The Effect of Managerial Skills on Internal Service Quality: A Study of City Administrations in Amhara Regional State, Ethiopia, Based on Katz's Managerial Skills Model and Yaoli's Internal Service Quality Measures

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Abstract

Previous studies have yet to identify the managerial skills that significantly impact internal service quality in city administrations, creating a gap in understanding. The current study uses Katz's Managerial Skills Model and Yaoli's Internal Service Quality to identify correlations between managerial skills and Measures to determine practical abilities that affect internal service quality. The survey examines the effectiveness of managerial skills on internal service quality. The research design is a cross-sectional survey with a sample size of 4 municipalities, 196 employees, and 12 managers selected using a multi-stage stratified sampling technique. Three types of managerial skills and seven dimensions of internal service quality measures were considered, in which each of the skill types and sizes was measured with Likert scale self-administered questionnaires. Arithmetic mean, median and factor analysis were used to analyze inter-related Likert scale data, and their performance was compared. The result found that factor analysis is the best method to analyze the collected Likert scale data. Eventually, weighted least square (WLS) estimation was fitted where technical skill ($\beta = 0.31$, $P < 0.01$) and conceptual skill ($\beta = 0.3$, P_value < 0.01) were found significant and had a positive effect. However, Human skill ($\beta = -0.07$, P_value $= 0.073$) was insignificant at a 5% significance level, meaning technical, managerial skills and human managerial skills significantly positively affect internal service quality; the conceptual managerial skill was insignificant at a 5% significance level. The weighted least square estimation showed better performance concerning R-square, MSE, AIC and BIC values; with the trimmer, the better. Multiple linear regressions and partial and semi-partial correlations were run, and the significance and direction of correlation were equivalent to that of WLS. The study's conclusion highlights that enhancing managerial technical and human skills can improve internal service quality. This improvement can enhance external service quality, employee job satisfaction, and performance.

Keywords: managerial skills, internals service quality, Likert scale, factor analysis, mean and median

1. Introduction

Developing characteristics that are exercised to provide managerial activities and make an organization effective and efficient is managerial skills. Managerial skills are used to design, construct and direct organizational systems to achieve missions and goals, Barid Moh and Wajdi Nizarudin,(2017). The main identifying factor distinguishing leaders from their followers is the ability to Accelerate and improve their skills.

Potential employers work to develop their present managers and hire new ones who are effective managers. Also, businesses must identify employees who have the potential to be leaders, support their professional and personal development, and help them plan for the future, Smutny et al. (2016). Leading institutions have cultivated that developing autonomous leaders is the most persuasive way to influence achievement positively. Unless every employee in an organization acquires organizational skills, the organization will steadily decline and lose the competitiveness it used to have.

Organizational internal service quality impacts how satisfied workers are at work. Notably, public sector

organizations need help to provide clients with high-quality service. One of the main barriers to poor general service quality is poor internal service quality, Prabha Ramseook et al., (2010). Organizations within the state-owned sectors will be able to improve external service quality, employee job happiness, and job performance by improving internal service quality, Susanti et al., (2015).

Lack of resources, bad management, openness, and lack of specialized services contribute to public sector organizations' low service quality Nidhi, (2016). This low service quality suggests that the role and purpose of successful management are strongly tied to the level of service that public sector companies provide. Studying the link between practical managerial skills and internal service quality is vital to public sector organizations and enables us to identify and curb problems.

Conceptual, human, and technical skills are the three dimensions of the Katz managerial skills paradigm. Technical skills are more crucial for lower-level management, while conceptual skills are more crucial for top-level management. Even though human skills are essential at all management levels, Northouse (2016).

The eventual goal of Ethiopia's public sector organizations is to provide quality services to citizens, promote citizen productivity and productivity, make the public sector more responsive to the needs of people experiencing poverty and communities, and achieve customer satisfaction. The public and private sectors will respond by implementing their activities efficiently and effectively, actively contributing to poverty reduction and achieving high levels of development, Taffesse, M. (2008).

The state authorities have an extensive program for civil service reform that focuses on enhancing both the quality of service provided and the effectiveness and competency of public sector employees, Meskerem and Fetiya, (2019). Since many institutions in Ethiopia need more visionary leadership, the political commitment to reforming public service is frequently criticized as insufficient. Organizations operate in extremely unfavourable settings; staff members often need to consult with and motivate clients' interests when they ought to, and the responsibility structure between the Government and public service providers needs to be clarified, Bezabih Emana, (2009). Management skills theory is considered fundamental to improving management performance and effectiveness. Much of the literature on managerial skills is positively correlated with significant effects on employee productivity, employee and organizational efficiency, employee satisfaction, management effectiveness, employee motivation, and employee and organizational performance, Sucharitha & Rashmi, (2015).

Service quality is a crucial collection of several facets of services in a business. Employee dissatisfaction prevents them from giving external consumers a high-quality service. Organizations should offer appropriate services to their staff to provide excellent service to external customers. Hallowell, R. (1996) stated that organizations aiming to deliver quality service to their external customers should boost service quality to internal customers of an organization. An essential feature of internal service quality is how well employees of a specific organization provide service to other colleagues.

Providing quality internal services or meeting employee needs and ensuring their happiness is required for excellent community service. Even if there are so many customer complaints in government organizations, as far as our search is concerned, there are no published studies, particularly in the study area, regarding the influence of management competencies on internal service superiority for elevating external service superiority in government agencies. Also, a study that suggests the optimal Likert scale data analysis approach has yet to be established. Thus, we aimed to discover the influence of management skills on internal service superiority and to provide the optimal strategy for Likert data analysis.

Specifically, the study was done in line with the following specific objectives:

- To select the best method of Likert scale data analysis.

- To ascertain the magnitude of the correlation betwixt each managerial skill and internal service superiority controlling others' managerial skills effect.

- To identify significant managerial skills for internal service quality.

1.1 Statement of the Problem

The Ethiopian civil service reform has significantly advanced the Effectiveness and impact of public Provision of services Chanie, P. (2001). However, there is a need to assess the impact of managerial skills on internal service excellence within the context of city administrations in the Amhara regional state. This research examines this gap by investigating the effect of managerial skills on internal service quality and identifying critical managerial skills necessary for enhancing inner service excellence.

The outcomes of this investigation can access valuable findings for policymakers, city administrators, and civil service organizations in the Amhara regional state of Ethiopia. It can help them understand the seriousness of managerial skills in advancing internal quality service and guide them in designing training programs or initiatives to develop these skills among civil servants. Focusing on city administrations in the Amhara regional state allows for a specific examination of the Ethiopian Public sector reform at the local level. This research can provide localized insights into the strengths and weaknesses of the reform efforts, contributing to a more comprehensive awareness of the challenges and opportunities in enhancing internal service quality.

The research is limited to city administrations in the Amhara regional state, which may restrict the transferability of the result to other areas or levels of Government within Ethiopia. Acknowledging that different regions may have unique characteristics and challenges that could impact the results is essential. The research relies on self-reported data gathered through Likert scale surveys, which may introduce biases such as social desirability bias or response bias. Considering these limitations when interpreting the results and drawing conclusions is essential.

Concerning the Research Gap, while efforts have been made to reform the Ethiopian civil service, in attendance, a research divergence concerning the specific influence of managerial skills on internal service quality within city administrations in the Amhara regional state. Existing studies may have focused on broader aspects of civil service reform or needed a specific focus on the afflation between managerial skills and internal service excellence. This study addresses the gap mentioned above by presenting factual proof regarding the significance of managerial skills and identifying critical skills motives for enhancing internal service quality within this context.

1.2 Scope of the Study

This study geographically delimits Dessie, Bahir Dar, Debre Markos, and Gondar city administrations, Amhara region, Ethiopia, on lower-level managers and public servant employees. It covered only municipals where more customers are served. Conceptually, the study focused on analyzing the effect of essential managerial skills on internal service quality in public sectors and the optimum approach to Likert data analysis.

1.3 Operational Definitions

The following words and phrases may have different meanings, but in this study, they have the following meanings.

Merit-based managers- shall mean a person who directs an inevitable process in a responsible position in public sector organizations and is commonly known as process owners.

Lower-level managers- Shall are managers who can manage at the operational level. It includes managers, vice-managers, and merit-based managers of public sector organizations.

Internal customers - all permanent employees in public sector organizations.

External customer service recipients who are out of the organization.

Service Quality- the institution's capacity to surpass customer prospects and hope.

Internal Service Quality-Services that are delivered to internal customers.

