ISSN 2664-3995 (Print) & ISSN 2664-6757 (Online)
South Asian Research Journal of Business and Management
Abbreviated Key Title: South Asian Res J Bus Manag

| Volume-8 | Issue-6 | Nov-Dec- 2026 | **DOI: https://doi.org/10.36346/sarjbm.2026.v08i06.003**

Original Research Article

Quality Culture Mediating TQM and Faculty Innovation: A Descriptive-Analytical Study at the University of Kut

Nabaa K. Tabaan[1]*

[1]Department of Business Administration, College of Administration and Economics, University of Kut, Al-Kut, Wasit, 52001 Iraq

***Corresponding Author:** Nabaa K. Tabaan
Department of Business Administration, College of Administration and Economics, University of Kut, Al-Kut, Wasit, 52001 Iraq

Article History
Received: 22.09.2026
Accepted: 13.11.2026
Published: 17.11.2026

Abstract: This study examines the impact of total quality management (TQM) practices (top management commitment, continuous improvement and stakeholder focus) on faculty members' innovative work behaviour (idea generation, idea promotion and idea realisation) and tests the mediating role of quality culture (quality commitment, teamwork and participation, and communication and trust). A descriptive-analytical, cross-sectional quantitative design was adopted. An online 45-item questionnaire adapted from validated international scales was administered to academic staff at the University of Kut, Iraq, yielding 123 valid responses from 12 colleges. After establishing reliability (Cronbach's $\alpha = 0.950$), convergent and discriminant validity, the hypotheses were tested using correlation, simple and multiple regression, and bootstrapped mediation analysis (5,000 resamples). TQM practices had a significant positive effect on innovative work behaviour ($\beta = 0.422$, $R^2 = 0.178$) and on quality culture ($\beta = 0.710$, $R^2 = 0.504$), and quality culture significantly affected innovative work behaviour ($\beta = 0.571$, $R^2 = 0.326$). Quality culture fully mediated the TQM–innovation relationship: the indirect effect was significant ($a \times b = 0.389$, 95% CI [0.228, 0.561]), whereas the direct effect became non-significant ($c' = 0.033$, $p = 0.755$). Continuous improvement had the weakest effect on innovative behaviour, while communication and trust was the strongest cultural driver. The findings indicate that quality systems foster academic innovation mainly by building shared values, commitment and trust, and they offer university leaders practical guidance on embedding quality culture as a lever for faculty innovation.

Keywords: Total Quality Management, Quality Culture, Innovative Work Behaviour, Mediation Analysis, Academic Staff, Higher Education, Iraq.

1. INTRODUCTION

Over the last two decades, higher education institutions have undergone profound transformations driven by accreditation requirements, international rankings, intensified competition for students and talent, and the rising expectations of labour markets and society. Under these pressures, quality is no longer a supplementary organisational option; it has become a condition for the survival and legitimacy of the university. Accordingly, universities have embraced total quality management (TQM), a philosophy that originated in manufacturing and later spread to services and education, as an integrated approach to improving processes, preventing errors and meeting stakeholders' expectations (Flynn *et al*., 1994; Sahney *et al.,* 2004).

The literature, however, shows that the success of TQM is not determined merely by adopting formal procedures and systems, but by the extent to which these procedures are transformed into shared values and beliefs that staff hold and voluntarily commit to. This is captured by the notion of "quality culture", which combines a structural/managerial element with a cultural/psychological element (Ehlers, 2009; Harvey & Stensaker, 2008). The realist review by Bendermacher *et*

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

al., (2017) showed that leadership and communication link these two elements, and that quality culture operates by increasing staff commitment, shared ownership, empowerment and knowledge.

At the same time, innovative work behaviour (IWB) is one of the most important human-resource outcomes in universities, since faculty members are the main source of curriculum renewal, pedagogical development, research and community service. IWB is defined as the intentional creation, introduction and application of new ideas within a work role, group or organisation in order to benefit role performance, the group or the organisation (Janssen, 2000). Research interest in the antecedents of academics' IWB, such as ethical leadership, organisational support, work engagement and decent work, has grown markedly (Hassan *et al*., 2024; Musenze & Mayende, 2023; Zargar *et al*., 2025).

