


# Exploring the Role of Higher Education Leaders in Quality Culture Development: A Mixed Methods Study


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## Abstract

**Objectives:** In higher education institutions (HEIs), building a strong quality culture (QC) is essential to ensure the quality of education provided. QC integrates organizational, managerial, and psychological elements that shape how quality is understood and improved in HEIs. This study explores how leaders at the departmental and faculty levels navigate and contribute to quality culture development (QCD).

**Methods:** We employed a sequential explanatory mixed-methods design. A total of 1,029 academics completed questionnaires, and 33 leaders at the departmental and faculty levels were interviewed at three public universities in Ethiopia.

**Results:** The findings reveal that leadership roles at the departmental and faculty levels are key determinants of QCD. However, the current leadership practices in the studied universities have not yielded satisfactory results. This shortfall is attributed to a quality assurance (QA) management approach that fails to adequately integrate organizational, managerial, and psychological elements with the leadership roles of department- and faculty-level leaders.

**Conclusions:** To foster QCD, this study recommends that leadership roles be grounded in a systemic approach that integrates all three QC elements. It outlines practical mechanisms for department- and faculty-level leaders to align these elements effectively to promote QC, ultimately supporting ongoing quality enhancement in HEIs. Additionally, the study emphasizes the need for higher education policies, strategies, plans, and QA methods to incorporate QC explicitly into existing QA frameworks.

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**Implications:** This study offers a meaningful contribution to the higher education quality literature by highlighting the integration of organizational, managerial, and psychological elements in explaining quality within HEIs. It also provides valuable insights into how QC can be recognized and strengthened through existing leadership practices. Furthermore, the study addresses a significant gap in QC research, particularly within the Ethiopian higher education sector and comparable educational contexts.

**Keywords:** *leadership, quality education, quality culture, quality assurance, quality culture development, higher education*

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## Introduction

There is an increasing expectation for higher education institutions (HEIs) to produce graduates capable of contributing meaningfully to economic, social, cultural, and technological development. To meet these demands, scholars widely agree that HEIs around the world are guided by four core missions: imparting knowledge through teaching and learning, generating knowledge through research, applying and disseminating knowledge through community engagement, and preserving and transmitting knowledge across generations (Altbach & de Wit, 2018; Marginson, 2018).

Despite the crucial role of higher education in driving socioeconomic development, numerous studies report a persistent decline in quality across HEIs in many sub-Saharan African countries since the 1980s (Materu, 2007). This decline has intensified accountability pressures, stimulating universities to strengthen their institutional quality assurance (QA) systems (Mandefro et al., 2025; Akalu, 2016; Materu, 2007). In response, QA agencies have been established across the region since 1985, with Ethiopia formally introducing its QA system in 2003. This initiative was part of a broader reform agenda aimed at addressing challenges related to rapid system expansion (Semela, 2011), declining quality, and growing global competition (Mandefro et al., 2025).

While Ethiopia's QA system made initial progress by establishing formal structures and raising awareness (Teferra et al., 2018), its long-term effectiveness has been limited by inadequate implementation, weak stakeholder engagement, and a lack of sustainable impact. According to both expert analyses (e.g., Akalu, 2016; Harvey, 2024) and the findings of this study, QA efforts in Ethiopia have primarily been compliance-driven, focused more on fulfilling external requirements than on promoting meaningful internal quality improvements. This has often reduced QA to a box-ticking exercise, devoid of transformative impact (Adamu & Addamu, 2012; Harvey, 2024).

Furthermore, QA implementation has largely followed a centralized, top-down model (Tamrat, 2022), leaving minimal space for institutional innovation, staff involvement, and contextual adaptation. The findings of this study highlight that the system has also overlooked the psychological, cultural, and human factors that shape how quality is perceived and practiced. This critical gap has impeded the development of quality culture (QC). Supporting this view, Akalu (2014), Hervey (2024), and Teferra et al. (2018) argue that the dominance of external audits and rigid bureaucratic procedures has constrained institutional ownership and continuous

quality enhancement. In recognition of experts' recommendations—e.g., Mandefro et al (2025)—this study underscores the urgent need for a paradigm shift from compliance-based QA toward a more holistic, leadership-driven, and contextually grounded model that places QC at the core. Emphasizing QC not only enhances the relevance and sustainability of QA systems but also fosters shared ownership, institutional learning, and long-term improvement in educational quality across HEIs.

This study is grounded in the global experiences that the European University Association (EUA) introduced in the concept of QC in 2006, as a complementary approach to traditional QA mechanisms, to address ongoing quality challenges. Since then, EUA member institutions have reported continuous improvement in educational quality. Studies by Loukkola and Zhang (2010), Sursock (2011), and Vettori (2012) highlight the positive impact of QC on shaping QA systems across Europe. Similarly, Adelman (2009), Bendermacher (2021), Hildesheim and Sonntag (2020), Lucander and Christersson (2020), and Cardoso et al. (2016) emphasize that QC is foundational to effective QA and can reduce compliance-driven practices and policy inconsistencies.

Importantly, introducing QC does not imply replacing existing QA mechanisms. Rather, it expands the perspective of quality enhancement by integrating organizational, managerial, and psychological dimensions into current quality management systems. According to the EUA (2006), these dimensions must function in unison to create a shared institutional commitment to continuous quality improvement. QC is, therefore, a process of reshaping existing quality practices to align with the values of institutional actors and stakeholders. This transformation, according to Mandefro et al (2025), requires strong, distributed leadership across all levels of the organization to embed QC successfully into institutional culture. Recognizing the pivotal role of leadership, numerous empirical studies (e.g., Bendermacher et al., 2019; Bryman, 2007; Coman & Bonciu, 2016; Frisk et al., 2021; Milburn, 2010; Njiro, 2016; Vettori & Rammel, 2014) have emphasized that achieving and sustaining higher education quality requires a systemic, leadership-driven approach. Leaders at lower and mid-management levels, such as department heads, program coordinators, and faculty-level managers, play a crucial role in translating institutional policies into practice (Bryman, 2007). These positions foster inquiry-based learning, reflective practice, and collaborative engagement, while motivating both staff and students to adopt practical, real-world applications of learning (Frisk et al., 2021; Milburn, 2010).

The QA system in Ethiopia was established to enhance the quality, relevance, and accountability of higher education, with the ultimate goal of fostering a culture of continuous improvement in teaching, learning, and institutional management (Hunde et al., 2023; Teferra et al., 2018). However, empirical evidence consistently shows that internal QA mechanisms remain weakly institutionalized across both public and private universities (Tamrat, 2022). The system continues to emphasize compliance over substantive quality improvement (Mandefro et al., 2024; Semela, 2011), demonstrates limited alignment with labor market demands (Hunde et al., 2023; Mandefro, 2019; Teferra et al., 2018), and lacks an embedded quality culture (Kahsay, 2012). The top-down implementation of QA has not translated into meaningful institutional change (Akalu, 2014; Harvey, 2024; Hunde et al., 2023; Teferra et al., 2018). Moreover, findings from this study reveal that many quality initiatives are treated as short-term campaigns, lacking grounding in evidence-based policy and research. Existing QA policies also tend to neglect the psychological and cultural dimensions essential to sustainable quality practices, favoring control and compliance over support and engagement (Adamu & Addamu, 2012; Harvey, 2024; Tamrat, 2022). As Mandefro (2022) argues, control without support is unlikely to produce lasting improvement. Consequently, QA systems in Ethiopian HEIs have not met their intended objectives and require comprehensive reform that prioritizes outcomes-based quality culture development (QCD) across all institutional levels.

This study seeks to explore how leaders at the faculty, department, and program levels, particularly in the Ethiopian higher education context, understand and enact their roles in fostering QCD. Building on insights from the literature, we assume that these leaders serve as key facilitators of QCD by influencing staff

motivation, allocating resources, clarifying responsibilities, fostering collaboration, and cultivating shared understanding among stakeholders. Their leadership practices are instrumental in translating QA policies into sustainable quality enhancement initiatives. From this point of view, this study is important because it shifts the focus from top-down QA enforcement to a more nuanced understanding of how distributed leadership at operational levels can drive QC. It responds to a gap in existing research, particularly within the Ethiopian and broader sub-Saharan African higher education contexts, where most studies focus on policy frameworks rather than on the lived leadership experiences that shape quality practices on the ground. Moreover, by exploring how department- and faculty-level leaders navigate QCD, this research offers a systemic, integrative perspective on QA, one that recognizes the interaction between organizational, managerial, and psychological elements for quality improvement. This contribution is especially relevant for QA scholars, policymakers, and institutional leaders seeking to design more context-sensitive, participatory, and sustainable quality enhancement strategies. Ultimately, the study enriches the global discourse on QA in HEIs by demonstrating that QC, when supported by informed, empowered leadership, can lead to more meaningful and enduring improvements in educational quality.

## Literature Review

This study recognizes that the leadership roles of departmental- and faculty-level leaders are crucial for navigating quality enhancement policies and for integrating elements of QC to promote positive outcomes in HEIs. Supporting this, several studies (Bendermacher, 2021; Vettori & Rammel, 2014) have identified strong leadership as a key determinant in initiating, supporting, communicating, and sustaining QC development. According to the EUA (2006), staff commitment, shared values, and institutional beliefs are profoundly influenced by participatory decision-making and leadership approaches. Similarly, Mandefro et al. (2016) argue that these organizational behaviors are shaped by underlying leadership assumptions and are communicated through narratives, symbols, institutional language, and norms.

Leadership plays a central role in supporting both internal actors and external stakeholders in achieving cultural change and institutional development. The scholarly literature emphasizes that successful quality enhancement in HEIs depends on how well leadership engages with at least six interrelated QC dimensions. First, the EUA (2006) identifies three foundational elements that leadership must integrate to promote QC: structural/organizational values, managerial systems, and psychological/cultural dimensions. These QC elements are interdependent and mutually reinforce each other in higher education quality improvement. Second, leadership must balance two sets of institutional values: first, managerial values such as innovation, collaboration, and system efficiency, and, second, academic values such as autonomy, disciplinary traditions, and individual expertise. Rather than prioritizing one set over the other, leaders must harmonize both to foster sustainable QC (EUA, 2006; Surssock, 2015). Third, effective leadership for QC requires a paradigm shift from a rigid, compliance-based QA approach toward one that emphasizes trust, autonomy, shared credibility, and developmental quality enhancement (Bendermacher et al., 2019; Vettori, 2012; Ehlers, 2009). This shift promotes intrinsic motivation and shared ownership of quality across institutional actors. Fourth, a well-implemented QC fosters collective responsibility for quality improvement. QC is not the task of a few administrators but a shared institutional commitment that relies on strong top-down leadership alongside active bottom-up engagement from staff and faculty (Bendermacher et al., 2019; Lucander & Christersson, 2020). Fifth, coordinated QC efforts ensure that the institution's organizational structures align with its quality enhancement strategies. Each functional domain—academic programs, support services, administration—should serve as a platform for advancing institutional quality (Irani et al., 2004; Deneen & Boud, 2014). Finally, leadership in HEIs must recognize that quality is a socially constructed phenomenon shaped by cultural, contextual, and interpersonal factors. A robust QC approach acknowledges this and fosters dialogue, reflection, and learning across the institution (Bendermacher, 2021).