2. Review of Related Literature

Leadership is applying expertise and skills to achieve aims or targets. The abovementioned leadership qualities are mastered, and managers are trained to develop them, Northouse, (2016). Firstly, Management skills are behavioural, not personality traits or style preferences. They comprise recognizable sets of activities a person takes, resulting in a particular outcome. Secondly, Management skills are controlled; an individual determines how these actions are carried out. Thirdly, management skills are developable and consciously demonstrated, practised, and improved by the individual are skills. Fourthly, managerial skills are interrelated and conjoining. It is difficult to manifest just one skill in isolation from others. Fifth, management skills are neither stiff nor soft but humanistic in orientation, making it controversial, Syahierah Noor et al., (2017).

The competency-based theory considers economic, organizational, and behavioural issues within a dynamic, systemic, cognitive, and holistic framework. In this context, "competence" introduces the combination of consciousness, abilities, skills, and behaviours required to complete tasks successfully. The ability to manage effectively requires information based on understanding and skills. The capability to discharge knowledge and skills for new jobs and circumstances is a component of competence, Smutny et al. (2016).

2.1 Conceptual Configuration

The conceptual configuration addresses that investigation is based on Katz's Managerial Skills Model, which proposes that effective managers possess three skills: technical, human, and conceptual, Katz, (1974). Technical skills are the knowledge and competence vital to perform a specific job or task. Human skills specify operating with and via employees to achieve organizational goals. Conceptual skills pertain to the competence toward thinking strategically, including understanding the organization.

This study will examine managerial skills concerning internal service quality in Amhara regional state, Ethiopia city administrations. Technical skills may be essential for providing reliable and accurate information to internal customers. Human skills may be necessary to build relationships with internal customers and acknowledge their needs. Conceptual skills may be required for developing long-term strategies for improving internal service quality.

The conceptual framework of this research is founded on Yaoli's (2009) Internal Service Quality (ISQ) measures, which include six dimensions: reliability, responsiveness, assurance, empathy, and tangibles, including communication. Reliability specifies the capability of the service supplier to execute the affianced service trustworthy besides precisely. Responsiveness indicates the preparedness of the service provider to assist a client and deliver motivated service. Assurance relates to workers' conciseness, courtesy, and ability to instil trust and convection. Empathy concerns the cherished and individualized attentiveness' supplied to customers. Tangibles refer to the material facilities, physical equipment, and existence of employees. Communication refers to the explicitness and fruitfulness of communication between service suppliers and customers.

In the context of internal service excellence in city administrations in Amhara regional state, Ethiopia, these dimensions can be applied to interactions between managers and internal customers. For example, reliability could refer to managers' potential to deliver consistent and accurate information to internal service providers. Responsiveness could refer to the willingness of managers to address internal customer needs and concerns promptly. Assurance could refer to the knowledge and expertise of managers in their respective areas of responsibility. Empathy could regard the potentiality of managers to internalize and respond to the needs of internal customers on an individual basis. Tangibles could refer to the physical resources and facilities managers provide to support internal customer needs. Communication could refer to the clarity and effectiveness of communication between managers and internal customers.

Overall, this study's theoretical and conceptual framework is based on Katz's Managerial Skills Model and Yaoli's Internal Service Quality measures. By applying these frameworks to the context of city administrations in Amhara regional state, Ethiopia, the study can identify which types of managerial skills are most important for providing high-quality internal services and which dimensions of internal service quality are most critical for improving organizational performance.

2.2 Katz Managerial Skills Model or Three-Skill Approach

Katz debated that skills are incompatible with the attributes or supremacy of leaders. Skills are what principals can perform. Conversely, features are what managers are (i.e., their inborn characteristics or behaviour), or he demonstrates that a set of essential skills managers employ to pursue organizational objectives is important rather than traits and personalities. Managerial skills are one of the rationales for uninterrupted organizational victory. Management effectiveness and efficiency prerequisite managerial skills. Triplet's managerial skills are lucid to reappraise future management preferences, Seyedeh Sahar et al. (2014).

2.3 Technical Skill

Northouse (2016) defined technical skill as knowledge and competence in a peculiar variety of tasks or activities. It involves analytical skills, specialization-related competencies, and the capacity to employ the proper tools and methods. Technical skill is crucial for manufacturing the goods a company intends to generate. Technical skill is more critical at the junior and medium levels of leadership than at the upper levels, where it is less crucial. Technical skills are less necessary for top-level leaders like presidents, central executives, and senior officers. Leaders rely on knowledgeable companions to manage technical concerns with visible functioning.

2.4 Human Skill

Human skills are primarily considered in working with people. Managers are very skilled in relationships. Knows people's attitudes, assumptions, and beliefs and recognizes their limitations and advantages. He accepts and understands the existence of perspectives, feelings, cultures, and ideas that differ from his own. Human skills are considered a manager's capability to work efficaciously and productively as a group component and construct collaboration internally with the group they lead. It is the capability to perform with understanding and

initiate people. I understand why people act as they do, and I can help you know what they do. He can predict their reactions to a series of possible actions. His ability to collaborate with others is natural and continuous. It is a natural part of his every move. Understanding, empathy, and a sense of responsiveness to people are central to his human skills.

People with social skills can make a better impression, improve their appearance, and generate positive emotions than those without social skills. Interpersonal skills are related to the communication function Hoffman, M. L. (2002); human skill is equally important at all levels of management.

2.5 Conceptual Skill

Managers with conceptual skills can articulate the company's vision and goals and comprehend and implement the business values that influence the company. They can work with abstractions and theoretical ideas. This work is principal to generating a strategic plan for your institution. Conceptual skills require mental work to orientate organizational issues and understand where the company should go. Conceptual skills can generally be accomplished with notions, beliefs and concepts. An understanding of the various components of an organization that are interrelated and related to the overall business. Decision-making, planning, and organizing are specific management activities that require conceptual skills Kolzow David (2014).

Conceptual skills incorporate the mental capability to examine and identify complex situations and cognitive skills such as analytical skills, reasoning, organizing concepts, and inductive reasoning Dessler, (2014).

2.6 Importance of Managerial Skills

According to Katz's three-skill model, the value of certain leadership traits fluctuates according to a leader's position within a management hierarchy. According to Katz's theory, middle-level managers prioritizes all three skill sets. However, as you move up the management chain, conceptual abilities start to take over, and technical skills fade. Contrarily, technical expertise gains relevance as we descend the organizational ladder, but conceptual skill declines Mumford et al., (2007).

In their study, Mumford et al. (2000), quoted in Northouse (2016), the authors painted a more nuanced picture of how leadership skills are expressed. According to their skills model, a manager's investigative, community-based decree, and knowledge abilities directly influence the outcomes of their leadership. Each competency has a broad range of skills, which may be learned and developed via experience. The model also shows how human characteristics like motivation, personality, general and crystallized cognitive abilities, and available cognitive capacity influence the leader's competencies.

The relative relevance of the three skills varies with management level and is used for manager selection, training, promotion, and growth of the three talents Virkus, S., & Salman, A. (2021).

2.7 Measurement of Managerial Skills

Competence, which encompasses motivation, abilities, self-image, and knowledge, is a fundamental quality of any manager and is sporadically linked to efficient or high-level performance. So, we can conclude from this that skill is a part of competency. Northouse designed five-point Likert scales to measure three components of managerial skills (conceptual, Human, and Technical) to measure or inventory the level of skills one has.

2.8 Service Quality

Service quality is a crucial component of a company's overall bundle of services to clients. It is a significant organizational success by itself and other organizational achievement measures. It is a vital sign of client happiness.

Quality is difficult to understand and conceptualize, but many agree it is fit for purpose. Service quality is surpassing expectations of what clients anticipate from the service. This expectation refers to the discrepancy between customers' assumptions and service achievement before the civil service is delivered and clients' perceptions of the service authorized. Schalkwyk (2011) concentrates on anticipation and reports that service quality measures how much the service attains customers' prospects. Khoshafian, quoted in van Schalkwyk (2011), implement so many methods and procedures that service excellence is constantly interrelated with the Trustworthiness and achievement of the service delivery.

2.9 The Ethiopian Service Delivery Program (SDP)

To increase the success and efficiency of the public service in all institutions that provide civil service, the FDRE created new policy documents to reform the Ethiopian public service. Since the beginning of the Ethiopian public service adjustment and redesign program's implementation, the goals of the civil service delivery reform

have been to increase success and competence, provide superior public services, take responsibility for its failures, create devoted citizens, and convey about behavioural change Chanie, P. (2001).

Ethiopia's political will for change is frequently criticized as needing more. Several institutions need visionary leadership, function in appalling conditions, consult or inspire their workers, and consider the interests of their clients, and the accountability arrangement between the government and public service providers needs to be clarified Bezabih (2009).

Implementing the civil service reform program will alter how public organizations deliver services. Implementing civil services reform in Ethiopia has encountered several difficulties in the beginning. For example, the responsible body could have done a better job raising knowledge of the reform, leading to misunderstandings and confusion.

