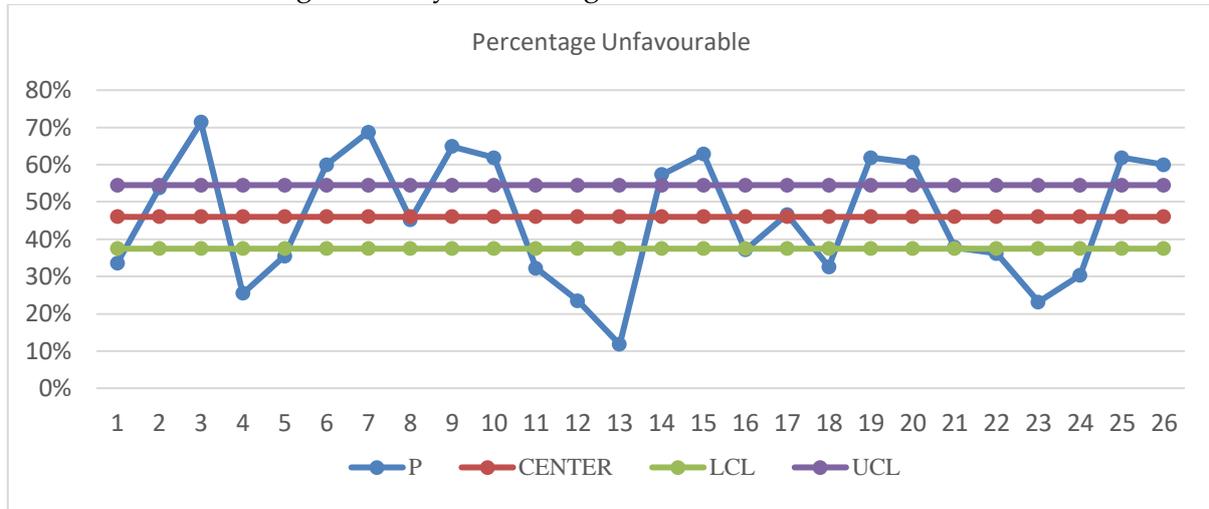
the respondents rating the statement as unfavorable. TQM emphasizes the importance of customer feedback to improve services. This includes collecting feedback from staff and students, conducting root cause analysis, and implementing process improvements. The TVETA QA manual recognizes that health regulations should be observed. The manual further emphasizes the importance of obtaining and utilizing customer feedback as part of the quality assurance process. Customer feedback plays a crucial role in assessing the effectiveness of training programs, services, and overall institutional performance.

The study findings on whether the trainees were satisfied with the policies set by the institute revealed that 29.0% of the respondents strongly disagreed with the statement, while 32.9% of the respondents disagreed. This resulted in 69.1% of the respondents rating the statement as unfavorable. Deming, a proponent of TQM, emphasizes that organizations should not solely rely on performance indicators to measure success, but should also prioritize the satisfaction and happiness of customers. According to the TQM approach in education, the true measure of success lies in having happy and satisfied customers (Sallis, 2005). In line with this, the TVETA QA guidelines of 2018 also emphasize the importance of care, usefulness, courtesy, concern, friendliness, and helpfulness in assessing and ensuring the quality of student services.

The study results on satisfaction with the experience at the institute showed that 18.2% of the respondents strongly disagreed with the statement, while 41.7% of the respondents disagreed. This amounted to 59.9% of the respondents rating the statement as unfavorable. TQM emphasizes customer focus, which emphasizes the importance of meeting and exceeding customer expectations. Regardless of the organization's efforts to improve quality, it is ultimately the customer who determines whether those efforts have been successful (Sallis, 2005). Similarly, the TVETA QA guidelines emphasize the significance of enhancing the satisfaction of trainees, employers, and society. However, the study findings indicate a considerable proportion of respondents expressing dissatisfaction with their experience at the institute. This suggests a misalignment between the institute's performance TQM approach and TVETA QA guidelines.

Figure 4 displays the p-control chart for the percentage unfavorable. The chart indicates that the system is not in control, as evidenced by the presence of 20 points outside the control limits. However, 6 points fall within the control limits, indicating that no immediate action is required for those data points. In a process that is in control, the majority of sample sizes would fall within the control limits, and no immediate action would be necessary. Nevertheless, the ratings for 11 statements are above the upper control limit, indicating a significant level of unfavourability compared to other questions.