More recent studies have continued to emphasize the importance of leadership in nurturing QC, particularly in contexts where QA systems have historically emphasized compliance over development (Harvey, 2024). These scholars argue that shifting toward a QC-oriented model enhances institutional learning, accountability, and long-term sustainability of quality improvement. Recognizing the importance of this model, the present study aims to explore the leadership roles of those in lower- and middle-level management positions, such as department heads, associate deans, and faculty coordinators, in fostering QCD within HEIs. We examine how their leadership behaviors influence the integration of organizational, managerial, and psychological elements of QC, using both academic and leadership perspectives. To achieve this aim, the study addresses the following research questions:

1. What are academics' perceptions of the leadership roles in navigating the organizational, managerial, and psychological elements of QC?
2. What are the relationships among these QC elements that contribute to quality culture development in HEIs?
3. How do leaders in lower- and middle-level management positions describe their roles and experiences in shaping QC within their institutions?

## Methods

### Research Design

Our study employed a mixed-methods sequential explanatory design, consisting of two distinct phases of data collection. In this approach, quantitative data are collected and analyzed first, followed by qualitative data collection and analysis (Creswell & Creswell, 2018). This method was selected because the initial quantitative data and its analysis provided a broad understanding of the research problem and helped identify the most relevant sources for qualitative data. Based on the management structure of public universities in Ethiopia, key informants for the qualitative phase were identified, including college/faculty deans, associate deans for research and academic programs, quality assurance coordinators, and department heads.

The qualitative data further explored participants' perspectives and served to clarify and enrich the quantitative findings, as recommended by Creswell & Creswell (2018). In implementing a mixed-methods sequential explanatory design, specific methodological considerations must be addressed, including the relative priority or weight assigned to the quantitative and qualitative components, the sequencing of data collection and analysis, and the stages at which the two data sets are connected and integrated (Morse, 1991; Creswell & Creswell, 2018). Following Morse's (1991) guidance on data weighting, this study adopted a QUAN→QUAL model, in which the quantitative phase is prioritized. Regardless of the sequence, each method was conducted rigorously and met established standards for methodological quality (Creswell, 2003). Additionally, in line with Morse's (1991) recommendations, qualitative data collection continued until data saturation was achieved.

### Population, Sample Size, and Sampling Techniques

To obtain representative samples, a multistage stratified random sampling technique was employed. In the first stage, three universities—Hawassa, Dilla, and Wolayta Sodo—were selected from a total of five universities located in two regional states: Sidama National Regional State (Hawassa University) and the Southern Peoples' Regional State (which includes Wolayta Sodo, Arbaminch, Jinka, and Dilla universities). These three selected universities represent 60% of the total sampling frame. In the second stage, five colleges, faculties, and/or institutes were randomly selected from each university. An exception was made for the College of Law and Governance, which was substituted by the College of Education and Behavioral Sciences at

Hawassa University, where a pilot study was later conducted. Of the nine colleges at each university, five, representing 55.5%, were included in the study. In the third stage, departments, schools, and academic staff were selected, based on biological gender to ensure diversity. To keep the research process both relevant and manageable, the same structure of five colleges, faculties, and/or institutes and 27 departments, initially selected at Hawassa University, was applied by default to both Dilla and Wolayta Sodo Universities.

During data collection, the total population of academic staff in the selected departments was: Hawassa University, 1,469; Dilla University, 867, and Wolayta Sodo University, 949. This gives a combined total population of 3,285 academic staff. The sample size was determined using Yemane's (1969) formula for sample size estimation, with a 3% margin of error (Equation 1):

$$n = \frac{N}{1 + N(e)^2} = \frac{3,285}{1 + 3,285(0.03)^2} = 830.27 \cong 831$$

Where:

- n = 831 is the initial estimated sample size (25.29% of the population),
- N = 3,285 is the total target population, and
- e = 0.03 is the allowable margin of error.

However, considering a potential nonresponse rate of 364 individuals (approximately 11%) due to the online data collection method and the likelihood that some participants might not complete the questionnaire, the sample was expanded to 1,200. This final sample size represents 36.52% of the total academic staff population and was deemed sufficient to ensure the validity and reliability of the study. Table 1 provides demographic characteristics of the participants.

**Table 1.** *Demographic Characteristics of Participants*

		Frequency	Percentage
University	Hawassa University	372	36.2
	Dilla University	318	30.9
	Wolayta Sodo University	339	32.9
College	College of Natural and Computational Sciences	204	19.8
	College of Business and Economics	128	12.4
	College of Social Science and Humanities	237	23.0
	College of Law & Governance	26	2.50
	Institute of Technology/College of Engineering	355	34.5
	College of Education & Behavioral Sciences	79	7.70
Gender	Male	843	81.9
	Female	186	18.1
Age	21–30	259	25.2
	31–40	527	51.2
	41–50	202	19.6
	51–60	35	3.40
	61–65	6	.600

		Frequency	Percentage
Academic position	Lecturer	874	84.9
	Assistant professor	138	13.4
	Associate professor	17	1.70
Academic qualification	MSc/MA/MPhl	897	87.2
	PhD/DEd	132	12.8
Work experience in HEIs	1–5	242	23.5
	6–10	411	39.9
	11–15	204	19.8
	16–20	108	10.5
	21–25	41	4.00
	26 or more	23	2.20

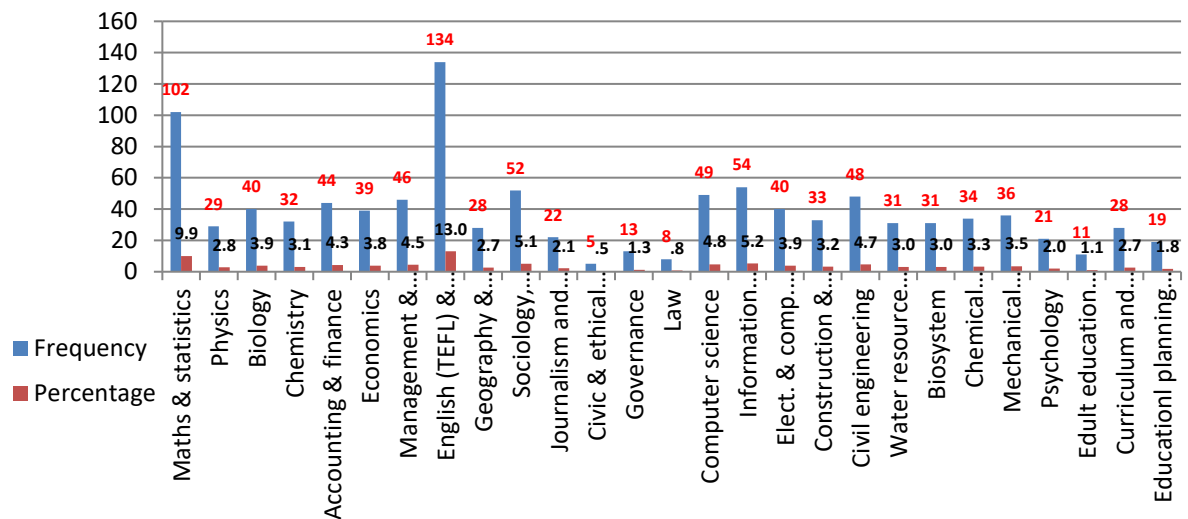
*Note:* Demographic information of participants was taken from survey questionnaires (April 2024).

## Participants

The quantitative component of this study relied on academic staff as the primary source of data. Academics were prioritized because their working relationship with institutional leaders is both close and directly influenced by those leaders' decisions and actions. They also play a central role in implementing QA measures related to teaching, research, and community service at the departmental level. Furthermore, academics are actively involved in operationalizing quality assurance policies, programs, procedures, and practices, particularly those connected to teaching and learning processes. As such, they possess valuable insights into the day-to-day leadership roles of academic leaders in the context of quality enhancement initiatives, at both department and program levels, as described by Ehlers (2009). Therefore, academics are well positioned to provide informed perspectives on the leadership functions related to QA management and broader leadership activities within their departments.

Additionally, academics are expected to contribute directly to existing QA efforts through their formal responsibilities in teaching, research, and community service. These contributions play a crucial role in advancing QCD as outlined by Ehlers (2009). A total of 1,029 academic staff participated in the study. Of these, 843 (81.9%) were male, while 186 (18.1%) were female. By institution, 372 (36.2%) were from Hawassa University, 318 (30.9%) were from Dilla University, and 339 (32.9%) were from Wolayta Sodo University.

In terms of academic units, five colleges/faculties were selected from each university through stratified random sampling, representing 27 departments in total (see Figure 2). The distribution across faculties was as follows: College of Natural and Computational Sciences, 204 (19.8%); College of Business and Economics, 128 (12.4%); College of Social Sciences and Humanities, 237 (23.0%); College of Education and Behavioral Sciences, 79 (7.7%); College of Law and Governance, 26 (2.5%); and Institute of Technology, 355 (34.5%).

**Figure 1:** Academic Departments/Schools That Participated in the Study

The data reveal significant gender disparities among academic staff in the sampled universities. In terms of age, respondents ranged in age from 21 to 65 years, with the majority falling within the 31–40 age range (see Table 1), indicating that most participants were in the prime of their professional productivity. Regarding years of service, academic staffs were categorized as: 1–5 years, 242 (23.5%); 6–10 years, 411 (39.9%); 11–15 years, 204 (19.8%); 16–20 years, 108 (10.5%); 21–25 years, 41 (4.0%); and 26 or more years, 23 (2.2%). These figures suggest that the majority of academics (59.7%) have between 6 and 15 years of service, implying that the participating universities may have a relatively young and mid-career academic workforce.

The qualitative component of this study involved thematic semi-structured interviews with 33 academic leaders, comprising 11 participants from each university. Participants were selected through purposive sampling, a method widely recognized for its effectiveness in identifying information-rich cases relevant to a study's objectives (Patton, 2015). This approach aligns with the goals of qualitative inquiry, which seeks to understand complex social phenomena through the perspectives of those directly involved (Creswell & Poth, 2018). Purposive sampling emphasizes depth over breadth, thereby enabling the collection of rich, contextualized data.