In addition to this, several obstacles have emerged that are impeding the reform's full implementation, including the collapse of the merit arrangement and procedures, which is identified by the awarding of senior managerial posts to politicians at the expense of professionalism, which is another significant issue, according to Meskerem and Fetiya (2019).

It is indisputable that public service institutions must satisfy all communities irrespective of the political ideology of the political party in power. Nevertheless, the reality does not show that every managerial position in the public organization is held based on the merit principle.

The organizational structures of the current public sector revealed that all senior managerial positions (managers and vice managers) are given to politicians who belong to the ruling party and that political dedication is given due determination, even likewise educational eligibility when elevating employees to higher positions. On the other hand, talented workers are relocating in search of opportunities with higher salaries. Junior managers or process owners are hired under merit-based hiring procedures.

2.10 Overview of Ethiopian Civil Service and Empirical Literature Review

Ethiopian public service reform has been a topic of significant interest and discussion over the years. Ethiopia has undergone diverse refinement and adjustments to improve public service delivery's efficiency, effectiveness, and eligibility. The objective of this investigation, which concentrates on the effect of managerial skills on internal service standards and excellence in city administrations in Amhara regional state, Ethiopia, provides an opportunity to evaluate the impact of these reforms.

A member of the critical aspects of Ethiopian public service reform has been the emphasis on enhancing the skills and competencies of public sector managers, Kebede, G., & Alemu, M. (2020). The Government has acknowledged the significance of effective management in providing excellent services to citizens. This recognition aligns with Katz's Managerial Skills Model, which identifies three essential skills for leaders: technical, human, and conceptual.

Technical skills are the consciousness and expertise required to perform particular tasks and activities. In the context of city administrations, this could include skills related to urban planning, infrastructure development, financial management, and service delivery. The civil service reform in Ethiopia has strongly emphasized building technical skills among public sector managers through training programs, capacity-building initiatives, and knowledge-sharing platforms Alemayehu, A., & Kebede, B. (2017).

On the other hand, human skills pertain to working effectively with people and managing relationships. This skill includes communication, teamwork, leadership, and conflict-resolution skills. The public service reform in Ethiopia has recognized the importance of these skills in fostering a positive work environment and promoting collaboration among employees. Efforts have been made to provide training and development opportunities for managers to enhance their human skills Gebre, M., & Tadesse, A. (2018).

Conceptual skills include thinking strategically, analyzing complex situations, and making informed decisions. These skills are crucial for managers in city administrations as they deal with various challenges and issues that require a holistic mastery of the organization and its environment. The public provision service adjustment in Ethiopia has aimed at developing conceptual skills among managers through initiatives such as strategic planning, policy formulation, and performance management.

The research objective, which determines the effect of managerial skills on internal service quality, aligns with the goals of civil service reform in Ethiopia. By evaluating the influence of managerial skills on inner service superiority in city administrations, the study can access worthy enlightenment into the effectiveness of the reform efforts.

Internal service quality determines the excellence of services provided within an organization, specifically focusing on the coordination between service suppliers and recipients. In the context of city administrations, inner service quality can be assessed based on determinants such as responsiveness, reliability, empathy, and assurance, Kebede, G., & Alemu, M. (2020). These dimensions are consistent with Yaoli's Internal Service Quality Measures, which emphasize the importance of customer-oriented service delivery.

Ethiopia's public service delivery reform has aimed to improve internal service quality by implementing various measures. For instance, efforts have been made to streamline administrative processes, enhance communication channels, and promote a culture of customer-centricity Gebre, M., & Tadesse, A. (2018). The Government has also introduced performance management systems to monitor and judge the quality of services provided by city administrations.

By evaluating the effect of managerial skills on internal service quality, the study can provide insights into the extent to which these reform measures have been successful. It can help identify the managerial skills most influential in driving internal service quality and highlight areas where further improvements are needed.

In conclusion, the study's objective, which concentrates on the effect of managerial skills on internal service provision excellence in city administrations in Amhara regional state, Ethiopia, provides an opportunity to evaluate the impact of Ethiopian civil service reform. The reform efforts have emphasized advancing technical, human, and conceptual skills among public sector managers. By assessing the coordination between managerial skills and internal service quality, the research can contribute to our understanding of the effectiveness of these reform measures and provide recommendations for further improvement.

This research aimed to evaluate the impact of managerial skills on internal service quality in city administrations in Amhara regional state, Ethiopia. To evaluate the empirical literature review of Ethiopian civil service reform based on this objective, these are relevant studies investigating the association between managerial skills and internal service quality in Ethiopia's civil service reform context.

According to Alemayehu, A., & Kebede, B. (2017), the study explores the impact of public service reform on service delivery in Ethiopia, focusing on the role of managerial skills. The findings suggest that practical managerial skills are crucial for improving internal service quality within city administrations. The study emphasizes the need for training and capacity-building programs to enhance managerial skills among civil servants Alemayehu, A., & Kebede, B. (2017). Alemayehu, A., & Kebede, B. (2017) study investigated the role of managerial skills in enhancing service quality in Ethiopian public health centres. The findings indicate that managerial skills significantly influence internal service quality, including planning, organizing, and controlling. The study highlights the importance of developing and strengthening managerial skills among civil servants to improve service delivery Gebre, M., & Tadesse, A. (2018).

Another study by Getahun, D. & Mekonnen, T. (2019) examines the effect of managerial skills on service quality in Ethiopian public universities. The results demonstrate that managerial skills, such as communication, leadership, and problem-solving, positively impact internal service quality. The study emphasizes the need for continuous training and development of managerial skills to enhance service delivery in the civil service sector, Getahun, D., & Mekonnen, T. (2019). Another study investigated the managerial skills' role in improving service quality within the Ethiopian Revenue and Customs Authority, done by Kebede, G. & Alemu M. (2020). The findings reveal that managerial skills, particularly decision-making and problem-solving abilities, significantly influence internal service quality. The study recommends investing in training programs to improve managerial skills among civil servants and enhance service delivery, Kebede, G., & Alemu, M. (2020).

Overall, the empirical literature review on Ethiopian civil service reform suggests that managerial skills are crucial in improving internal service quality within various sectors, including city administrations. The studies highlight the significance of training and capacity-building programs to enhance managerial skills among civil servants, emphasizing the need for effective communication, leadership, problem-solving, and decision-making abilities. By building and strengthening these skills, city administrations in the Amhara regional state can improve their internal service quality and enhance service delivery to the public.

2.11 Internal Service Quality/Excellence

Internal service excellence is among the most significant factors influencing a firm's employee happiness. Giving a staff member of an organization exceptional service could impact how well it operates or delivers services. Internal service excellence is a crucial factor that significantly affects external clients and the organizations' overall service quality. Unsatisfied employees cannot have superior service to clients outside the organization. To provide suitable and quality service for external customers, organizations shall provide services to employees of

the organization.

Hallowell, R. (1996) assumed that organizations aiming to provision superior service excellence to customers outside the organization should enhance service quality within the organization. An essential aspect of service quality is how well employees of a particular organization provide service to other colleagues. Internal service quality contributes a critical contribution to customer pleasure for an organization. Many kinds of research were performed on service quality, but most are related to external customers, and very limited relates to internal customers, Joshi and Chadha, (2016).

Hallowell et al. (1996) recommended eight dimensions to measure inner service excellence: tools, communication, objective adjustments, training, incentive and acknowledgement, teamwork, and management reinforcement. Tools emphasize that the availability of information, instruments, and staff materials requires scientific knowledge and the materialization of equipment mandatory to service provision for the customer well, Loveman, (1998), cited in Joshi and Chadha (2016).

Communication implies conveying information internally and between divisions and subdivisions and the obtainability of information to employees about improvement in policies and new schemes, Joshi and Chadha (2016). Objective calibration explores the relationship between the aims of forefront workers and upper leadership, Joshi and Chadha (2016).

 Practical training provides orientation of newly entered employees, adequate training, and opportunities for the employees' competent development immediately after improvement occurs, Vidaver -Cohen, (2007). Incentives and acknowledgement are the opportunities for advancement, acknowledgement, and incentives for delivering quality service, Loveman, (1998)

Team Work focuses on pleasure between and within divisions and subdivisions as the coordination betwixt operating units affects the institution's capability to fulfil customers' prospects, Dong, F., Wang, Z., & Gong, Q. (2020). Management involvement magnifies the dedication of higher management to customer enlightenment, the accessibility of supervision when necessary, the supervisor's initiative in solving the employees' problems, and the autonomy mainstream by the workers to do their mandates, Loveman, (1998).

2.12 Research Explored So Far on Managerial Skills

Companies are looking for and investing heavily in hiring competent and skilled managers to accomplish their leadership placement role and develop the skills of existing leaders. Visionary bosses try to assign influential managers and build their current executives to be more productive. Today, the situation creates that leaders with high skills earn more than those with low skills, Smutny et al., (2016). Outstanding organizations have experienced that improving self-leaders is an influential way of affecting their efficiency; unless each individual learns, the organization's skill set constantly declines, and its competitiveness is lost.