The relationship between TQM and innovation, however, remains debated. One view holds that the emphasis on standardisation and variance reduction may constrain creativity, whereas another argues that quality practices, especially the "soft" practices related to leadership, people and customers, create an environment that supports learning, experimentation and innovation (Prajogo & Sohal, 2003; Kim *et al*., 2012). Empirical studies in several sectors reported a positive effect of quality practices on innovative performance (Sadikoglu & Zehir, 2010; Zehir *et al*., 2012), while evidence from higher education, and specifically at the level of the individual academic's behaviour, remains limited, particularly in Iraq.

This issue is especially relevant to emerging Iraqi private universities such as the University of Kut, which operate under growing requirements from the Ministry of Higher Education and Scientific Research regarding quality assurance, accreditation and national ranking, and which need to turn quality systems from formal compliance into a genuine driver of faculty innovation. The present study therefore addresses a central question: do TQM practices enhance the innovative work behaviour of faculty members at the University of Kut, and does this effect pass through the prevailing quality culture?

Despite the efforts of Iraqi universities, including the University of Kut, to establish quality assurance units and apply institutional and programme accreditation standards, part of the quality practice is still perceived as a procedural and documentation requirement rather than a working philosophy that drives renewal and innovation. Moreover, international findings on the TQM–innovation relationship remain mixed (Prajogo & Sohal, 2003; Zehir *et al*., 2012), and studies examining the mediating mechanism of this relationship at the level of academics' individual behaviour are scarce, particularly in the Arab and Iraqi context. The study therefore seeks to answer four questions: (1) What is the level of TQM practices at the University of Kut as perceived by faculty members? (2) What are the levels of quality culture and innovative work behaviour among faculty members? (3) Are there significant correlation and impact relationships between TQM practices, quality culture and innovative work behaviour? (4) Does quality culture mediate the relationship between TQM practices and innovative work behaviour, and is the mediation full or partial?

The study is important on three levels. Scientifically, it contributes to the theoretical debate on the quality–innovation relationship by providing empirical evidence from Iraqi higher education, and tests quality culture as a mediating mechanism that explains how quality practices are translated into individual innovative behaviour, a mechanism insufficiently tested in the Arabic literature. Practically, it provides the leadership of the University of Kut and its Quality Assurance and Academic Performance Department with a quantitative diagnosis of quality practices and culture, and identifies the dimensions that most strongly affect faculty innovation, allowing resources and training to be directed towards priorities. Societally, faculty innovation is reflected in the quality of teaching, research and community service, and hence in the university's ability to meet the needs of Wasit Governorate and the Iraqi labour market.

Accordingly, the study aims to: (1) diagnose the levels of TQM practices, quality culture and innovative work behaviour at the University of Kut; (2) identify the correlations among the study variables and their dimensions; (3) measure the impact of TQM practices on quality culture and on faculty members' innovative work behaviour; (4) measure the impact of quality culture on faculty members' innovative work behaviour; (5) test the mediating role of quality culture and determine its type and size; and (6) offer practical recommendations to university leaders based on the findings.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Total Quality Management Practices

The roots of TQM lie in the contributions of the quality pioneers, notably Deming (1986), who called for constancy of purpose towards improvement, viewing the organisation as an integrated system managed by data, and involving all employees in the cycle of continuous improvement. As the concept moved from manufacturing to services and education, its definitions multiplied.

Flynn *et al*., (1994) defined quality management as an integrated approach to achieving and sustaining high-quality output, focusing on the maintenance and continuous improvement of processes and defect prevention at all levels

and in all functions of the organisation in order to meet or exceed customer expectations. Saraph *et al.,* (1989) identified eight critical factors of quality management, led by the role of top management and quality policy, training, employee relations, process management, and quality data and reporting. Kaynak (2003) viewed TQM as a holistic management philosophy embodied in a set of interrelated practices, namely leadership, training, employee relations, quality data, supplier management, product design and process management, and showed that these practices improve operating performance, which in turn affects financial and market performance.

In higher education, Sahney *et al*., (2004) argued that applying TQM requires identifying multiple stakeholders (students, employers, society and the academics themselves) and translating their requirements into specifications for educational and administrative processes. Universities adopting TQM have reported improvements in quality performance, staff satisfaction, operational performance and societal impact (Psomas & Antony, 2017), as well as in the quality of graduates, research and community service (Yahiaoui *et al*., 2022). In this study, TQM practices are operationally defined as the leadership and organisational practices adopted by the university to assure and continuously improve the quality of its teaching, research and administrative processes, with a focus on stakeholders' needs and the involvement of faculty members. They are measured through three dimensions: top management commitment, i.e. a clear quality vision, adequate resources and leaders acting as role models (Saraph *et al.,* 1989); continuous improvement, i.e. regular review and development of processes based on evaluation data and feedback (Flynn *et al*., 1994); and stakeholder focus, i.e. identifying and measuring the needs and satisfaction of students, employers and society and using the results to develop programmes (Kaynak, 2003; Sahney *et al*., 2004).