The sample size of 33 was determined based on the principle of data saturation—the point at which no new themes or insights emerge from additional interviews (Guest et al., 2006). Achieving saturation enhances the credibility and trustworthiness of the findings, consistent with the standards of qualitative rigor. Participants were included based on the following three criteria:

1. Leadership role: They held formal academic leadership positions such as department heads, associate deans, and/or coordinators of QA and academic programs.
2. Experience: A minimum of 3 years of experience in both teaching and leadership was required to ensure adequate familiarity with institutional QA processes.
3. Engagement with QA practices: Participants were actively involved in QA activities or quality improvement initiatives within their respective universities.

On the other hand, participants were excluded if they had fewer than 3 years of teaching and leadership experience in HEIs, which could limit their ability to provide insights into long-term quality improvement practices. Those whose responsibilities were purely administrative, without direct involvement in teaching, research, or quality-related decision making, were also excluded.

Interview participants were categorized into five groups: six associate deans for research (all male), six associate deans for academic programs (all male), six quality assurance coordinators (all male), nine department heads (three female, six male), and six program coordinators (e.g., for freshman and graduate programs; two female, four male). These individuals were selected based on their current leadership roles in lower-level university management, positioning them well to provide informed insights into existing leadership practices in QA management. As Cohen et al. (2011) emphasize, such participants are valuable sources of qualitative data due to their experiential knowledge and direct engagement in institutional leadership.

In terms of professional experience, associate deans (for research and academic programs) had between 13 and 24 years of experience in teaching, departmental leadership, and program coordination. Quality assurance coordinators had 15 to 21 years of experience, including teaching, departmental leadership, and module team coordination. Department heads had between 7 and 15 years of experience in teaching and either departmental or module team coordination. Program coordinators had between 3 and 8 years of experience in teaching, coordinating academic modules, and mentoring undergraduate students.

### **Development of a Data-Collection Tool and its Validity and Reliability**

The development of the data collection tools involved the design of three structured questionnaires with closed-ended items aimed at operationalizing leaders' roles in QCD across three major dimensions. The first questionnaire addressed organizational values, emphasizing institutional, structural, and formal elements. It captured the leadership roles of individuals at lower levels of management and covered five key QC variables: human relations (HR, 7 items), open system (OS, 8 items), rational goals (RG, 6 items), internal processes (IP, 8 items), and quality assurance policies (QAP, 7 items). The second questionnaire focused on managerial components, specifically examining leadership (8 items), communication (7 items), quality improvement practices (QIP, 6 items), and quality improvement strategies (QIS, 8 items). The third targeted the psychological dimensions of QC, including indicators related to empowerment (7 items), commitment (7 items), and ownership (7 items). All three questionnaires were designed to be completed by academic staff, who were assumed to have sufficient knowledge to assess the leadership roles of their supervisors, particularly in the context of promoting QCD within existing QA programs. The indicators/items in the questionnaires were developed using two approaches. First, existing items were adapted from Bendermacher et al. (2019) and Loukkola and Zhang (2010) to reflect the local QA and QC context through appropriate wording. Second, self-developed items were formulated based on an in-depth review of national and international QA policies, frameworks, and relevant literature on QCD.

Content validity of items was established through expert review by two professors in the field in accordance with guidelines by Cohen et al. (2011). All items were measured on a 5-point Likert scale, ranging from strongly disagree to strongly agree. Reliability was confirmed through a pilot test conducted between April 22 and May 8, 2024, at the College of Education and Behavioral Sciences, Hawassa University. The aggregate Cronbach's alpha for the 12 subthemes was 0.897 based on 125 responses (12.14% of the total sample), indicating a high level of internal consistency as supported by Santos (1999). Further validation was conducted using exploratory factor analysis to examine the underlying structure of the QC components and assess the strength of each item in representing its respective construct. Factor loadings and beta coefficients were analyzed using principal component analysis, with items below the threshold of  $\beta < 0.4$  suppressed to improve factor clarity. This follows methodological recommendations by Comrey and Lee (1992), Field (2005), Hair et al. (1998), Guadagnoli and Velicer (1988), and Stevens (1992). According to Guadagnoli and Velicer (1988), items with factor loadings  $> 0.4$  are considered stable, provided that sample size and the number of items per factor are adequate.

For the qualitative phase, a semi-structured, non-directive interview guide was developed (see Appendix B). The guide was structured around three core themes, each containing five subthemes, and was supported by follow-up questions to elicit detailed narrative responses (Cohen et al., 2011). The interview instrument was reviewed by the same two experts who validated the quantitative tools to ensure internal consistency across both instruments. Participation in the interviews was voluntary, and informed consent was obtained from all participants. Detailed procedures for the qualitative interviews are described in the following section.

## Data Collection Procedures and Research Ethics

Quantitative data were collected online via Google Forms between May 20 and June 20, 2024. The cover page of the questionnaire clearly explained the purpose of the study, after which participants were required to provide written informed consent before proceeding. The form was configured to prevent completion without consent. Additionally, participants were informed that their participation was entirely voluntary and that they could withdraw at any point during the study. Written informed consent was secured in accordance with ethical guidelines. A total of 1,200 academic staff from three universities were invited to participate. Their email addresses were carefully obtained from their respective departments, schools, or faculties during face-to-face meetings between the first author and department heads. These meetings were also used to request institutional permission and distribute the ethical approval letter granted by the Institutional Ethical Review Board of Hawassa University, College of Education and Behavioral Sciences, on April 19, 2024 (Dossier reference number: Ref. No. COE-REC/016/2024). To improve response rates, multiple reminder emails were sent within designated time intervals. As a result, out of 1,200 questionnaires distributed, 1,029 valid responses were collected, yielding an 85.75% response rate. The remaining 171 participants (14.25%) did not respond, presumably due to non-consent or voluntary withdrawal.

The qualitative component of the study consisted of thematic interviews with 33 academic leaders. Initial contact was made via phone calls and emails following prior communication between the first author and department heads who were already informed about the study during the first phase. The purpose and scope of the interviews were clearly explained to all prospective participants. Ethical approval letters and consent forms were sent by email following the same procedure used in the quantitative phase. Upon receiving participant consent, individual interview appointments were scheduled. To ensure consistency and data quality, all interviews were conducted face to face by the first author and two trained assistants between August 19 and September 6, 2024. The process spanned 3 weeks, with 1 week allocated per university. Interviews were held during 5 working days per institution, with two to three participants interviewed per day, according to their scheduled times. Further details about the interview guide and data handling procedures are provided in the Data Analysis section.

## Data Analysis

In the initial phase of analysis, IBM SPSS (Version 26) was used to analyze respondents' demographic information and conduct descriptive statistical analyses. In the second phase, SmartPLS-4 statistical software was employed, as the nature of this study is explanatory, and SmartPLS is particularly suited for evaluating measurement and structural models. As noted by Hair et al. (2022), SmartPLS provides enhanced accuracy in assessing model fit, indicator/item performance, scale reliability and validity, explanatory power, and predictive accuracy. To evaluate the reliability and validity of the QCD scale constructs, we applied Cronbach's alpha ( $\alpha$ ), composite reliability ( $\rho_c$ ), and average variance extracted (AVE). Specifically, Cronbach's alpha was used to assess the internal consistency reliability of each indicator, as demonstrated in Equation 2:

$$\text{Cronbach's } \alpha = \left( \frac{M}{M-1} \right) \left( 1 - \frac{\sum_{i=1}^M S_i^2}{S_t^2} \right)$$

In this equation, “ $S_i^2$ ” represents variance of the indicator variable “ $i$ ” of a specific construct, measured with  $M$  indicators ( $i = 1 \dots M$ ), and “ $S_i^2$ ” is the variance of the sum of all  $M$  indicators for that construct. However, due to the technical limitations of Cronbach’s alpha, particularly its assumption of tau-equivalence and equal factor loadings across indicators, Hair et al. (2022) recommend the use of composite reliability ( $\rho_c$ ) as a more accurate measure of internal consistency. Unlike Cronbach’s alpha, composite reliability accounts for the different outer loadings of the indicator variables. Therefore, to ensure the internal consistency and reliability of our constructs, we calculated composite reliability ( $\rho_c$ ), as defined in Equation 3:

$$\rho_c = \frac{(\sum_{i=1}^M l_i)^2}{(\sum_{i=1}^M l_i)^2 + \sum_{i=1}^M \text{var}(e_i)}$$

where “ $l_i$ ” is the standardized outer loading of the indicator variable “ $i$ ” of a specific construct measured with  $M$  indicators, “ $e_i$ ” is the measurement error of indicator the variable “ $i$ ”, and  $\text{var}(e_i)$  denotes the variance of the measurement error defined as  $1 - l_i^2$ . According to Hair et al. (2022), Cronbach’s alpha and composite reliability ( $\rho_c$ ) values ranging between 0.70 and 0.90 are generally considered satisfactory indicators of internal consistency reliability.

The third step in establishing construct validity involves assessing convergent validity, which is measured using the average variance extracted (AVE). As defined by Hair et al. (2022), AVE represents the grand mean of the squared factor loadings of the indicators associated with a given construct calculated as the sum of the squared loadings divided by the number of indicators. Conceptually, AVE reflects the construct’s communality and provides an indication of the amount of variance that a construct captures from its indicators relative to the amount due to measurement error. Accordingly, AVE was computed in this study as shown in Equation 4:

$$AVE = \left( \frac{\sum_{i=1}^M l_i^2}{M} \right)$$

where “ $l_i^2$ ” is the standardized outer loading of the indicator variable “ $i$ ” of a specific construct measured using  $M$  indicators. According to Hair et al. (2022), an AVE value of 0.50 or higher indicates that, on average, the construct explains more than 50% of the variance in its associated indicators, thereby demonstrating acceptable convergent validity.

Once the construct measures were confirmed to be reliable and valid, the final step involved evaluating the QCD scales to assess their explanatory and predictive capabilities. Following the procedures recommended by Hair et al. (2022), we began by examining potential multicollinearity issues, analyzing the relationships among the study variables and evaluating the explanatory power of the scales, using the coefficient of determination ( $R^2$ ). Subsequently, we assessed the predictive power of the model by employing the PLS<sub>predict</sub> ( $Q^2$ ) procedure proposed by Shmueli et al. (2016), along with the Root Mean Square Error (RMSE) and a naïve linear regression model (LM) for comparison. The RMSE was calculated using Equation 5, which evaluates the average magnitude of prediction errors in the model:

$$RMSE = \sqrt{\frac{\sum_{i=1}^n (y_i - \hat{y}_i)^2}{n}}$$

In this equation,  $y_i$  represents the value of  $y$  for observation  $i$  ( $i = 1 \dots n$ ) and  $\hat{y}_i$  is the predicted value for that observation.