Empirical studies show that major organizational success can be achieved by contributing managerial skills. The efficiency and effectiveness of an organization largely depend on managers' skills. Organizations require achieving predetermined goals (effectiveness) and proper ways of achieving them with fewer resources (efficiency). Katz narrated that successful management relies on three basic managerial skills: technical, human, and conceptual. He explains that effective administration and leadership have equivalent meanings. Nevertheless, it does not mean that administration and leadership are equal to management concepts.

Studies on managers' efficacy employ various terminologies for managerial skills and effectiveness. While some sources categorize managerial skills as part of managerial competencies, other authors may use more specific terms like managerial performance or effectiveness. In some instances, even if managers are the focus of the research, the authors may use broader words such as leader or leadership effectiveness. Smutny et al., (2016). Valentini Kalargyrou and Robert (Bob) Woods (2009) attempted to prioritize the necessary leadership skills in a college. As a result, existing leaders trust in negotiation and communication. The prominently critical skills that participants need are human resource skills, target-setting skills, inspiring and collaborating and creating friendly cooperation between employees and faculty members, fundraising, empathy, benevolence, and facilitation skills. The selected skills are the subcomponent's managerial human skills.

Hysong, S. J. (2008) strived to explore the effects of technical, human, perceptual, and political skills to select a managerial model for sports managers. As a result, tested perceptual skills can anticipate capability and enlightened transformation in management styles of managers and can describe 39% of the variation of management styles. Based on the study, priority-setting of management skills from managers' perspective explains that perceptual skill is the highest and political skills the least, and technical and human skill mediums envisage power and enlighten improvement in management styles. Although technical, human, and political

skills are essential, perceptual skills are the most useful.

Priority-setting of managerial skills based on Katz's model (conceptual, human, and technical) had been studied between managers of sports and youths in Macadam province. Research results suggested that conceptual skills for strategic and long-term objectives, human skills for effective communication, and technical skills for delegation of authority and awareness of rules and regulations have the highest priorities selected by Seyedeh Sahar et al. (2014).

3. Conceptual Framework of the Study

According to Creswell (2014), the conceptual framework requires articulating notions about the conceptual association between variables in the investigation and directing these relationships diagrammatically. This research embraced the conceptual framework shown in Figure 1, which exhibits the relationship between the independent and dependent variables. The conceptual framework was matured based on Katz's Managerial Skills Model and Yaoli's (2009) internal service quality measures.

In the conceptual framework, rectangles show measured variables, and ellipse shows latent/unmeasured variables. Items in the rectangle refer to a set of Likert scale questions to measure interest variables.

Figure 1: Conceptual framework of the study
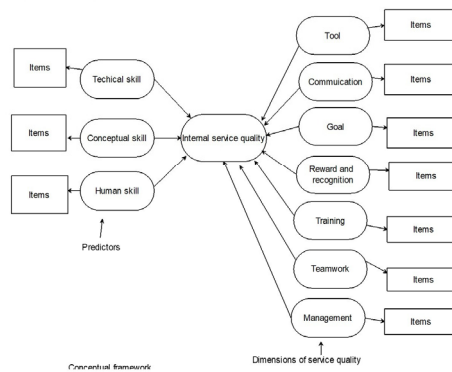
3.1 The Relationship between Katz's Managerial Skills Model and Yaoli's Internal Service Quality Measures

The relationship between Katz's managerial skills model and Yaoli's internal service quality measures is that the former provides a framework for understanding the skills required to manage effectively, Katz, R. L. (2009), while the latter offers a way to measure the quality of internal services proffered an institution.

The Tool dimension of Katz's model relates to the tangibles dimension of Yaoli's ISQ measures. This tool includes the physical resources and facilities necessary for high-quality internal services. For example, if an organization needs updated technology or adequate office space, it can positively impact its interior services' reliability and responsiveness.

The communication dimension of Katz's model is closely related to the communication dimension of Yaoli's ISQ measures, Katz, R. L. (2009). Effective communication is essential for providing high-quality internal services, as it ensures that employees understand their roles and responsibilities and can endeavour together effectively. Communication can lead to misunderstandings and delays and positively impact the assurance and empathy dimensions of ISQ.

The goal and reward and recognition dimension of Katz's model relates to the assurance dimension of Yaoli's ISQ measures. This dimension includes ensuring that employees know their goals and objectives and receive appropriate recognition and rewards for their achievements. This recognition can help to strengthen trust and certainty in the institution, which is essential for maintaining high levels of assurance, El-Sabaa, S. (2001).

The teamwork dimension of Katz's model relates to the empathy dimension of Yaoli's ISQ measures. Effective teamwork requires empathy and understanding between team members, which is essential for delivering top-quality internal services. Empathy involves understanding the needs and concerns of others, which is vital for ensuring that interior services are responsive to employee needs, Peterson, T. O., & Van Fleet, D. D. (2004).

The training and management dimension of Katz's model relates to the responsiveness dimension of Yaoli's ISQ measures. Providing training and development occasions for employees is essential for ensuring they possess the skills and consciousness necessary to offer high-quality internal services, Seyedinejat, S., Razaghi, M., & Dousti,

M. (2014). Also, effective management practices help ensure interior services respond to employee needs and concerns. In summary, the dimensions of Katz's managerial skills model and Yaoli's internal service quality measures are closely integrated and interrelated. Effective management practices are essential for providing high-quality interior services, and measuring the quality of these services can help organizations to identify areas for enhancement and ensure that they are meeting the needs of their employees.

3.2 Research Hypothesis

H1: Technical Skills experience a significant impact on internal service quality.

H2: Human Skills have a significant impact on internal service quality.

H3: Conceptual Skills has a substantial effect on internal service quality.

4. Research Methodology

4.1 Study Design and Approach

A cross-sectional design with a descriptive and explanatory analysis was used. This research persuades to confirm the influence between two or more variables and get in-depth information from the survey. It also strives to find or develop whether two or more variables are correlated with each other. Hence, the study investigated the effect of the independent variables (technical skill, conceptual skill, and human skill) on the dependent variable (internal service quality). This design is suitable for investigating the correlation between managerial skills and internal service quality in Amhara regional state, Ethiopia city administrations. The approach for this study has to be quantitative, which is appropriate for gathering quantitative information that can be examined using statistical procedures.

4.2 Target Population

The study's target population was employees of public sector organizations and lower-level managers currently working at the municipal level. In this research, managers include politically assigned managers, vice-managers, and merit-based public sector managers. Employee participants have all permanent employees in public sector organizations in municipals.

4.3 Sampling Methods, Procedure, and Sample Dimensions

This investigation utilizes a multi-stage sampling approach to reach sampling units. The first four municipals at Dessie, Gondar, Bahir Dar, and Debre Markos were selected among others in Amhara region city administrations. From each municipality, the top manager, one vice manager, and two lower-level managers were selected purposely and randomly. In addition, sample employees were selected using stratification from each municipality.

Since the target population of employees in the selected municipals is 386, the total sample size was calculated using Anokye M. Adam (2020). Accordingly, using a 95% confidence level and 5% level of precision, the required sample dimensioned was committed as follows:

$$n = \frac{N}{1 + N(e^2)}$$

Where n = sample size, N= population size (sampling frame) & e = level of precision. Here, N= 386, e=0.05

$$n = \frac{386}{1+386(.05^2)} = 196$$

Thus, 196 employees were selected using a stratified sampling technique, and 16 managers (one top manager, one vice manager, and two technical managers from each municipality) were considered.

4.4 Data Collection Methods

The baseline data sources were used to examine the effect of managerial skills on internal service quality. Structured Likert scale questionnaires were used to collect the required data. Data will be collected utilizing a structured questionnaire based on Yaoli's ISQ measures and Katz's Managerial Skills Model. The questionnaire will incorporate three sections: (1) demographic information, (2) managerial skills assessment, and (3) internal service quality assessment.

The baseline data were gathered using a self-governed survey questionnaire from employees and managers. Internal service quality dimensions were collected with Likert-scale items from civil service employees. In comparison, the managerial skill dimensions were collected from civil service employees and political managers

with Likert-scale items. Data collected from managers were used to triangulate responses obtained from employees.

4.5 Data Analysis Techniques

The information gathered using the affirmed method was analyzed and elucidated using descriptive and inferential statistics. Descriptive statistics include mean, standard deviation, median, and inferential statistics include factor analysis, correlation analysis, and multiple linear regression. The Likert scale data analysis method used for this study is the mean score method. The mean score method involves calculating the mean score for each item on the questionnaire and then calculating the mean score for each dimension of the questionnaire. The magnitude of the correlation between each managerial skill and internal service quality will be analyzed using Pearson's correlation coefficient while controlling for the effect of other managerial skills. Multiple regression analysis will determine the practical managerial skills that affect internal service quality in Amhara regional state, Ethiopia city administrations.