Figure 4: Quality of student services in TVET Colleges in Kenya Percentage Unfavorable P Control Chart



These findings highlight the need for action to address the issues raised in these statements. It is important to investigate and devise strategies to resolve the concerns identified by these responses. These study findings align with previous research conducted by Magasi, C., Mashenene, R. G., & Dengenesa, D. M. (2022) on Service Quality and Students' Satisfaction in Tanzania's Higher Education. The research concluded that students' perception of service quality in higher education fell below their expectations. This implies that the quality of services provided by higher education institutions did not meet the students' expectations. Surprisingly, the study also found that the compliance of higher education institutions with standards and guidelines set by regulatory authorities was perceived to be below the students' expectations.

To determine the contribution of student services in TVET colleges in Kenya to the 5% student services aspect, the percentage achieved formula was applied.

The percentage achieved formula = (Overall mean / Maximum Likert scale value) * Rating on TQM aspect * 100

The percentage achieved formula = (2.57/4 * 0.05) * 100 = 3.21%

As per the calculated outcomes, the provision of student services in TVET colleges in Kenya is notably deficient, reaching 3.21% of the prescribed 5% benchmark established for student services quality according to TQM. This shortfall underscores possible insufficiencies within the colleges in providing quality student services.

Document analysis from TVET institutions identified key findings. The results indicated that these institutions have implemented various policies and procedures to enhance student services. They have a Student Engagement Policy, demonstrating a commitment to actively involve students in decision-making processes. Enrollment and Registration Forms are in place, indicating streamlined procedures for student

admittance and course registrations. A robust procedure for feedback and complaints is found within the TVET Institutional Management Policy, showcasing a commitment to addressing stakeholder concerns. Additionally, a Career Services Policy highlights the provision of career counseling and placement support. These findings demonstrate that the institutions prioritize student engagement, enrollment processes, addressing feedback, and supporting students' career development.

During the principal interviews regarding the provision of student services, it was revealed that principals faced limitations in resources, hindering their ability to deliver quality services. The increase in student enrollment was seen as a positive reflection of the community's interest in technical courses; however, it posed challenges in terms of accommodation. One principal provided an example, stating, "We have enrolled over 15,000 trainees, but our boarding facilities can currently accommodate only 300 trainees." To address the boarding challenges, principals sought partnerships with the local community to provide alternative accommodation options.

In some cases, security concerns arose, but collaborations with local chiefs helped ensure the safety of the students in the community. The interviewed principals expressed concerns about financial challenges within their institutions, which hindered their ability to provide quality student services. Furthermore, limited land space hindered their ability to expand facilities. All principals mentioned that they faced a shortage of trainers and support staff to meet the required standards for the student population. Some principals mentioned that the Board of Management (BOM) hired additional trainers to mitigate the inadequacy, but it remained insufficient. Overall, the findings from the principal interviews suggest a contradiction between the resource constraints reported by the principals and the expectations outlined in the TVETA QA Manual. The manual calls for adequate resources, compliance with standards, and quality services, while the principals' experiences reveal limitations and challenges in meeting these expectations.

5. Conclusions

In conclusion, the study examined two key objectives related to the quality of leadership and quality of student services in TVET colleges in Kenya. The findings provide valuable insights into these areas and highlight both strengths and areas for improvement.

Regarding the quality of leadership, while there are positive aspects and proactive measures in place, there are also areas that require significant improvement. The quality of leadership is not yet fully aligned with TQM and the TVETA Quality Assurance Manual. To enhance the quality of leadership in TVET colleges, these institutions must address the unfavorable ratings and discrepancies highlighted in this study. This can be achieved through a more rigorous monitoring and evaluation of quality management strategies, a greater focus on aligning practices with established quality benchmarks, and ongoing professional development for leadership and staff.

The findings of this study align with those of Ogony's 2017 study on the impact of leadership practices of principals on quality and relevance in TVET colleges in Kenya.