Having confirmed the reliability and validity of the indicator measures for examining the leadership role in advancing QCD in HEIs, the next step involved assessing the structural model to determine its explanatory and predictive capabilities. Following the procedures outlined by Hair et al. (2022), the structural model

assessment was conducted in several stages. First, multicollinearity issues were examined by evaluating the variance inflation factor (VIF) for each indicator. Second, correlation coefficients were analyzed to assess the significance and relevance of the relationships among the structural model's variables. Third, the explanatory power of the constructs was assessed using the coefficient of determination ( $R^2$ ). Finally, the model's predictive accuracy was evaluated using the  $PLS_{predict}$  ( $Q^2$ ) procedure proposed by Shmueli et al. (2016), along with RMSE and comparison to a naïve LM, as recommended by Hair et al. (2022).

To analyze the qualitative data, a thematic analysis approach was employed that was guided by the study's research questions and the conceptual framework on QCD and leadership roles in HEIs. Interview transcripts were first transcribed verbatim and then coded both inductively and deductively to identify recurring patterns, themes, and subthemes. Initial codes emerged from participants' narratives and were later grouped into broader categories that reflected leadership roles in QCD. Accordingly, the interview data were organized into five major thematic categories aligned with the primary variables of the quantitative component, ensuring consistency across both data strands (Cohen et al., 2011). Following the recommendations of Creswell and Creswell (2018), the analysis also incorporated narrative analysis techniques to enrich the interpretation of participants' experiences and viewpoints.

To ensure the credibility of the transcribed data, a member-checking procedure was implemented. Participants were invited to review the accuracy of their interview transcripts to confirm that their views were correctly captured and demonstrate rigorous ethical research practice as delineated by Creswell and Poth (2018). For confidentiality, all participants were assigned anonymized codes: associate deans for research were labeled ADR1 to ADR6; associate deans for academic programs, ADA1 to ADA6; quality assurance coordinators, QAC1 to QAC6; department heads, DH1 to DH9; and academic program coordinators, APC1 to APC6. With participants' consent, all interviews were audio-recorded and transcribed using Microsoft Word. Each interview lasted approximately 50 to 60 minutes, allowing sufficient time for probing questions and reflective responses to elicit deeper insights into the study topics (Cohen et al., 2011). These in-depth interviews enabled participants to share rich, detailed accounts of their experiences and perspectives.

To support the coding and organization of qualitative data, MAXQDA (2020) software was employed. The most relevant qualitative data sources—such as associate deans, department heads, quality assurance coordinators, and program coordinators—were identified based on preliminary quantitative findings. Specifically, the quantitative data offered a broad understanding of patterns and gaps in leadership roles in QCD across departments and institutions. These insights guided the purposeful selection of interview participants by identifying key leadership roles most directly involved in QCD processes. Furthermore, the quantitative data served as a foundational layer for interpretation by highlighting trends, distributions, and relationships among variables related to leadership and QCD. This allowed the qualitative phase to delve deeper into the underlying reasons behind the observed patterns and to explore the lived experiences of academic leaders in greater depth. Integration of both quantitative and qualitative findings, as per sequential explanatory design, helped to enable triangulation of findings, thereby enhancing the study's overall validity and interpretive strength.

## Results

### Results of the Survey Questionnaires

To investigate the current leadership roles of academic leaders in navigating QCD, 12 QC elements/constructs were examined across three major dimensions of QC. Table 2 presents the aggregated descriptive statistics, construct reliability and validity measures, and t-test results for each construct, thereby highlighting the existing roles of leaders in navigating QCD.

As shown in Table 2, academic staff rated organizational values such as open system, ( $M = 2.15$ ,  $SD = 0.86$ ), human relations ( $M = 2.21$ ,  $SD = 1.04$ ), internal processes ( $M = 2.22$ ,  $SD = 1.03$ ), rational goals ( $M = 2.16$ ,  $SD = 1.05$ ), and quality assurance policies ( $M = 2.18$ ,  $SD = 0.88$ ) predominantly within the “disagree” range. Similarly, managerial elements, leadership ( $M = 2.25$ ,  $SD = 1.05$ ), communication ( $M = 2.14$ ,  $SD = 1.06$ ), quality improvement practices ( $M = 1.95$ ,  $SD = 0.97$ ), and quality improvement strategies ( $M = 2.07$ ,  $SD = 1.02$ ) were also rated as “disagree.” Regarding psychological elements, the majority of respondents expressed disagreement with statements related to commitment ( $M = 2.37$ ,  $SD = 0.83$ ), ownership ( $M = 2.17$ ,  $SD = 1.02$ ), and empowerment ( $M = 2.23$ ,  $SD = 1.06$ ), the latter of which could potentially be improved through staff development-oriented leadership (see Appendix A for a detailed analysis). Overall, the descriptive results suggest that, in the participating universities, academic leaders are perceived by most staff as playing an insufficient role in facilitating QCD.

To assess the quality of the measurement instruments, content validity and reliability analyses were conducted. As also shown in Table 2, Cronbach’s alpha ( $\alpha$ ), composite reliability (CR-rho\_a), and average variance extracted (AVE) for the organizational value variables indicated acceptable psychometric properties: human relations ( $\alpha = 0.919$ ; CR = 0.923; AVE = 0.674), internal processes ( $\alpha = 0.898$ ; CR = 0.900; AVE = 0.585), open system ( $\alpha = 0.940$ ; CR = 0.943; AVE = 0.706), quality assurance policies ( $\alpha = 0.904$ ; CR = 0.939; AVE = 0.659), and rational goals ( $\alpha = 0.908$ ; CR = 0.911; AVE = 0.686). These results confirm that the constructs demonstrated satisfactory levels of reliability and validity.

For the managerial elements, the reliability and validity indicators demonstrated acceptable psychometric properties: communication ( $\alpha = 0.873$ ; CR = 0.877; AVE = 0.568), leadership ( $\alpha = 0.894$ ; CR = 0.894; AVE = 0.573), quality improvement practices ( $\alpha = 0.910$ ; CR = 0.912; AVE = 0.697), and quality improvement strategies ( $\alpha = 0.921$ ; CR = 0.921; AVE = 0.644). Similarly, for the psychological elements, the results also satisfied the quality thresholds: commitment ( $\alpha = 0.919$ ; CR = 0.920; AVE = 0.672), ownership ( $\alpha = 0.880$ ; CR = 0.881; AVE = 0.581), and empowerment ( $\alpha = 0.850$ ; CR = 0.862; AVE = 0.530). These values indicate that the constructs demonstrated sufficient reliability and convergent validity.

**Table 2:** Perceptions of Academics on the Existing Practices of Leaders in Navigating QCD

Dimensions of QC	Elements of QC	No of items	Descriptive result		Construct reliability and validity		
			<i>M</i>	<i>SD</i>	$\alpha$	CR	AVE
Organizational values	Open system (OS)	8	2.15	.860	.890	.913	.706
	Human relations (HR)	7	2.21	1.04	.885	.899	.674
	Internal processes (IP)	8	2.22	1.03	.898	.900	.585
	Rational goals (RG)	6	2.16	1.05	.896	.911	.686
	Quality assurance policies (QAP)	7	2.18	.875	.901	.919	.659
Managerial elements	Leadership (LD)	8	2.25	1.05	.894	.901	.573
	Communication (CO)	7	2.14	1.06	.873	.877	.568
	Quality improvement practices (QIP)	6	1.95	.971	.897	.912	.697
	Quality improvement strategies (QIS)	8	2.07	1.02	.901	.911	.644
Psychological elements	Commitment (COM)	7	2.37	.832	.899	.910	.672
	Empowerment (EMP)	7	2.17	1.02	.880	.881	.581
	Ownership (OWN)	7	2.23	1.06	.850	.862	.530

Note: N: Number of respondents. df: degree of freedom ( $N-1 = 1,028$ ). *M*: Mean. *SD*: Standard deviation. Cronbach’s alpha ( $\alpha$ ); composite reliability (CR-rho\_a); average variance extracted (AVE); ♦Scale 1–5, 1: Strongly disagree; 2: Disagree; 3: Partly agree; 4: Agree; 5: Strongly agree.

Based on the results presented in the table, the content validity and reliability of all QC elements categorized under organizational values, managerial elements, and psychological elements met the recommended quality benchmarks as defined by Hair et al. (2022). Therefore, these elements were deemed valid and reliable for assessing the contribution of leadership roles to QCD in HEIs. This suggests that the majority of the items within each QC dimension effectively represent the leadership functions necessary for fostering QCD in HEIs.

### **Assessment Variance Inflation Factors**

Initially, variance inflation factors (VIF) were assessed for each item to evaluate multicollinearity. The results indicated that most constructs examined through the outer model had VIF values below 3, with a few falling below 5 (see Appendix A). These findings suggest that multicollinearity was not a significant concern in the model.

### **Correlation Between QC Variables**

Correlations were computed to explore the associations among the study variables. The standardized coefficients ( $\beta$ ) provide meaningful insights into the relative strength of these relationships. Based on Lipsey and Wilson (2001),  $\beta$  coefficients of approximately 0.10, 0.25, and 0.40 represent small, medium, and large effects, respectively. As shown in Table 3, significant relationships were observed between the variables, with correlation coefficients ranging from  $-1$  to  $+1$ , which is consistent with standardized benchmarks for correlation strength (Hair et al., 2022).

The correlation matrix reveals a strong positive association between several organizational values and the managerial and psychological elements. For example, OS, a key organizational value in HEIs, demonstrated strong correlations with HR ( $r = .553$ ) and LD ( $r = .470$ ). OS also showed moderate correlations with IP ( $r = .279$ ), RG ( $r = .296$ ), and OWN ( $r = .257$ ) and weaker but still significant correlations with QAP ( $r = .220$ ), COM ( $r = .138$ ), and EMP ( $r = .244$ ). These findings suggest that the leadership role in fostering an open system environment contributes significantly to advancing QCD in HEIs, as detailed in Appendix A.

Similarly, HR, another critical organizational value in HEIs, exhibited strong correlations with IP ( $r = .790$ ), RG ( $r = .771$ ), QAP ( $r = .587$ ), LD ( $r = .758$ ), COM ( $r = .478$ ), EMP ( $r = .735$ ), and OWN ( $r = .734$ ). A moderate correlation was also found between HR and QIP ( $r = .363$ ). These results indicate that leadership roles reflected in the questionnaire items are important contributors to promoting human relations within HEIs.