The multiple linear regression model is specified as:

$$y = \beta 0 + \beta 1 x 1 + \beta 2 x 2 + \beta 3 x 3 + \varepsilon$$

Where,

y=Internal service quality,

x_1=Managerial technical skills,

x_2= Managerial human skills,

x_3= Managerial conceptual skills.

Assumptions such as normality, constant variance, independence of error terms, and multi-collinearity were tested.

However, the study variables were measured with reduced items to measure response and predictors. To do so, factor analysis, arithmetic mean and median were used as dimension reduction techniques. Then, multiple linear regressions were run. Factor analysis is a dimension reduction technique that reduces high dimensional interrelated variables into a single or smaller dimensional variable(s).

Let x be observable constructs or $px1$ vector to measure a particular variable, $\boldsymbol{\mu}$ be mean of $\boldsymbol{X}$, $\boldsymbol{\Sigma}$ be covariance matrix, $F_1, F_2, F_3, \dots, F_m$ are common factors and $\varepsilon_1, \varepsilon_2, \varepsilon_3, \dots, \varepsilon_m$ are error terms, then the factor model is given by:

$$x - \mu = \mathbf{L} * \mathbf{F} + \boldsymbol{\varepsilon}$$

Where $\mathbf{L}$ is mxp loading

Ordinal data can be ordered or ranked, but the difference between two orders or ranks cannot be calculated and may not be equal. This ordinal data nature contrasts with interval data, where we can find actual differences. There is controversy over obtaining scores from ordinal responses to measure a single variable, Gail Sullivan and Anthony R. Artino (2013). One of the principal controversies is that using mean or standard deviation is not meaningful as it differs from the natural values; Jamieson S. (2004) promotes the median as a score measure. However, sometimes, the median deviates from the genuine value (order), which gives decimals. On the other hand, the mode may look good but may not exist. Hence, factor analysis, arithmetic mean, and median are compared in terms of creating a relatively appropriate composite score or dimension reduction using regression performance.

4.6 Controlling Variables

Including these controlling variables can more accurately analyze the relationship between managerial skills and internal service quality while accounting for potential confounding factors. To analyze the effect of managerial skills on internal service quality in city administrations, an econometric model can be developed based on the theoretical framework; the model will relate the dependent variable (internal service quality) to the independent variables (managerial, technical skills, human skills, and conceptual skills) while controlling for other factors that may affect the relationship. Major controlling variables

1. **Size of the City:** This can influence city administrations' resources, infrastructure, and complexity. Larger cities may have more resources and a larger workforce, potentially impacting internal service quality. By including the Size of the city as a controlling variable, we can account for any variations in service quality that may be attributed to the city's Size.

2. **Years of Experience of City Administration Managers**: This can affect their knowledge, expertise, and understanding of the operational aspects of providing quality services. Including this variable as a control helps to account for any variations in internal service quality that the managers' experience level may influence.

3. **Organizational Culture:** This variable captures the organizational values, norms, and beliefs that can influence internal service quality. Different organizational cultures may have varying impacts on service quality.

4. **Employee Motivation:** This variable reflects employees' motivation level, which can affect their performance and ultimately impact internal service quality.

5. **Organizational Structure:** This variable considers the formal structure and hierarchy within the organization. The system can influence communication, decision-making processes, and overall efficiency, affecting service quality.

By including these controlling variables in the econometric model, we can isolate the impact of managerial skills on internal service quality while accounting for the potential influence of city size and managers' experience, organizational culture, employee motivation, and organizational structure. This control variable isolation allows for a more accurate examination of the correlation between managerial skills and internal service quality in Amhara Regional State, Ethiopia, city administrations. The econometric model, including controlling variables, would be:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \varepsilon$$

Where: y = Internal service quality, x_1 = Managerial technical skills, x_2 = Managerial human skills, x_3 = Managerial conceptual skills, x_4 = Size of city administration, x_5 = Years of experience as city administration managers, x_6 = Organizational culture, x_7 = Employee motivation and x_8 = Organizational structure

The dependent variable, "Internal Service Quality", represents the service quality provided by city administrations. The independent variables include managerial technical, human, and conceptual skills. The coefficients β_1, β_2, and β_3 represent the effects of each managerial skill on internal service quality, while α is the intercept term. The controlling variables from (β_4- β_8) aim to account for the possible impact of these factors on the relationship between managerial skills and internal service quality, and ε represents the error term. To measure internal service quality, appropriate measures from Yaoli's Internal Service Quality Measures can be used to measure internal service quality. These measures assess various facets of service quality, such as responsiveness, reliability, assurance, empathy, and tangibles.

Controlling for the Size of city administration, Years of experience as city administration managers, Organizational culture, Employee motivation, and Organizational structure are vital to ensure that these factors do not solely drive any observed effects of managerial skills on internal service quality.

4.7 Reliability of Instruments

The test of reliability is an essential task for effective measurement. According to Nunnally, J. C. (1994), the reliability of a magnitude designates the boundary to which it is in the absence of bias and guarantees compatible Size over time. Its analysis discloses that all scales are at the appropriate magnitude value of more than 0.70. It is a compute of reliability and evenness with which the tool computes the concept, Sekaran, (2003). The inter-item compatibility reliability is examined utilizing a prominent method recommended by Cronbach. He proposed coefficient Alpha (called Cronbach Alpha) for multi-point scaled items, indicating that the higher the coefficients, the better the measuring instrument, Sekaran, (2003). Its value ranges from 0 to 1, but a good value must be higher than 0.7 for the scale to be reliable/ acceptable, Keith S. Taber, (2017). Accordingly, a pilot test with 50 samples that were not included in the final samples was applied to examine the reliability of the measuring instruments.

As a result, Table 1 contains the output for reliability analysis. The Cronbach alpha values in Table 1 were all greater than the threshold values so that the reliability of each variable was achieved.

Table 1. Test of reliability

S/n	Variables	Number of items	Cronbach'sAlphavalue
1	Tool	4	0.758
2	Communication	3	0.814
3	Goal	2	0.707
4	Reward and Recognition	3	0.834
5	Training	5	0.951
6	Teamwork	3	0.718
7	Management	2	0.708
8	Technical skill	6	0.836
9	Human skill	6	0.783
5	Conceptual skill	6	0.786

5. Result and Discussion

5.1 Factor Analysis

Factor analysis produced a score of both dependent and independent variables. The suitability of factor analysis was examined using the amount of shared variance. The factors explain Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) test. Based on Syahierah Noor et al. (2017), an Eigenvalue greater than or equal to 1 was utilized to examine the number of factors. Factors with an Eigenvalue greater than or equal to 1 were retained.

Table 2 introduces the result of the suited test for factor analysis. The p-value (<0.01) indicated that the null hypothesis of the correlation matrix is identical (identity correlation matric) and was rejected. Moreover, there was a correlation among items from which a factor was extracted. For managers' technical skills, a factor explained 73% of the total variance; managers' human skills explained 64%, and managers' conceptual skills explained 85%. The KMO value for all variables is greater than or equal to 0.5, indicating that using factor analysis is a good idea where a value less than 0.5 is not suitable for factor analysis, Syahierah Noor et al., (2017).

After we examined the suitability of factor analysis, factors with a maximum variance proportion or an Eigenvalue greater than or equal to 1 were extracted, and the regression method was applied to estimate the factor score to measure each variable.

Table 2. Test of goodness of fit for factor analysis

Variable	Number of items	P value for Bartlett's test of Sphericity	KMO	Amount of total variance explained
Managers' Technical skill	6	<0.01	0.568	73%
Managers' human skill	6	<0.01	0.821	64%
Managers' conceptual skill	6	<0.01	0.622	85%
Dimensions of internal service quality				
Tool	4	<0.01	0.717	63%
Communication	3	<0.01	0.680	73%
Goal	2	<0.01	0.500	77%
Reward and Recognition	3	<0.01	0.666	75%
Training	5	<0.01	0.84	99%
Teamwork	3	<0.01	0.508	68%
Management	2	<0.01	0.50	77%

Factor analysis was used to analyze inter-related Likert scale data, and the appropriateness of factor analysis was examined using the amount of shared variance the factors explain, Bartlett's test of Sphericity, and the Kaiser-Meyer-Olkin (KMO) test. The results showed that for managers' technical skills, a factor explained 73% of the total variance; managers' human skills explained 64%, and managers' conceptual skills explained 85% of the total variance. The KMO value for all variables was more significant than or equal to 0.5, indicating that

factor analysis was appropriate.