Both studies emphasize the importance of monitoring and evaluation of ISO standards as a crucial aspect of quality assurance. However, they also highlight that while management acknowledges their responsibilities and receives relevant training, there is room for improvement in their adherence to quality standards. This common theme suggests that a more comprehensive approach to leadership and quality management is necessary to ensure the effective implementation of quality assurance practices in TVET institutions.

Regarding student services, the findings of this study reveal both positive and negative aspects of student services in TVET colleges in Kenya. The alignment with TQM principles and TVETA guidelines varies across different areas of service provision. While some areas are performing well and meeting the expectations of students, others fall short and require immediate attention and improvement. The challenges faced by TVET institutions, as highlighted by the principals, underscore the need for increased investment in resources and infrastructure to enhance the overall quality of education and support services. The challenges identified in this study are not unique to TVET colleges in Kenya.

The research conducted by Magasi, Mashenene, and Dengenesa (2022) in Tanzania's higher education also found that students' perceptions of service quality in higher education did not meet their expectations. This suggests that the gap between student expectations and the actual quality of services provided is a common issue in the education sector across different countries. Addressing the challenges identified and aligning with TQM and TVETA guidelines will be critical in improving the quality of student services in TVET institutions, ultimately leading to a more positive and enriching educational experience for students. Stakeholders need to work collaboratively to bridge the gap between student expectations and the actual quality of services provided, creating a more conducive learning environment for the future workforce of Kenya.

5.1 Recommendations

The following recommendations were made regarding the findings: Establish robust systems for monitoring and evaluating various aspects of leadership, such as classroom instruction, trainees' work, and trainers' performance evaluation. This will enable TVET colleges to identify areas for improvement and ensure that trainers adhere to established standards. Effective monitoring and evaluation contribute to the overall quality assurance process.

Foster a culture of open communication and collaboration among leaders, trainers, and stakeholders. This includes promoting discussions on trainers' classroom problems, encouraging collaborative problem-solving, and creating a supportive environment for professional growth. Improved communication and collaboration can lead to innovative solutions, continuous improvement, and a positive working environment.

Focus on enhancing library facilities and resources, addressing concerns about the effectiveness of trainers and administrative staff, and improving convenience and cleanliness of campus facilities. Actively seek and consider student feedback and

suggestions, establish effective feedback mechanisms, and address student concerns promptly to create a more student-centric environment. Seek additional funding, explore partnerships, and advocate for increased resources to overcome limitations in accommodation, finances, land space, and availability of trainers and support staff. Continuously review policies and procedures to ensure adherence to the TVETA Quality Assurance Manual, promoting accessibility, professionalism, effective communication, safety measures, and holistic student support.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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Appendix: Rating on Aspects of TQM in Education

Self-Assessing Educational Institutions— an instrument for self-auditing as given by Sallis (2005)

A. Leadership (15%)

a. Head/Principal

- She/he has a vision and shares it.
- She/he champions the message of TQM.
- She/he walks the job.
- She/he knows the staff.
- She/he knows the students.
- She/he provides leadership.
- She/he ensures that quality champions are in place.
- She/he leads innovation and creativity.
- She/he gives top priority to quality improvement.

b. Governance

- The Board/Trustees work with the Head/Principal to develop the institution's mission
- Ensures that the institution has a framework for quality improvement in place
- The Board/Trustees effectively monitors the quality of provision, including the major indicators of success:
 - Student achievement,
 - Student retention,
 - Student recruitment,
 - Financial solvency,
 - The self-assessment report and action plan.

c. Values

- The institution's mission and ethos are clear and understood by:
 - staff,
 - students,
 - the community.
- An equal opportunities policy is in place and implemented,
- There is a strong commitment to the needs of the community.

B. Services to customers (5%)

- Advice and guidance,
- An effective information and guidance service is available,
- Effective pre-entry guidance is available for all students,
- Appropriate continuing guidance is available to all students,

- Career guidance is readily available,
- Accessible student welfare and counseling are available to all students who need it.

a. Learning resources

- A well-resourced library and resource center is available with appropriate resources to meet curriculum needs,
- Open access to learning resources is available to all students,
- Open-access computer facilities are available to all students.

b. Social and refreshment

- Affordable canteen facilities are available when students require them,
- Adequate sports facilities are available,
- Appropriate relaxation facilities are available,
- There are opportunities for students to organize their activities.

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