**Table 3:** Correlation Between Study Variables

Scales	1	2	3	4	5	6	7	8	9	10	11	12
1 OS	1											
2 HR	.553**	1										
3 IP	.279**	.790**	1									
4 RG	.296**	.771**	.852**	1								
5 QAP	.220*	.587**	.676**	.562**	1							
6 LD	.470**	.758**	.911**	.703**	.673**	1						
7 CO	-.073	.066*	.198*	.263*	.194*	.080*	1					
8 QIP	-.003	.363**	.189**	.283**	.201**	.064*	.852**	1				
9 QIS	-.084	.063*	.200**	.265*	.199*	.069*	.916**	.921**	1			
10 COM	.138*	.478**	.524**	.406*	.515**	.540**	.065*	.019*	.061*	1		
11 EMP	.244*	.735**	.807**	.712**	.838**	.791**	.136**	.111**	.132*	.726**	1	
12 OWN	.257*	.734**	.892**	.685**	.664**	.987**	.083*	.061*	.067*	.542**	.784**	1

Note: OS: open system; HR: human relations; IP: internal processes; RG: rational goals; QAP: quality assurance policy; LD: leadership; CO: communication; QIP: quality improvement practices; QIS: quality improvement strategies; COM: commitment; EMP: empowerment; OWN: ownership; ♦Scale 1–5, 1: Strongly disagree; 2: Disagree; 3: Partly agree; 4: Agree; 5: Strongly agree. \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).

Recognized as one of the key organizational values, IP demonstrated strong positive correlations with several QC elements. Specifically, IP was strongly associated with RG ( $r = .852$ ), QAP ( $r = .678$ ), LD ( $r = .911$ ), COM ( $r = .524$ ), EMP ( $r = .807$ ), and OWN ( $r = .892$ ). However, weaker relationships were observed with CO ( $r = .198$ ), QIP ( $r = .189$ ), and QIS ( $r = .200$ ). These results suggest that internal processes are a significant component of QCD, given their strong connections to both managerial and psychological elements. This also implies that leadership roles are actively involved in facilitating effective internal processes, as outlined in the indicator list. Similarly, the RG, another essential organizational value, showed strong positive correlations with QAP ( $r = .562$ ), LD ( $r = .703$ ), COM ( $r = .406$ ), EMP ( $r = .712$ ), and OWN ( $r = .685$ ). It also exhibited moderate correlations with CO ( $r = .263$ ), QIP ( $r = .283$ ), and QIS ( $r = .265$ ). These findings indicate that articulating rational goals plays a pivotal leadership role in fostering QCD. QAP, considered a critical driver in guiding leadership efforts toward QCD, was positively correlated with several QC variables, including LD ( $r = .673$ ), COM ( $r = .515$ ), EMP ( $r = .838$ ), and OWN ( $r = .664$ ). Additionally, it showed lower but positive correlations with CO ( $r = .194$ ), QIP ( $r = .201$ ), and QIS ( $r = .199$ ). This suggests that leaders engage in various roles—promoting, communicating, clarifying, directing, and implementing quality assurance policies—that are fundamental to achieving QCD in HEIs.

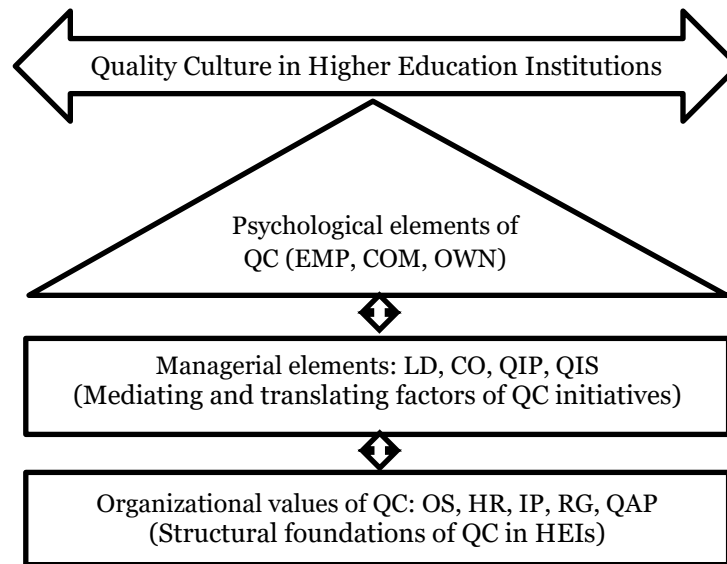
Leadership itself demonstrated significant correlations with a range of variables. Notably, it had strong associations with psychological elements such as COM ( $r = .540$ ), EMP ( $r = .791$ ), and OWN ( $r = .987$ ). These findings underscore the central role of leadership across different QAP and its direct contribution to QCD. Communication, a core managerial function often referred to as the "lifeblood" of organizational culture development, showed strong positive correlations with QIP ( $r = .852$ ) and QIS ( $r = .916$ ) and a weaker yet positive relationship with EMP. This suggests that communication—reflected in leaders' interactions with academics, students, and stakeholders, as detailed in the questionnaire—is a vital managerial element in advancing QCD. Lastly, QIP also exhibited important correlations. In particular, QIP was strongly associated with QIS ( $r = .921$ ) but showed a weaker correlation with EMP ( $r = .111$ ). These patterns imply that leadership plays a critical role in enhancing QIP, as identified in the survey responses, thereby contributing directly to QCD.

## Theoretical Associations Among QC Variables

Figure 2 illustrates that organizational values serve as foundational drivers influencing both behavior and performance in QCD within HEIs. This theoretical association aligns with Cameron and Quinn's (1999) Competing Values Framework, which posits that organizations function on the basis of four competing value orientations: open system (innovation), human relations (collaboration), internal processes (control), and rational goals (productivity). In this context, the observed correlation between OS and HR ( $r = .553^{**}$ ) reflects a strong linkage between innovation and a collaborative organizational culture. Additionally, the high correlations among IP, HR, and RG ( $r > .75^{**}$ ) suggest the presence of a cohesive internal environment where efficiency and relational values coexist. This is consistent with Denison's model of organizational culture (Schein 1989), which emphasizes involvement and consistency. Furthermore, the strong associations between QAP and both IP ( $r = .676^{**}$ ) and EMP ( $r = .838^{**}$ ) indicate that QA systems play a critical role in fostering a controlled yet employee-centered environment, as emphasized by Deming (1986).

The results of this study revealed that managerial elements act as mediators between organizational values and psychological outcomes. Accordingly, LD shows strong relationships with IP ( $.911^{**}$ ) and OWN ( $.987^{**}$ ), emphasizing its pivotal role in aligning internal systems and fostering ownership, supported by Bass and Avolio's (1994) transformational leadership theory. In addition, CO is highly correlated with QIP ( $.852^{**}$ ) and QIS ( $.916^{**}$ ), underscoring its role in successful quality initiatives (Kotter, 1996). Furthermore, managerial elements are moderately influenced by HR and IP, reflecting the contingency theory of management (Fiedler, 1967).

The associations among the study variables suggest that psychological outcomes in the QCD process may be influenced by both leadership and the number of organizational values. For instance, employee EMP shows strong correlations with QAP ( $.838^{**}$ ), IP ( $.807^{**}$ ), and LD ( $.791^{**}$ ), underscoring the critical role of policy, structure, and leadership in fostering empowerment (Spreitzer, 1995). Ownership is most strongly correlated with LD ( $.987^{**}$ ) and IP ( $.892^{**}$ ), supporting the notion that structured leadership enhances a sense of belonging and initiative (Thomas & Velthouse, 1990). Commitment, which correlates with LD ( $.540^{**}$ ) and IP ( $.524^{**}$ ), appears to be shaped by both organizational values and leadership, aligning with Meyer and Allen's (1991) three-component model of commitment.

**Figure 2:** *Theoretical Framework of QCD in Higher Education Institutions*

Each layer builds upon and influences the others. Arrows between them indicate a dynamic and reciprocal relationship, with leadership functioning as a key integrator across levels.

Leadership emerges as the central integrating factor that aligns organizational values of QC with the psychological dimensions underpinning it. This alignment provides coherence and meaning to the broader goals of QCD. Psychological constructs, such as empowerment and ownership, serve as outcomes and dynamic feedback mechanisms that sustain QCD initiatives. Communication and quality improvement strategies serve as critical enablers that influence the psychological climate and foster active participation in QCD efforts. Furthermore, internal processes and rational goals, as organizational and structural foundations underscore the necessity of streamlined operations and clearly articulated objectives as prerequisites for successful cultural transformation in HEIs.

### Assessment of the Scales' Explanatory Power

Following the criteria outlined by Hair et al. (2019), coefficient of determination ( $R^2$ ) values of 0.75, 0.50, and 0.25 are generally interpreted as indicating strong, moderate, and weak explanatory power, respectively. Based on this classification, the explanatory power of the QC variables, as represented by their  $R^2$  values, can similarly be grouped into three categories.

The first category comprises QC variables with high explanatory power: CO ( $R^2 = 0.876$ ), QIP ( $R^2 = 0.759$ ), COM ( $R^2 = 0.775$ ), EMP ( $R^2 = 0.871$ ), and OWN ( $R^2 = 0.907$ ). The second category includes variables with moderate explanatory power: HR ( $R^2 = 0.643$ ), IP ( $R^2 = 0.585$ ), LD ( $R^2 = 0.572$ ), QAP ( $R^2 = 0.709$ ), and RG ( $R^2 = 0.665$ ). The third category consists of variables with low explanatory power: OS ( $R^2 = 0.389$ ) and QIS ( $R^2 = 0.217$ ).

These results suggest that all QC variables exhibit explanatory power to varying degrees in relation to QCD. As noted by Hair et al. (2022), a higher  $R^2$  value indicates a stronger contribution to explanatory power. Accordingly, all the proposed QC variables in this study are recognized as contributing—albeit to different extents—to QCD in HEIs.