The study found that technical and human managerial skills positively affected internal service quality, while conceptual managerial skill was insignificant at a 5% significance level. Yaoli's ISQ measures used to assess internal service quality included seven dimensions: responsiveness, reliability, assurance, empathy, tangibles, communication, and teamwork. The findings suggest that enhancing managerial technical and human skills can improve internal service quality in city administrations, enhancing external service quality, employee job satisfaction, and job performance.

The present study provides insights into improving internal service quality in public sector organizations by enhancing managerial technical and human skills. The findings suggest that city administrations in the Amhara Regional State, Ethiopia, should prioritize developing these skills among their managers to excel in internal service quality. The research's findings also highlight the importance of using appropriate measures, such as Yaoli's ISQ measures, to assess internal service quality comprehensively.

5.2 Arithmetic Mean and Median

The essay aimed to examine the magnitude of internal service quality in city administrations in Amhara Regional State, Ethiopia, using Yaoli's internal service quality measures and to determine the correlation between each managerial skill (technical, human, and conceptual) and internal service quality while controlling for the influence of other managerial skills. The survey also aimed to determine the practical managerial skills that affect internal service quality.

An alternative method to analyze Likert scale data is to use mean or median to obtain a composite index or as a variable reduction method, if not factor analysis. The summary values of variables whose score was computed with these methods are conveyed in Table 3. Each variable was measured with 5-point Likert scale items from strongly disagree to agree strongly. From the result resented in Table 3, the mean value of technical skill was less than 3 in both mean-based and median-based dimension reduction. The mean value of conceptual skill was around 3 in both methods, and that of human skill was around 3. From this, on average, employees were similar to neutral on their managers' conceptual and technical skills.

Table 3. Summary values

	Based on mean		Based on median	
Variables	Mean	std. dev	Mean	std. dev
technical skill	2.6	1.1	2.7	1.3
conceptual skill	3.1	1.0	3.3	1.3
human skill	3.2	1.0	3.2	1.2
Dimensions of internal service quality				
Tools	2.9	1.2	2.9	1.4
Communication	3.5	1.1	3.4	1.3
Goal	2.3	1.3	2.3	1.3
Reward	2.6	1.3	2.7	1.6
Training	3.1	1.4	3.1	1.5
Teamwork	3.0	1.1	2.6	1.5
Management	2.3	1.3	2.3	1.3

Except for teamwork, both mean and median dimension reduction methods gave nearly or the same summary values of internal service quality dimensions. The mean value of tools and training centres is around 3, which is neutral. The mean value of communication is at the centre between neutral and agree, and that of reward is above an intermediate value of disagree and neutral. The mean value of management is below the centre of disagree and neutral.

To summarize, the study's findings showed that the mean value of technical skill was less than 3 in both mean-based and median-based dimension reduction, indicating that employees perceived their managers' technical skills to be below average. The mean value of conceptual skill was around 3 in both methods, suggesting that employees perceived their managers' conceptual skills as average. The mean value of human talent was also about 3 in both scenarios, indicating that employees perceived their managers' human skills as average.

Mean and median dimension reduction methods gave nearly identical summary values regarding internal service quality dimensions. The mean value of tools and training was around 3, indicating a neutral perception. The mean value of communication was slightly above the centre between neutral and agreed, suggesting that employees perceived their managers' communication skills as slightly above average. The mean reward value was above an intermediate value of disagree and neutral, indicating that employees perceived their managers' reward and recognition practices as above average. The mean value of management was below the centre of disagree and neutral, suggesting that employees perceived their managers' management practices to be below average.

Overall, the findings suggest room for improvement in the technical and management skills of city administration managers in Amhara Regional State. The results also indicate that communication, reward and recognition practices and human skills are essential factors that contribute to internal service quality. Improving these skills may lead to better internal service quality in city administrations.

Ultimately, the investigation provides valuable insights into the relationship between managerial skills and internal service quality in city administrations. The findings suggest that managers must improve their technical and management skills while improving communication, reward and recognition practices, and human skills to enhance internal service quality.

5.3 Managerial Skills Based on Managers' Response

Managers collected data about their managerial skills to triangulate employee results with the same questions. Furthermore, the result is presented in the graph below. The result showed that the average value of technical skill was 2.96, the average value of human skill was 3, the average value of conceptual skill was 3.11, and the overall managerial skill was 3.02.

Figure 2: Managerial skill based on managerial response
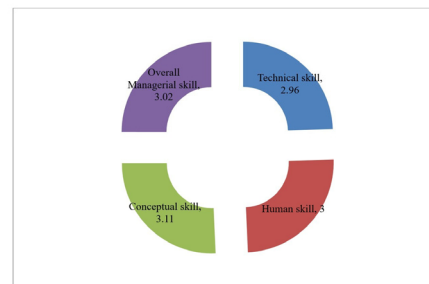
According to the managers' responses, the average value of technical skills was 2.96, indicating that managers perceived their technical skills to be below average. The average weight of human skills was 3, indicating that managers perceived their human skills to be moderate. The average value of conceptual skills was 3.11, indicating that managers perceived their conceptual skills to be slightly above average. The overall managerial skill was 3.02, which is slightly above average.

Comparing the managers' responses with the employees' responses showed similarities and differences in perceptions. Both groups perceived the technical skills of managers to be below average. However, managers perceived their human skills as moderate, while employees perceived them as slightly above average. Managers perceived their conceptual skills as slightly above average, while employees perceived them as average.

Regarding internal service quality dimensions, managers and employees had different perceptions. Managers perceived tools and training as slightly below average, while employees had a neutral perception. Managers perceived communication skills as slightly above average, while employees perceived them as slightly above average. Managers perceived reward and recognition practices as above average, while employees perceived them as slightly above average. Managers perceived management practices as below average, while employees perceived them as below average.

The findings suggest that managers must improve their technical skills, as employees and managers perceive them to be below average. However, managers' perceptions of their human and conceptual skills were slightly higher than those of employees. Regarding internal service quality dimensions, we observe some consciousness differences between managers and employees. While managers perceived reward and recognition practices as above average, employees perceived them as slightly above average. Managers perceived management practices as below average, while employees perceived them as below average. Improving these skills may lead to better

internal service quality in city administrations.

5.4 Correlation Analysis

After reducing inter-related Likert scale items, the next task was using correlation and regression analysis to determine the effect of managerial skills on internal service quality. The correlation analysis enables the direction and magnitude of the correlation ship between variables. It involves bivariate correlation, partial and part (semi-partial) correlation analysis.

5.5 Bivariate Correlation

The bivariate correlation analysis revealed a positive and significant relationship between the three managerial skills (technical, human, and conceptual) and internal service quality in city administrations. In Table 4, in bivariate correlation analysis, the correlation coefficient between technical skills and internal service quality was 0.66, indicating that growth in technical skill is related to excel in internal service quality. Similarly, the correlation coefficient between human skill and internal service quality was 0.62, indicating that an escalation in human skill is related to improving internal service quality. The correlation between conceptual skill and internal service quality was minor but still significant.

Yaoli's (2009) internal service quality measures were applied to examine the level of internal service quality in city administrations. Service quality dimensions included tools and training, communication skills, reward and recognition, and management practices. The findings revealed that managers perceived tools and training as slightly below average, while employees had a neutral perception. Managers perceived communication skills as slightly above average, while employees perceived them as slightly above average. Managers perceived reward and recognition practices as above average, while employees perceived them as slightly above average. However, both managers and employees perceived management practices to be below average.

Tale 4. Bivariate correlation analysis

Variables	Internal service quality	technical skill	Human skill	Conceptual skill
Internal service quality	1			
technical skill	0.66	1		
	0.000			
human skill	0.6227	0.4698	1	
	0.000	0.000		
conceptual skill	0.2964	0.3008	0.5531	1
	0.000	0.000	0.000	

In conclusion, the study found that improving all three managerial skills (technical, human, and conceptual) can improve internal service quality in city administrations. The findings also suggest a need to improve management practices in city administrations as both managers and employees perceive them to be below average. Improving these skills and methods can improve internal service quality and enhance city administrations' overall effectiveness and efficiency.

5.6 Partial and Semi-Partial Correlation

The bivariate correlation may result from the spurious correlation between variables since the presence of other variables (confounders) affects the relationship between the two variables. Partial and semi-partial correlations are methods to identify a correlation between dependent and independent variables while controlling the effect of other variables. They are employed to determine the genuine association between dependent and independent variables by removing the impact of other variables, Debra K. Roberts, (1999). For example, the partial correlation between internal service quality and technical skill is the correlation observed between the variables after removing the effect of conceptual and human skills from internal service quality and technical skill. Semi-partial correlation, also called part correlation, is the correlation between internal service quality and technical skill after removing the effect of conceptual and human skills from technical skill but not internal service quality.