2.2 Quality Culture

Quality culture emerged in the higher education literature as a natural successor to quality management and quality assurance, after it became clear that formal systems and procedures alone cannot bring about genuine and sustainable improvement (Dzimińska *et al.*, 2018). The concept builds on the general organisational culture literature, in which Schein (2010) distinguished three levels: artefacts, espoused values and basic underlying assumptions.

Harvey and Stensaker (2008) cautioned that quality culture is not a ready-made recipe and proposed four ideal types (responsive, reactive, regenerative and reproductive) depending on the degree of group control and the strength of external rules. Ehlers (2009) proposed a model that combines structural tools and procedures with professional values, commitment, participation and trust, emphasising communication as a binding factor. Building on this, Bendermacher *et al*., (2017) defined quality culture as an organisational culture in which structural/managerial and cultural/psychological elements act in synergy to continuously improve education, and found that its working mechanisms include increased staff commitment, shared ownership, empowerment and knowledge. Hildesheim and Sonntag (2020) defined it as an organisational culture that emphasises continuous quality improvement, shared attitudes and commitment to quality, and developed the six-dimension Quality Culture Inventory, whose dimensions were related to job satisfaction. Verschueren *et al*., (2023) further proposed a maturity matrix to help faculty and programme directors map and advance their existing quality cultures.

In this study, quality culture is operationally defined as the system of shared values, beliefs and attitudes among faculty members that makes quality a self-commitment and a collective responsibility. It is measured through three dimensions: quality commitment, i.e. embracing quality as a personal value and willingness to exert extra effort for it (Hildesheim & Sonntag, 2020); teamwork and participation, i.e. working as a team and sharing responsibility for quality decisions (Bendermacher *et al*., 2017); and communication and trust, i.e. transparent information flow and trust in leaders and in the fairness of evaluation processes (Dzimińska *et al*., 2018; Ehlers, 2009).

2.3 Innovative Work Behaviour

Innovative work behaviour covers both creativity, the production of new and useful ideas, and innovation, the application of those ideas. Scott and Bruce (1994) proposed a path model of individual innovation that begins with problem recognition and idea generation, continues with seeking sponsorship and building coalitions, and ends with producing a prototype; they showed that leadership and a climate supportive of innovation shape this behaviour. Janssen (2000) defined IWB as the intentional creation, introduction and application of new ideas within a work role, group or organisation, and distinguished three stages: idea generation, idea promotion and idea realisation. De Jong and Den Hartog (2010) developed a four-dimension measure (opportunity exploration, idea generation, championing and implementation), and Ayoub *et al*., (2023) developed a five-factor IWB scale for faculty members in Gulf universities that added idea sustainability.

Faculty IWB improves academics' innovative and job performance (Ab Wahab *et al*., 2024), enables universities to respond flexibly to crises such as the COVID-19 pandemic (Ayoub *et al*., 2023), and transforms the latent potential of academics into value for the institution and society (Hassan *et al*., 2024). In this study, IWB is operationally defined as the intentional actions taken by a faculty member to generate new ideas in teaching, research and community service, to gain support for them, and to turn them into practical applications that improve his or her own performance and that of the

department and university. It is measured through idea generation, idea promotion and idea realisation (Janssen, 2000; De Jong & Den Hartog, 2010).

2.4 Relationships among the Study Variables

TQM and Innovative Work Behavior

This relationship rests on social exchange theory (Blau, 1964): leaders' commitment to quality and the involvement, training and consultation of faculty members generate a sense of organisational support that academics reciprocate with discretionary behaviours beyond their formal role, including innovative behaviour. Continuous improvement, moreover, is in essence a constant search for better ways of working, which naturally invites the generation and implementation of ideas. Empirical evidence shows a positive effect of quality practices on innovative performance (Prajogo & Sohal, 2003; Sadikoglu & Zehir, 2010; Zehir *et al*., 2012) and on innovation in education and training institutions (Yirga & Beshir, 2025).