**Table 4:** QC Variables' Explanatory and Predictive Power

Scales	QC variables' explanatory power		QC variables' predictive power			
	R-square	Q <sup>2</sup>	RMSE	naïve LM	RMSE < LM	
1 OS	.389	.145	.719	.725	Yes	
2 HR	.643	.414	.765	.797	Yes	
3 IP	.585	.281	.457	.579	Yes	
4 RG	.665	.381	.553	.738	Yes	
5 QAP	.709	.604	.612	.641	Yes	
6 LD	.572	.452	.741	.763	Yes	
7 CO	.876	.564	.998	1.056	Yes	
8 QIP	.759	.565	.861	.992	Yes	
9 QIS	.217	.277	.671	.658	yes	
10 COM	.752	.589	.868	1.038	Yes	
11 EMP	.871	.773	.475	.532	Yes	
12 OWN	.907	.547	.759	.808	Yes	

*Note:* OS: open system; HR: human relations; IP: internal processes; RG: rational goals; QAP: quality assurance policy; LD: leadership; CO: communication; QIP: quality improvement practices; QIS: quality improvement strategies; COM: commitment; EMP: empowerment; OWN: ownership; coefficient of determination (R<sup>2</sup>); PLSpredict Q<sup>2</sup>; Root mean square error (RMSE); naïve linear regression model (LM)

### Assessment of the Predictive Power of the QC Variables

In terms of predictive power, the PLSpredict Q<sup>2</sup> values (see Table 4) indicate that the QC variables fall into three categories based on the strength of their predictive accuracy. Variables with large predictive accuracy included QAP (Q<sup>2</sup> = 0.604), CO (Q<sup>2</sup> = 0.564), QIP (Q<sup>2</sup> = 0.565), COM (Q<sup>2</sup> = 0.589), EMP (Q<sup>2</sup> = 0.773), and OWN (Q<sup>2</sup> = 0.547). Those with moderate predictive accuracy included HR (Q<sup>2</sup> = 0.414), IP (Q<sup>2</sup> = 0.281), LD (Q<sup>2</sup> = 0.452), QIS (Q<sup>2</sup> = 0.277), and RG (Q<sup>2</sup> = 0.381). The remaining variable, OS (Q<sup>2</sup> = 0.175), exhibited low predictive accuracy relative to the others. According to Hair et al. (2019), Q<sup>2</sup> values above 0, 0.25, and 0.50 represent small, medium, and large predictive accuracy, respectively. Thus, all QC variables contributed predictive power to varying degrees.

In the final stage of the analysis, the predictive power of the QC variables was further evaluated by comparing the root mean square error (RMSE) values from the PLS-SEM model with those from a naïve linear regression (LM) benchmark. The results showed that all indicators in the PLS-SEM model yielded lower RMSE values than those from the LM model, further supporting the strong predictive power of the QC variables, as emphasized by Hair et al. (2019, 2022).

Overall, the four-step evaluation of the structural model—comprising assessments of multicollinearity, correlation coefficients, explanatory power, and predictive power—demonstrated that the QC elements met established quality standards. Additionally, the structural model results provided valuable insights into the integration of the three primary QCD dimensions: organizational values, managerial elements, and psychological elements, as outlined in the data collection tool (see Appendix A). These findings suggest that the study offers significant contributions toward enhancing the leadership role of leaders in lower-level management positions. Specifically, it outlines practical actions that academics, students, nonacademic staff, stakeholders, and leaders can undertake to provide active support of QCD initiatives in HEIs.

## Results From Interviews

The interviews were organized into five thematic categories. Themes 1 and 2 explored the current status of quality in higher education and QA in relation to QCD, based on the perspectives and experiences of leaders. These themes helped to capture the existing realities and ongoing efforts aimed at improving overall higher education quality, with a particular focus on QCD. Themes 3, 4, and 5 focused on specific organizational values, managerial and psychological domains, and emerging subthemes related to the variables identified within each domain. The interview results are presented in two ways: first, through concise thematic summaries, and second, with illustrative quotations from participants to highlight their voices and perspectives. The summaries below reflect common themes that emerged across the data set, representing the collective experiences of all participants.

### Theme 1: Existing Status of Quality and QA in HEIs

Participants expressed mixed views about the effectiveness of QA systems in enhancing quality within their HEIs. While many acknowledged that QA has increased awareness of the importance of quality, they criticized its limited practical impact. Several participants emphasized that QA efforts have become more administrative in nature—focused on checklist reporting and compliance—rather than being driven by research and innovation. According to the majority of participants, the Ethiopian government’s bureaucratic emphasis on public universities, along with political interference, has reduced QA to a nominal mechanism that is disconnected from meaningful quality improvement.

Furthermore, participants highlighted a significant gap in the implementation of QA frameworks at lower institutional levels. QA initiatives were often restricted to top-level management, particularly university-level QA offices, with little integration at the college/faculty, department, study program or individual levels. Leaders at these levels were rarely involved in QA activities, and the responsibilities assigned to them were often unclear or perfunctory. The following extracts are quotations from participants.

There is no formal working relationship established between the university-level QA office and departments—only an ad hoc committee at the college/faculty level meets with department heads once a year to discuss administrative issues, using checklists adopted by the university from the ministry of education. (ADA2)

I do not understand the role of the QA coordination office at either the college or university level, because they have no relationship with our department regarding quality improvement. (DH3)

I am uncomfortable with my duties as a QA coordinator; I am asked to submit the same data every year, which has little relevance to actual education quality improvement. (QAC6)

There is no clear working relationship between my office and academic departments, researchers, or others concerning quality issues. (QAC1)

I observed that every quarter, semester, and annually, the university-level QA office has presented a quantitative report focusing on administrative issues, which doesn’t emphasize the quality of teaching and learning or research. (ADR5).

### Theme 2: Issues Pertaining to QC and Associated Elements

Most participants admitted to having limited knowledge of the concept of QC. While they recognized some of the terms associated with QC, they were largely unable to distinguish it from broader organizational culture. Nevertheless, all participants acknowledged the importance of institutional culture and leadership in promoting higher education quality. Many indicated that elements of QC are implicitly present within strategic plans and QA frameworks, but leadership gaps hinder their systematic implementation. Participants

also expressed uncertainty about their roles in promoting QC elements within their departments or colleges. Illustrative quotations included:

As you mentioned, I am responsible for promoting human relations, open system, and staff empowerment, but I hadn't recognized these as QC elements. QC is a new concept to me. (DH4)

The elements you referred to as QC frequently appear in our university's and college's strategic plans, but I had not identified them as part of a QC framework. (ADR1)

At my university, there are no specific mechanisms or institutional policies that guide how to plan and implement each QC element separately. (QAC3)

### **Theme 3: Organizational Values of QC**

Participants discussed various organizational values associated with QC—such as an open system, human relations, internal processes, rational goals, and QA policies. Although these terms are commonly referenced in institutional strategic plans, they are rarely linked directly to education quality improvement. Participants admitted that these values were not always clearly understood from a QC perspective, and their contribution to QCD was often overlooked. Some illustrative quotations are presented below.

In my college/university, we use community engagement for knowledge transfer and resource sharing, as we operate in an open-system environment, but we don't intentionally integrate this with our efforts to improve quality of education. (ADR4)

This is one of our gaps—we don't properly identify or apply organizational values through a QC lens to support quality improvement of education and training provided. (APC2)

In my leadership experience, human relations are visible across various domains—research, student services, teaching—but I hadn't considered them from a QC perspective until now. (DH8)

Internal processes and rational/corporate goals appear often in our strategic plans. My concern is: How many of us really understand them through a QC perspective? (DH6)

### **Theme 4: Managerial Elements of QC**

Most participants emphasized the importance of communication and coordination among stakeholders for effective quality improvement. They agreed that leadership plays a central role in developing and implementing quality strategies relevant to their departments. However, participants identified several limitations—such as lack of structured interaction, insufficient training, and resource constraints—that impede the realization of QCD goals. Some examples extracted from the interviews are presented below.

I've served as QA coordinator for the last 3 years, but I haven't discussed quality issues with staff or students because it never occurred in my job description to do so. (QAC1)

There's no structured role for associate deans of academic affairs to regularly engage with staff and students on QA issues. I thought it was the QA coordinators' responsibility. (ADA5)

In the past 3 years, I haven't provided any training to staff at the college level because the university doesn't allocate budget or resources to the QA office. (QAC2)

There are no well-organized activities coordinated by deans or associate deans regarding QCD—we're too occupied with planned/unplanned administrative tasks. (ADA6)

**Theme 5: Psychological Elements of QC**

Participants reflected on the psychological dimensions of QC, particularly staff commitment and empowerment. While some observed individual efforts to improve quality, they emphasized that such initiatives often lack institutional support. Most participants reported that organizational leadership did not prioritize strategies for enhancing staff commitment, and there were no clear policies to foster collective ownership of quality enhancement programs. Some quotations extracted from the interviews are presented below.

I've seen individual teachers and some department heads take ownership to improve the quality of teaching and learning. (APC5)

There are no specific strategies from the college or university QA office to enhance staff commitment. (ADR5)

As a department head, I admit that neither I nor other university leaders give sufficient attention to critical quality issues like staff commitment and empowerment. (DH7)

In my department, there are no common policies or guidelines that encourage staff to take ownership of their academic programs. (DH3)

**Discussion**

The descriptive and qualitative findings of this study revealed that the leadership roles of academic leaders in lower-level management positions at sampled universities were not satisfactorily evaluated by most academic staff and leaders themselves. This result is consistent with the findings of Mandefro et al. (2025), Harvey (2024), Mandefro et al. (2016), Tamrat (2022), Hunde et al. (2023), Tefera et al. (2018), and Akalu (2016), who noted that leadership in Ethiopia's education sector, particularly in HEIs, has not achieved the desired level of contribution to education quality improvement and institutional effectiveness. Findings further indicate that HEIs in Ethiopia have struggled to improve quality due to a lack of integration of the three core QC dimensions—organizational, managerial, and psychological—within their leadership and quality management frameworks. In contrast, global experiences have shown that leadership practices that integrate these three dimensions of QC foster continuous improvements in higher education quality (Bendermacher et al., 2019; Vettori, 2012; Vettori & Rammel, 2014).

According to both the quantitative and qualitative data, the leadership role in QCD functions as an interconnected system that integrates and navigates organizational, managerial, and psychological components to ensure quality. This conceptualization is supported by Mandefro et al. (2025), Bendermacher et al. (2019), Lucander and Christersson (2020), Hildesheim and Sonntag (2020), and Vettori (2012), who found that QC-oriented leadership promotes a paradigm shift in higher education quality management from approaches based on control, accountability, and regulation to those emphasizing autonomy, credibility, and educational enhancement. Therefore, the current findings suggest that leadership in HEIs should move beyond prescriptive administrative roles and instead adopt a broader, multidimensional focus on QCD to achieve continuous education quality improvement.

The two-phase study results also emphasize the role of leadership in promoting an open system environment conducive to QCD. As shown in the correlation matrix in Table 3 and associated theoretical framework in Figure 2, leadership roles are strongly linked to human relations, internal processes, rational goals, and ownership. All of these elements are central features of an open system. This system is a key component of QC's organizational value and aligns with systems theory, which views HEIs as dynamic entities influenced by multiple external and internal forces (Thai et al., 2022). Carter (1969) similarly emphasized that a systems

approach prioritizes institutional planning, coordination, implementation, evaluation, feedback, and revision. This implies that leaders, regardless of their hierarchical level, must engage with various QC elements through interrelated managerial functions in an open system.