Table 5 presents the result of partial and semi-partial correlations of service quality with conceptual skill, human skill, and technical skill. The partial and semi-partial correlation between conceptual skill and internal service quality was insignificant. This finding implies that the significant correlation in bivariate correlation was spurious. The partial and semi-partial correlations between human skill and internal service quality were

substantial and positive. That is, the correlation between technical skill and internal service quality was 0.534 after removing the effect of human and conceptual skill from internal service quality and technical skill. While removing the impact of these variables only from technical skill, the correlation was 0.41. The proportion of variance of internal service quality that technical skill explains was 28.5%, and the ratio of variance of internal service quality that only technical skill defines was 17.3%. Similarly, the correlations between human skill and internal service quality after removing the effect of other variables from both and only from human skill were 0.469 and 0.35, respectively. The proportions of variance explained by human skill and by only human skill were 35% and 12.2%, respectively.

Table 5. The result of partial and semi-partial correlations of service quality with conceptual skill, human skill, and technical skill

Variables	Partial correlation	Semi partial Corr.	Partial Corr. square	Semi partial Corr. square	Sig. value
conceptual skill	-0.122	-0.081	0.015	0.007	0.092
human skill	0.469	0.350	0.220	0.122	0.000
technical skill	0.534	0.417	0.285	0.173	0.000

The study found that all three managerial skills (technical, human, and conceptual) positively and significantly correlate with internal service quality in city administrations. However, when controlling for the effect of other managerial skills, the partial and semi-partial correlation between conceptual skill and internal service quality was insignificant. This result suggests that the significant correlation between conceptual skill and internal service quality in the bivariate correlation analysis was spurious.

On the other hand, the partial and semi-partial correlation between human skill and internal service quality was significant and positive, indicating that human skill is an essential predictor of internal service quality in city administrations. The proportion of variance explained by human skills was 35%, suggesting that improving human skills can lead to a substantial improvement in internal service quality.

Similarly, the partial and semi-partial correlation between technical skill and internal service quality were also significant and positive. However, the proportion of variance explained by technical skill was lower than that of human skill (28.5%). This result suggests that while technical skill is still an essential predictor of internal service quality, improving human skills may have a more significant impact.

The dimensions of service quality measured by Yaoli's ISQ measures revealed room for improvement in tools and training as well as management practices. Both managers and employees perceived communication skills and reward and recognition practices to be slightly above average. These findings suggest that improving these service quality dimensions may lead to better internal service quality in city administrations.

In conclusion, improving all three managerial skills (technical, human, and conceptual) can improve internal service quality in city administrations. However, enhancing human skills impacts more than technical skills. Additionally, improving specific service quality dimensions, such as tools, training, and management practices, may lead to better internal service quality. The partial correlation can tell us the possible result when we use multiple linear regressions.

5.7 Multiple Linear Regression Analysis

The three multiple linear regressions were fitted for each method of dimension reduction techniques, and their performance was compared using R-square and root mean square error (RMSE). In regression analysis, the root means square measures the quality of good fit with the smaller value of it is the better the model Shravankumar Hiregoudar (2020) and Akshita Chugh (2020). R square measures how well predictors explain the variability of the dependent variable. The more considerable value of R square is a better performance of the regression model, Akshita Chugh, (2020). Table 6 shows the regression analysis's R square and root mean square error. The R square of regression analysis based on factor analysis was 0.5645, higher than arithmetic mean-based (R square=0.5441) and median-based (R square=0.4027).

Similarly, the Root mean square of factor analysis-based regression is 0.425, more minor than others. Hence, factor analysis was the best method of score estimation or dimension reduction. The arithmetic mean was also better than the median method.

Table 6. R square and RMSE

Method	R_square	RMSE
Factor analysis	0.5645	.425
Arithmetic mean	0.5441	.628
Median	0.4027	1.043

Assumptions of multiple linear regression, such as normality of error terms, no collinearity between predictors, the constant variance of residuals, and linearity, were satisfied in fitting multiple linear regression. However, the assumption of independent error terms or no autocorrelation was violated (Durbin Watson statistics= 1.4, P_value = 0.000).

The Durbin-Watson statistic dimension in value from 0 to 4. A value near 2 indicates non-autocorrelation; a deal toward 0 demonstrates positive autocorrelation; a value toward 4 indicates negative autocorrelation, Field, (2005). Durbin Watson's value of 1.4 confirmed that the assumption of independent residuals had been violated, and there is positive autocorrelation. That means residuals are correlated, or observations are not separate.

Multiple linear regression analyses investigated the correlation between managerial skills and internal service quality. The performance of three different methods of dimension reduction techniques was compared using R-square and root mean square error (RMSE). The results showed that factor analysis was the best method of score estimation or dimension reduction. The Inference of multiple linear regression were satisfied, such as normality of error terms, no collinearity between predictors, the constant variance of residuals, and linearity. However, the assumption of independent error terms or no autocorrelation was violated, indicating positive autocorrelation.

In summary, improving all three managerial skills can improve internal service quality in city administrations. Improving human skills may have a more significant impact than technical skills. Specific service quality dimensions, such as tools, training, and management practices, may lead to better internal service quality. The findings suggest city administrations should improve human skills and specific service quality dimensions to enhance internal service quality.

5.8 Generalized Least Square Estimation

When the assumption of independence of error terms was violated, the OLS estimator would no longer be the best linear unbiased estimator (BLUE). For such a violation of assumptions, generalized least square (GLS) estimation is a remedial measure. The GLS estimator of β incorporates the autocorrelation parameter ρ in the estimating formula, whereas the OLS formula neglects it. In short, under autocorrelation, GLS is BLUE Gujarati (2003). Generalized least squares (GLS) is a strategy for estimating the unknown parameters when there is some correlation between the regression model's residuals. However, the results of GLS (R square and coefficients) are not different from those in OLS. An alternative and equivalent estimation method, weighted least square, was used by Gujarati (2003).

Table 7 presents values of OLS and weighted least squares (WLS). The AIC and BIC values of weighted least squares are smaller (210.63 and 223.75, respectively) than those of OLS (225.00 and 238.12, respectively). In addition, the R square value of WLS (0.5845) is also more significant than that of OLS (0.5645). Similarly, the root mean square error of WLS is also more minor (0.41) than OLS's (0.43). All these indicated that the weighted least square improves the performance of multiple linear regressions.

Table 7. Comparison of OLS and WLS

Estimation	R square	AIC	BIC	RMSE
OLS	0.5645	225.00	238.12	.43
WLS	0.5845	210.63	223.75	.41

From R square values, one can say that in OLS, 56.45% of the variance of internal service quality was explained by managerial skills. In WLS, 58.45% of the variance in internal service quality was demonstrated by managerial

skills.

The survey targeted to investigate the influence of managerial skills on internal service quality in city administrations in Amhara Regional State, Ethiopia, based on Katz's Managerial Skills Model and Yaoli's Internal Service Quality Measures. The multiple linear regression analysis was implemented using the OLS and GLS estimators, and the results showed that when the assumption of independence of error terms was violated, the GLS estimator provided a better linear unbiased estimator (BLUE) than OLS. However, an alternative and equivalent method of estimation, called weighted least squares (WLS), was used to improve the performance of multiple linear regressions.

The results indicated that the WLS estimator outperformed the OLS estimator regarding AIC and BIC values, R square value, and root mean square error. The R square value of WLS (0.5845) was greater than that of OLS (0.5645), indicating that managerial skills explained 58.45% of the variance in internal service quality. Service quality dimensions included reliability, responsiveness, assurance, empathy, and tangibles. The study found that managerial skills significantly influenced internal service quality in city administrations in Amhara Regional State, Ethiopia. Specifically, confidence and empathy had the most substantial positive influence on internal service quality, followed by responsiveness and tangibles, while reliability had a weak positive impact.

In conclusion, the research contributes precious wisdom into the importance of managerial skills in improving internal service quality in Amhara Regional State, Ethiopia city administrations. The findings suggest that policymakers and managers should prioritize the development of managerial skills related to assurance and empathy to enhance internal service quality. The study also highlights the usefulness of WLS as an alternative estimation method to improve the performance of multiple linear regressions.

5.9 Interpretation of Model Coefficients

To interpret model coefficients, we considered values obtained from WLS estimation since it was found to be a better model. The result in Table 8 showed that Technical skill was found to be significant and had a positive effect on internal service quality. That means as technical skill increases by a unit; internal service quality could increase by 0.31, keeping the impact of human and conceptual skills constant. Similarly, human skill was a significant factor in affecting internal service quality, and it had a positive effect. When human skill increases by a unit, internal service quality could increase by 0.30, holding technical and conceptual skills constant. Unfortunately, the conceptual skill had a negative but insignificant effect on internal service quality.

The 95% confidence interval indicated that the effect of technical skill ranged from 0.24 to 0.38, whereas that of human skill ranged from 0.22 to 0.37. Nevertheless, the confidence interval for conceptual skill is zero, which could not affect internal service quality.