TQM and Quality Culture

Leadership is the main driver of quality culture through its ability to allocate resources, clarify roles and responsibilities and optimise people and process management, while effective communication is a prerequisite for diffusing quality strategies and policies (Bendermacher *et al*., 2017). The structural and managerial practices of TQM therefore nurture, over time, shared values and attitudes towards quality. Studies of the interplay between organisational culture and TQM implementation support this view (Ababneh, 2021; Shuaib & He, 2023a).

Quality Culture and Innovative Work Behavior

Quality culture increases staff commitment, empowerment and knowledge sharing (Bendermacher *et al*., 2017), while trust and open communication create a psychologically safe environment that encourages academics to voice ideas without fear of failure (Dzimińska *et al*., 2018). A collaborative climate positively affects university teachers' IWB through knowledge sharing (Liu & Sun, 2025), and perceived organisational support and work engagement are among its strongest drivers (Musenze & Mayende, 2023; Zargar *et al*., 2025).

The Mediating Role of Quality Culture

The effect of TQM practices on IWB is expected not to occur automatically but to pass through the change these practices bring about in faculty members' shared values and attitudes: the practices represent the structural element, whereas culture represents the psychological element that turns procedures into intrinsic motivation for renewal. This is consistent with studies showing that intermediate organisational mechanisms, such as organisational learning, innovation speed and employee performance, transmit the effect of TQM to innovation and performance outcomes (Shuaib & He, 2023b; Anifowose *et al*., 2022; Sadikoglu & Zehir, 2010).

2.5 Previous Studies and Research Gap

Table 1 summarises recent studies published in peer-reviewed indexed journals that addressed the study variables individually or jointly.

Table 1: Summary of selected previous studies

Author(s) and year	Topic	Sample and method	Main findings
Yirga & Beshir (2025)	Effect of TQM practices on innovation	140 staff of agricultural TVET colleges, Ethiopia; regression	All seven TQM dimensions positively affected innovation; management leadership was strongest; R^2 = 88.3%.
Anifowose *et al.,* (2022)	TQM and SME performance: mediating role of innovation speed	484 manufacturing SMEs, Nigeria; PLS-SEM	TQM was positively related to operational performance and innovation speed, which mediated the relationship.
Shuaib & He (2023b)	Organisational learning (mediator) and culture (moderator) in the TQM–innovation link	459 manufacturing companies, Nigeria; PLS	Soft and hard TQM practices were related to innovation, mediated by organisational learning.
Sadikoglu & Zehir (2010)	Innovation and employee performance in the TQM–firm performance link	373 ISO 9001-certified firms, Turkey; SEM	Employee and innovation performance partially mediated the TQM–firm performance relationship.
Yahiaoui *et al.,* (2022)	Impacts of TQM practices in Algerian higher education	610 students and 24 professors; AMOS and NVivo	TQM directly affected the quality of graduates, research and community service.

Author(s) and year	Topic	Sample and method	Main findings
Psomas & Antony (2017)	TQM elements and results in Greek higher education	15 private higher education institutions	Student focus, leadership commitment, strategic quality planning, process management and staff involvement were most adopted.
Hildesheim & Sonntag (2020)	The Quality Culture Inventory	German higher education institutions	A six-dimension measure of quality culture whose dimensions were related to job satisfaction.
Hassan *et al.,* (2024)	Decent work and academics' IWB	224 faculty members; SEM	Decent work affected IWB through the full mediation of work engagement.
Ab Wahab *et al.,* (2024)	Inclusive and ambidextrous leadership and academics' innovative performance	300 academics, two Malaysian public universities; AMOS	Both leadership styles were positively associated with IWB, which mediated their link with innovative performance.
Liu & Sun (2025)	Collaborative atmosphere and college teachers' IWB	473 educators, North China; survey and interviews	Collaborative climate positively affected IWB, mediated by knowledge sharing.
Musenze & Mayende (2023)	Ethical leadership and IWB in public universities	291 academic staff, Uganda; PROCESS	Perceived organisational support strengthened the ethical leadership–IWB relationship.

Source: *prepared by the author based on the cited studies.*

Most studies linking TQM with innovation were conducted in manufacturing or banking organisations and at the level of organisational innovation, whereas higher education studies focused on institutional quality outcomes (Psomas & Antony, 2017; Yahiaoui *et al*., 2022), and studies of academics' IWB examined leadership and psychological antecedents detached from the quality system (Hassan *et al*., 2024; Musenze & Mayende, 2023). The present study therefore links, in a single model, TQM practices with the individual innovative behaviour of faculty members, tests quality culture as a mediating mechanism, and does so in an Iraqi private university setting that has not been examined before.