Furthermore, the findings underscore the significance of leadership in facilitating human relations within QCD. The correlation matrix and associated theoretical framework show that many leadership roles are associated with QCD variables, such as internal processes, rational goals, QA policies, commitment, empowerment, ownership, and quality improvement practices. These findings are consistent with those of Bendermacher et al. (2019), and Mandefro et al. (2025), who observed that a human-relations value orientation directly contributes to staff commitment and empowerment. Knight and Trowler (2000) also argued that leadership at the departmental level is essential for fostering trust and shared understanding among staff. Similarly, Davies et al. (2007) and Osseo-Asare et al. (2005) found that leadership is important in promoting collegiality and human relations within institutions.

The internal processes identified in this study were found to be closely related to rational goals, QA policies, leadership, and staff engagement indicators such as commitment, empowerment, and ownership. Interview responses from institutional leaders indicated that internal processes and leadership roles are actively involved in all QA-related activities. Bendermacher (2021) referred to internal processes as the “skeletal system” of QC, crucial for balancing external and internal forces influencing the higher education system. In this study, rational goals also demonstrated strong positive associations with QA policies, leadership, communication, commitment, empowerment, ownership, and quality improvement strategies, all of which reinforces the conclusion that leadership plays an active role in driving institutional goals. Bendermacher et al. (2019) noted that leaders act as a “glue” that brings together staff through shared trust and a collective vision.

The study also highlights that QA policies serve as foundational tools for directing and supporting leadership roles in HEIs. QA policies were found to be positively correlated with leadership, commitment, empowerment, and ownership. Leaders were shown to play diverse roles in promoting, clarifying, and implementing QA-related practices among staff and students (see Table 3 and Figure 2). This finding is supported by Mandefro et al. (2025), who noted that QA regulations often aim to incentivize institutions to enhance quality and strengthen internal QC. Similarly, Loukkola and Zhang (2010), Vettori and Rammel (2014), and the European University Association (2006) emphasized that QA policies should promote innovation in teaching and learning while safeguarding educational quality. In other context, Ruben (2007) pointed out that national regulations on external accreditation are designed not only to uphold institutional standards but also to build public trust.

Leadership, identified in this study as a critical determinant of QCD, was found to have significant relationships with staff commitment, empowerment, and ownership. Hildesheim and Sonntag (2020) and Bendermacher et al. (2019) found similar associations between leadership and employee motivation, empowerment, and satisfaction. According to Bryman (2007), Coman and Bonciu (2016), Frisk et al. (2021), Knight and Trowler (2000), Mandefro et al. (2025), Milburn (2010), and Njiro (2016), department-level leaders play a key role in fostering a culture of trust and shared understanding among staff. The theoretical framework of this study (Figure 2) also emphasized that leadership (a managerial dimension of QC) acts as a bridge between organizational values (structural foundations) and psychological dimensions of QC.

Communication, identified in this study as a key managerial function and “lifeblood” of QCD, showed strong positive correlations with quality improvement practices, strategies, and staff empowerment. This aligns with the findings of Bendermacher et al. (2019) and Hildesheim and Sonntag (2020), who reported that leaders' communication with academics, students, and stakeholders significantly influences QCD. Lomas (2004)

similarly highlighted the importance of effective communication in disseminating quality initiatives. Flumerfelt and Banachowski (2011) emphasized that leaders are instrumental in communicating institutional climate, expectations, and task responsibilities, further underscoring the central role of leadership communication in quality enhancement.

The findings of this study underscore the crucial role of psychological elements in fostering QC within HEIs in Ethiopia. These psychological dimensions reflect the internalized values, beliefs, and attitudes that underpin individuals' engagement with the QA framework and related higher education quality improvement processes. The quantitative results indicate strong positive associations between leadership and these psychological factors, while qualitative data further emphasize that empowered and committed staff members are more likely to take ownership of QCD initiatives and outcomes. The association between study variables and the study's emergent theoretical framework demonstrate that staff empowerment correlates as a significant psychological factor across many QC elements. This finding aligns with Bendermacher et al. (2019), who argued that empowerment within HEIs leads to a participatory culture in which quality improvement becomes a shared responsibility rather than a top-down mandate. Similarly, Frisk et al. (2021) emphasized that empowering staff nurtures autonomy, which is critical for fostering intrinsic motivation toward educational quality enhancement.

Commitment was also strongly linked to leadership roles in this study. Quantitative data (see Appendix A) revealed that staff who perceive their leaders as supportive, transparent, and collaborative are more likely to demonstrate affective and normative commitment to their institution's QCD mission. This is consistent with Bryman (2007), Lucander and Christersson (2020), and Mandefro et al. (2025) who contended that relational leadership fosters commitment by creating a sense of belonging and purpose. Such commitment is essential for sustaining a robust QC, especially in Ethiopian contexts where external accountability mechanisms may not be fully institutionalized.

Ownership, the third psychological sub-dimension examined in this study, is particularly significant in the Ethiopian higher education context. Both quantitative (see Appendix A) and qualitative results show that when leaders delegate authority and involve staff in planning, implementing, and evaluating QA initiatives, a sense of ownership develops. This resonates with findings by Vettori (2012) and Hildesheim and Sonntag (2020), who demonstrated that ownership enhances alignment between institutional goals and individual actions. The findings of this study corroborate recent literature that positions the psychological elements of QC as equally important to structural or managerial components. For example, studies by Loukkola and Zhang (2010), Bendermacher et al. (2019), and the European University Association (2006) collectively suggested that a shift toward culture-oriented quality management requires psychological buy-in from academic staff. This perspective aligns with Vettori and Rammel's (2014) argument that QC is sustainable only when institutional members internalize quality values and translate them into daily practices.

## Conclusion

This study produced three major findings. First, both the quantitative and qualitative results confirmed that the leadership roles of leaders in lower-level management positions significantly influence QCD. However, evaluations by both academic staff and leaders indicated that the current leadership practices in the targeted universities have not produced satisfactory outcomes. Specifically, participants in both components of the study agreed that the leadership approaches employed are not aligned with the goals of enhancing QCD. Second, the findings highlighted that effective integration of organizational, managerial, and psychological elements by leaders is vital for QCD. Evidence from the study revealed significant relationships among key variables associated with leadership roles in shaping organizational values and managing psychological and managerial aspects critical to QCD. Third, the study offers a deeper understanding of how leadership

contributes to QCD. It demonstrates that leaders at lower management levels can effectively navigate organizational values, managerial strategies, and psychological factors to promote QCD at HEIs. Importantly, the findings suggest that quality should be established as a core component of organizational culture, thereby supporting existing QA mechanisms and enhancing institutional performance. Additionally, the study contributes empirical evidence to the ongoing scholarly discourse on QC in Ethiopian higher education and identifies directions for future research.

Beyond these key findings, the study provides important insights into the type and significant areas of the leadership approach universities should adopt to support quality improvement. The results suggest that a comprehensive and systemic leadership model is essential for guiding QA through a QC-oriented leadership lens, particularly at the departmental level, where policies are translated into practice. By emphasizing a holistic, system-based approach to QC, the study underscores the strong theoretical interrelationships among the variables that define effective leadership in lower-level management roles within HEIs. In this context, HEIs are encouraged to address the organizational, managerial, and psychological dimensions of leadership simultaneously to achieve QCD. The study advances current knowledge by offering empirical support for the development of organizational strategies in Ethiopian universities and comparable systems, advocating for a systematic and integrated approach to leadership in QCD.

Furthermore, the findings highlight the need for institutional policies and strategies to create space for leaders to actively guide and engage academics, students, and other stakeholders in the QCD process. This inclusive approach is essential to fostering a shared responsibility for quality enhancement. In alignment with international research, the study supports the view that leadership in QA should move beyond narrow, prescriptive administrative functions. Instead, it should embrace broader, more dynamic dimensions of QCD aimed at continuous improvement. Accordingly, the study recommends that HEIs prioritize international, national, and context-specific quality enhancement policies and strategies. Diversifying the leadership roles of those in lower management positions will be key to achieving this goal. This study makes a substantial contribution by providing new insights into the leadership roles of lower-level managers in QCD. It also addresses a significant gap in the literature on quality development in the Ethiopian higher education sector and similar systems, offering theoretical implications and practical guidance for policy and practice.

## Recommendations

The path toward QCD in HEIs lies in the strategic integration of organizational values, managerial practices, and psychological elements. By implementing the following evidence-based and contextually grounded recommendations, HEIs can move beyond mere administrative compliance to foster a deeply embedded and collaborative quality culture. These strategies are particularly critical in addressing the persistent gap between policy and practice, especially at lower levels of management where this disconnect is most pronounced.

1. Institutionalize system-based leadership development programs. HEIs should establish structured leadership development programs that incorporate organizational, managerial, and psychological dimensions across all levels of leadership. To operationalize this approach, institutions can apply Vettori's (2012) culture-oriented quality management model to train mid- and lower-level leaders. The focus should be on fostering shared values, strengthening internal quality assurance (QA), and promoting psychological ownership.
2. Establish quality enhancement units at the departmental level. Creating department-level quality enhancement units can help embed quality values at the grassroots level. These units should reinforce leadership commitment, promote ownership, and ensure accountability. The EUA's (2006) quality

culture model offers a useful framework for aligning institutional quality goals with departmental practices.

3. Adopt participatory quality planning and implementation. HEIs should embrace a participatory approach to quality planning, implementation, and evaluation. Involving academic staff and key stakeholders can enhance engagement and ownership. This participatory approach aligns with Ruben's (2007) excellence in higher education model, which emphasizes inclusive and collaborative quality processes.
4. Integrate QC into HR policies. Quality-related behaviors such as collaboration, initiative, and ownership should be embedded within HR systems. Recruitment, promotion, and appraisal processes must reflect QCD priorities. Using Bendermacher et al.'s (2019) quality culture framework, institutions can institutionalize empowerment, recognition, and sustained commitment within their HR practices.
5. Strengthen communication and feedback mechanisms. Transparent and multilevel communication platforms are essential for effective QA processes, institutional learning, and timely feedback. HEIs can draw from Lomas (2004) and Hildesheim & Sonntag (2020) to establish continuous dialogue between leadership and staff, facilitating responsive and informed decision making.
6. Embed quality values in institutional strategic plans. HEIs should integrate core QCD values such as trust, ownership, and empowerment into both long-term strategic goals and operational plans. Guided by systems theory, as proposed by Carter (1969) and Thai et al. (2022), institutions should ensure strategic planning includes implementation mechanisms and continuous feedback loops to support ongoing quality improvement.
7. Promote psychological engagement through relational leadership. To foster a sense of belonging and shared purpose, leadership development should prioritize trust-building, inclusion, and commitment. This can be achieved by applying Knight and Trowler's (2000) model of departmental collegiality and Bryman's (2007) relational leadership framework, both of which underscore the importance of affective and normative leadership practices.
8. Align institutional QA frameworks with national and international quality standards. Quality assurance policies should be continuously reviewed to ensure they are aligned with the specific contexts and capacities of each institution. Drawing on Mandefro et al. (2025), HEIs should move beyond compliance-focused QA toward systems that support innovation, leadership development, and institutional ownership of quality processes.