This finding was in line with Katz, cited in Northouse (2016), who stated that conceptual skill is more prominent for upper-level managers whereas less critical for middle and lower-level managers. However, human skill is equally imperative for all levels of a manager. Seyedeh Sahar et al. (2014) suggested that human skills for effective communication and technical skills for delegation of authority and awareness of rules and regulations have the highest priorities selected. Naderian, M., & AMIR, H. S. (2006) found that human skills significantly influence managers' job performance. Conceptual skills are crucial for higher leadership, less vital for average-level leaders, and optional for first-level executives.

Table 8. Model coefficients

Service quality	Coefficient	Std. err	t	p>t	95%	Conf.Interval
Technical skill	0.31	0.04	8.63	0.000	0.24	0.38
Human skill	0.30	0.04	7.39	0.000	0.22	0.37
Conceptual skill	-0.07	0.04	-1.8	0.073	-0.14	0.01
_cons	0.00	0.03	-0.03	0.973	-0.06	0.06

Finally, the multiple linear regression equation based on estimated coefficients is written as:

$$ISQ = 0.31 * technical\ skill + 0.3 * human\ skill - 0.07 * conceptual\ skil$$

Where ISQ is internal service quality.

The research analysis titled "The Effect of Managerial Skills on Internal Service Quality" aimed to analyze the

effect of managerial skills on internal service quality in city administrations in Amhara Regional State, Ethiopia, based on Katz's Managerial Skills Model and Yaoli's Internal Service Quality Measures. The study used WLS estimation to obtain the values for the interpreted model coefficients.

The results indicated that technical and human skills significantly positively affected internal service quality; this support H1 and H2 of the hypothesis that technological and human skill significantly affect internal service quality. In contrast, conceptual skills had a negative but insignificant effect. This finding shows that this result does not support the H3 hypothesis. The 95% confidence interval for technical skills ranged from 0.24 to 0.38, from 0.22 to 0.37 for human skills. The multiple linear regression equation based on estimated coefficients was ISQ=0.31*technical skill+0.3*human skill-0.07*conceptual skill.

These findings were consistent with Katz's Managerial Skills Model, which stated that conceptual skill was more critical for upper-level managers. In contrast, human skill was equally crucial for all levels of managers. The results also supported the view that technical skill was essential for effectively delegating authority and awareness of rules and regulations.

Regarding Yaoli's Internal Service Quality Measures, the study found that technical and human skills positively impacted all service quality dimensions, including reliability, responsiveness, assurance, empathy, and tangibility. However, the conceptual skill harmed the receptiveness feature of service quality.

Overall, city administrations in Amhara Regional State should prioritize the development of technical and human skills among their managers to enhance internal service quality across all dimensions. It is also essential to recognize the varying importance of conceptual skill at different levels of management and its impact on specific dimensions of service quality.

6. Conclusion and Recommendation

6.1 Conclusions

This research was conducted to identify the effect of managerial skills on internal service quality. The study used multi-stage stratified sampling with proportional allocation to select 196 sample employees. Furthermore, 12 managers were chosen with a convenience sampling technique. Structured Likert scale questionnaires collected managerial skills and internal service quality-related information. Samples were selected from the four city administration municipals.

Factor analysis, arithmetic mean, and median were compared as inter-related Likert scale data analysis techniques. Factor analysis was best for multiple linear regression performance, followed by arithmetic mean. Due to the violation of the independent of residuals assumption in OLS, generalized least square estimation (GLS) was carried out. However, due to o change in the model's performance, an alternative and equivalent method called weighted least square estimation was used. WLS showed better performance concerning R-square and MSE as well as AIC and BIC values, with the smaller, the better.

As preliminary analysis of multiple linear regressions, partial and semi-partial correlations were run, and the significance and direction of correlation were equivalent to that of WLS. The model fitted with WLS showed that technical, managerial skill and human skills were found to be significant and had a positive influence on internal service quality.

6.2 Recommendation

From the study's findings, you should do the following.

- Managers with human skills should be assigned to lower managerial levels, especially at municipals.
- Factor analysis should be used as interrelated Likert scale data analysis
- Weighted least square estimation (WLS) should be considered for regression analysis, as it showed better performance regarding R-square, MSE, AIC, and BIC values.
- Additional study should be accomplished to investigate the impact of other controlling variables, such as the size of the city administration, years of experience of city administration managers, organizational culture, employee motivation, and organizational structure adoption on internal service quality.
- It is recommended to replicate this study in different city administrations to validate the findings and ensure generalizability.
- Organizations should prioritize the development of technical and managerial skills among their managers to improve internal service quality.
- Efforts should be made to create a positive organizational culture that supports and enhances service quality.

- Employee motivation should be promoted through various strategies, such as recognition programs, incentives, and career development opportunities.
- Organizational structures should be optimized to ensure efficient communication and decision-making processes.

6.3 The Research Contribution from Different Perspectives

This study contributes to the literature from various perspectives, including method and methodology, measurement, leadership and managerial, scholarly, academic, and other fundamental perspectives. The findings can inform policy and practice in the context of city administrations in Amhara Regional State, Ethiopia, and contribute to the broader awareness of the relationship between managerial skills and internal service quality.

Theoretically, this investigation contributes to the existing literature on managerial skills and internal service quality. It builds upon Katz's Managerial Skills Model and Yaoli's Internal Service Quality Measures by investigating the influence of managerial skills on internal service quality in the specific circumstances of city administrations in Amhara Regional State, Ethiopia. By conducting empirical research and applying multiple linear regression analysis, this investigation delivers intuitions into the association between managerial skills and internal service quality, thereby improving our understanding of the factors contributing to effective service delivery within city administrations.

From a practical viewpoint, the result of this survey can inform city administrators and policymakers in Amhara Regional State, Ethiopia, about the critical managerial skills necessary for improving the internal service quality. By identifying the specific skills that significantly impact service quality, city administrators can prioritize their training and development efforts to enhance these skills among managers. This prioritization can lead to improved service delivery and ultimately contribute to the overall development and well-being of the region.

Methodologically, this study contributes by employing factor analysis as a dimension-reduction technique to measure the study variables. Reducing the number of items utilized to analyze the variables also enhances the efficiency of data collection and analysis. This factor analysis allows for a more economical and manageable set of variables to be used in the regression analysis. Additionally, the study employs multiple linear regression to examine the relationship between managerial skills and internal service quality, controlling for other relevant variables. This statistical approach helps assess each managerial skill's unique contribution while considering the potential influence of other factors. This approach can be valuable for future research in similar contexts or with limited resources, where it may be challenging to collect extensive data. Using multiple linear regression analysis, this study demonstrates a rigorous statistical approach to investigate the correlation between managerial skills and internal service quality. In terms of measurement perspective, the study contributes by using Likert scale data analysis to measure the variables of interest. Likert scales are extensively applied in social science research and provide a structured way to capture respondents' opinions or attitudes. By using the Likert scale, the study ensures that the data collected is reliable and allows for meaningful comparisons and analyses.

From a policy perspective, this study has implications for designing and implementing policies to improve internal service quality within city administrations. By highlighting the importance of specific managerial skills, policymakers can develop targeted interventions and initiatives to enhance these skills among managers. This intervention can include training programs, mentoring opportunities, creating knowledge-sharing platforms and collaboration among city administrators. These policy interventions can donate to more excellent and profound service delivery, improving citizen satisfaction and governance outcomes.

From a leadership and managerial perspective, this survey examines the effect of different managerial skills on internal service quality. By utilizing Katz's Managerial Skills Model, the study provides insights into the critical skills for enhancing internal service quality in city administrations. This information can be valuable for city administrators and policymakers in identifying areas for improvement and developing targeted training programs.

From other scholarly perspectives, this study focuses on Amhara Regional State, Ethiopia city administrations. This geographical focus adds to the limited literature on managerial skills and internal service quality in this context. By conducting research in a unique setting, the study provides valuable insights that can inform local practices and policies. The study addresses the research questions through a rigorous empirical analysis. Using factor analysis and multiple linear regression strengthens the validity and reliability of the result. Furthermore, by controlling for various potentially confounding variables, such as years of experience and organizational factors, the study ensures that these factors do not solely drive the observed relationships.

In conclusion, this study significantly contributes to understanding managerial skills' effect on internal service

quality in Amhara Regional State, Ethiopia city administrations. This study provides valuable insights to inform future research, practice, and policymaking in public administration and service delivery by considering different theoretical, practical, methodological, and policy perspectives.

6.4 Limitations and Future Implications

The sample sizes used in the study are relatively small, and only four municipalities were considered. Hence, further investigation should incorporate other public service offices with more sample sizes and in-depth interviews. In addition, a simulation study could validate the suitability of factor analysis for inter-related Likert scale data.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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