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## Appendix A: Quantitative Result of QCD Survey

Dimension of QCD	Scale	Leaders working at the college, department, and program levels ...					VIF	
			M	SD	t-test	Sig.		
Organizational values of QC	Human relations	develop strong cohesive culture of inclusion/trust among staff.	2.26	.831	-28.7	.000	2.350	
		build staff knowledge through research.	2.12	.895	-31.4	.000	2.699	
		make all study programs promote entrepreneurial skills.	2.12	.844	-33.4	.000	2.885	
		use coaching method for staff professional development.	2.21	.860	-29.4	.000	2.716	
		link teaching-learning process with research outputs in the field.	2.10	.876	-33.0	.000	2.820	
		provide transferable skills trainings required in labor markets.	2.10	.842	-34.2	.000	2.268	
	Internal processes	develop culture of academic fidelity among staff.	2.10	.856	-33.5	.000	2.047	
		work with permanent quality improvement committees.	2.19	.876	-29.6	.000	3.133	
		provide required resources for staff to ensure study programs.	2.39	1.00	-19.5	.000	2.480	
		use periodic academic discourses on quality of study programs.	2.26	1.05	-22.4	.000	4.112	
		help staff link teaching/research with quality assurance.	2.14	1.05	-26.2	.000	2.041	
		apply expert feedback to improve course content and delivery.	2.25	1.06	-22.6	.000	2.965	
		organize quality monitoring dataset at the department level.	2.20	1.02	-25.0	.000	3.970	
		evaluate the staffs based on quality enhancement performance.	2.11	1.04	-27.3	.000	1.959	
	Open system	conduct periodic internal reviews of study programs.	2.13	1.04	-26.8	.000	2.755	
		set standards to facilitate transferrable skill development.	2.19	1.05	-24.6	.000	2.413	
		use community engagement for knowledge sharing.	2.37	1.02	-19.7	.000	2.707	
		apply standards for staff to construct knowledge.	2.19	.995	-26.0	.000	1.842	
		obtain and use feedback from staffs, students, and stakeholders.	2.12	1.04	-27.1	.000	2.781	
		ensure courses demonstrate self-directed learning by students.	2.18	1.06	-24.6	.000	2.894	
		make all study programs problem-centered.	2.36	1.04	-19.8	.000	2.361	
		link each course teaching methods with learning outcomes.	2.18	1.00	-26.1	.000	1.308	
		use research publications as platforms for knowledge sharing.	2.11	1.04	-27.1	.000	2.363	
		Quality assurance policy	ensure common values among staff on quality improvement.	2.13	1.04	-26.8	.000	2.904
	ensure that the study programs achieve fitness for purposes.		2.17	1.06	-24.9	.000	2.659	
	make any quality-related decisions based on data/information.		2.11	1.04	-27.3	.000	2.848	
	use ICT to facilitate quality improvement practices.		2.14	1.01	-27.3	.000	3.051	
	ensure quality assurance policies are available for all staffs.		2.18	1.06	-24.5	.000	2.853	
	clarify expected outcomes of quality enhancement for staff.		2.18	1.06	-28.7	.000	1.681	
	Rational goals	ensure the competency of staff by research/publications.	2.14	.965	-27.2	.000	1.266	
		ensure all departmental work is focused on quality assurance.	2.18	.964	-29.1	.000	3.499	
		ensure all instructors are delivering quality teaching.	2.13	.953	-27.7	.000	3.576	
		ensure relevance of internal quality improvement assessment.	2.17	.963	-24.7	.000	2.552	
		make all study programs quality result-oriented.	2.15	.958	-28.4	.000	3.063	
		assist staffs to link their work with university's strategic goals.	2.18	.957	-27.4	.000	2.442	
	Managerial elements of quality culture	Communication	ensure staff implements quality assurance policies.	2.18	1.06	-24.5	.000	3.826
			communicate quality improvement policies for all staff.	2.17	1.00	-26.4	.000	1.765
			built shared decision-making culture in the staff.	2.31	1.18	-18.6	.000	1.994
			persuade staff to be involved in quality improvement activities.	2.36	1.03	-19.8	.000	2.224
			provide information to staff about implementation of goals.	2.17	1.00	-26.3	.000	2.178
communicate staff bear responsibility for quality improvement.			2.11	1.05	-27.1	.000	2.059	
use students' feedback to improve teaching/learning.			2.14	1.03	-26.4	.000	2.412	
bridge gaps between academic/administrative activities.			2.25	1.06	-22.5	.000	1.795	
Leadership		integrate planning & assessment with quality improvement.	2.24	1.05	-23.0	.000	2.896	
		apply result-oriented quality improvement management.	2.20	1.08	-23.5	.000	2.191	
		apply research outputs to ensure quality improvement.	2.17	1.01	-26.4	.000	2.083	
		create a guiding coalition for quality improvement by staff.	1.94	.961	-35.5	.000	2.062	
		should be self-motivated, proactive, and solution-oriented.	2.12	1.08	-25.8	.000	1.973	
		enhance shared commitment among staff.	2.12	1.06	-26.3	.000	1.838	
		develop vision of excellence for quality of study programs.	2.27	1.13	-20.5	.000	4.852	
		introduce international experiences in curriculum revision.	2.14	1.04	-26.1	.000	4.465	
Quality improvement practices		ensure that staff applies quality improvement policies.	2.11	1.08	-26.3	.000	1.478	
		consult with academics for teaching-learning excellence.	1.96	.989	-33.6	.000	2.117	
		provide guidelines to staff to perform quality assurance tasks.	1.91	.974	-35.9	.000	2.478	
		clarify the staff responsibilities in quality enhancement.	1.95	.940	-35.9	.000	2.694	
		link quality improvement plan with the strategic plan.	1.89	.916	-38.7	.000	2.785	
		provide information on quality improvement at all levels.	1.87	.924	-39.1	.000	1.332	
Quality improvement strategies		work with quality improvement advisory committee.	2.15	1.09	-24.8	.000	2.028	
		use students' results to improve teaching-learning.	2.12	1.06	-26.3	.000	2.240	
		organize training for staff on quality improvement activities.	2.28	1.13	-20.3	.000	2.298	
		foster continuous communication among staff.	2.16	1.05	-25.4	.000	2.218	
		use IT platforms to implement quality management.	1.99	1.00	-32.3	.000	2.321	
		use seminars/training to enhance quality assurance activities.	1.93	.978	-35.1	.000	2.690	
		make staffs accountable for the quality improvement.	1.98	.958	-34.0	.000	2.896	
		develop shared consensus in staff for quality improvement.	1.92	.942	-36.8	.000	3.266	

Psychological elements of quality culture	Commitment	have a clear view of university's goals and objectives.	2.44	1.01	-17.6	.000	2.592	
		have been identified as the best researcher at the university.	2.27	1.03	-22.6	.000	2.346	
		are committed to continuing current job.	2.29	1.10	-20.6	.000	2.398	
		have a professional responsibility to serve in the higher education sector.	2.18	1.11	-23.6	.000	2.110	
		have a stake in improving quality in study programs.	2.35	1.16	-17.8	.000	2.413	
		are motivated to meet goals at work.	2.56	1.21	-11.6	.000	3.295	
	Ownership	have a strong emotional attachment to the university.	2.51	1.23	-12.7	.000	3.614	
		feel the course/s they teach are relevant for labor market	2.23	1.09	-22.3	.000	2.238	
		have a significant stake in university's goal attainment.	2.26	1.10	-21.6	.000	2.076	
		have been involved in departmental decisions.	2.10	1.03	-27.7	.000	1.720	
		create a shared responsibility for the courses they teach.	2.11	1.02	-27.8	.000	2.005	
		set high-quality goals for the courses they teach.	2.14	.965	-28.7	.000	1.855	
		are involved in various quality improvement tasks.	2.18	.964	-27.2	.000	3.972	
		are equipped due to trainings provided on quality improvement.	2.20	1.00	-25.6	.000	4.529	
		Empowerment	have schemes to develop team-building skills.	2.31	1.19	-18.3	.000	2.690
			participate with employees in departmental decision making.	2.36	1.04	-19.6	.000	2.678
	provide training to improve staff knowledge/skills.		2.18	1.01	-25.9	.000	1.849	
	have robust systems to develop communication skills in staff.		2.11	1.05	-26.8	.000	1.789	
	strengthen academic integrity and commitment of all staff.		2.14	1.04	-26.4	.000	2.401	
	have working procedures to enhance staff self-sufficiency.		2.25	1.07	-22.4	.000	2.662	
	promote staff motivation for quality improvement.		2.24	1.05	-22.9	.000	2.654	

## Appendix B: Thematic Interview Guide

1. Please describe your perceptions of the existing status of quality in general and QA mechanisms in particular, based on your department.
2. Please describe your perceptions of quality culture, its elements, and their relationship to QA.
3. Please describe the elements of quality culture and their relationship with your leadership role.
4. What do you consider the “open system”? Describe your role in promoting it as a leader.
5. Please describe your role and experience in promoting “human relations” in your college/department.
6. How do you conceptualize “internal processes,” and by what means do you address them?
7. What are the elements of “rational goals” of your institution, and what is your role in achieving them?
8. How does your institution’s “quality assurance policy” recognize quality as an institutional culture, and what is your role in this process?
9. Describe your leadership role and strategies to promote quality in your department culture by all staff.
10. Describe the ways and strategies you communicate about QA policies and activities with staff and students.
11. Please describe the ways in which students, instructors, lecturers, academic programs, and quality assurance coordinators communicate about quality improvement issues in your department/college.
12. Please describe specific “quality improvement practices” and your role and experiences to promote them in your department.
13. What are the key “quality improvement strategies” designed in your institution, and what are your roles and experiences in addressing them?
14. What do you think about “psychological factors” in relation to quality improvement and your role in using those psychological factors for quality enhancement?
15. How do you perceive the commitment of your staff to implement QA policies, and what is your role in supporting them?
16. How do you describe your staff experiences of “ownership” of the department’s QA activities, and what is your role in supporting them?
17. How do you explain “empowerment”? What strategies does your institution have for staff empowerment? And what is your role in promoting the staff empowerment?

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