2.6 Research Model and Hypotheses

Drawing on the literature reviewed above, the hypothesised model in Figure 1 proposes that TQM practices (independent variable) affect faculty members' innovative work behaviour (dependent variable) both directly and indirectly through quality culture (mediating variable). The following hypotheses are tested:

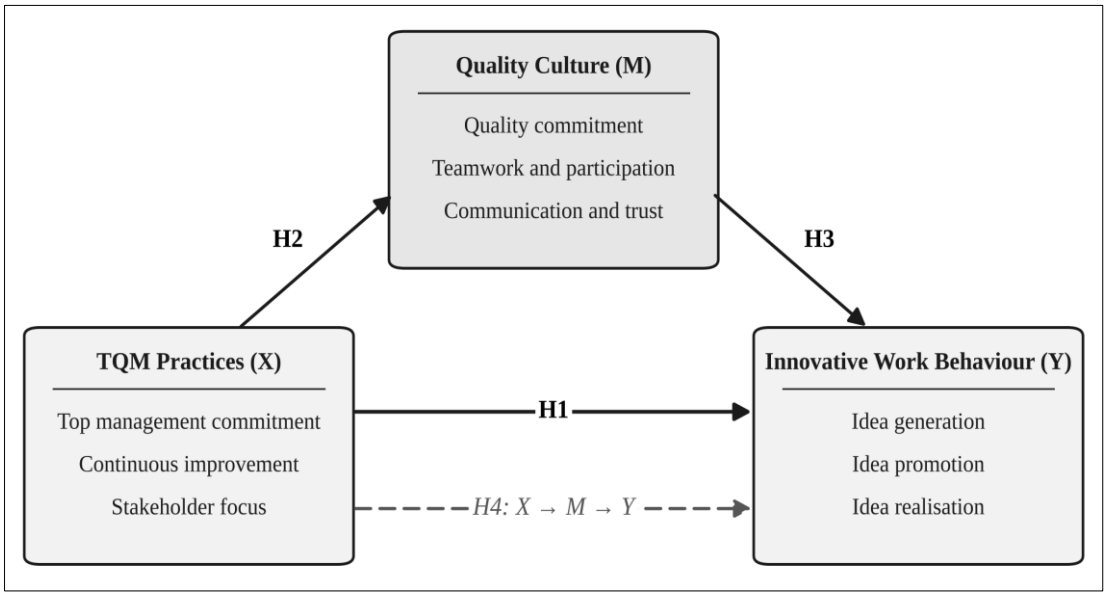


Figure 1: The hypothesised research model

Source*: prepared by the author based on the literature.*

H1: TQM practices have a significant positive effect on faculty members' innovative work behaviour.

H2: TQM practices have a significant positive effect on quality culture.

H3: Quality culture has a significant positive effect on faculty members' innovative work behaviour.

H4: Quality culture mediates the relationship between TQM practices and faculty members' innovative work behaviour.

Each of the first three hypotheses branches into sub-hypotheses corresponding to the dimensions of the explanatory variable. In addition, a main correlation hypothesis posits significant positive correlations among the study variables and their dimensions.

3. MATERIALS AND METHODS

3.1 Research Design

The study adopted a descriptive-analytical design with a quantitative approach grounded in the positivist paradigm: a hypothesised model derived from the literature (Figure 1) was tested empirically using primary data collected from faculty members through a standardised questionnaire. The design is cross-sectional and the unit of analysis is the individual faculty member.

3.2 Population and Sample

The study population comprises the 664 faculty members of the University of Kut according to the university's actual teaching staff statistics for all colleges and departments (University of Kut, 2026), of whom 265 (39.91%) hold a PhD and 399 (60.09%) a Master's degree, and 464 (69.88%) are male and 200 (30.12%) female. The questionnaire was distributed electronically via Google Forms using a convenience sampling technique. After removing exact duplicate submissions and straight-lining responses, 123 valid questionnaires from 12 colleges were retained, i.e. 18.5% of the population. This exceeds the minimum suggested by Green (1991) for regression with three predictors (50 + 8m = 74) but is below the Krejcie and Morgan (1970) sample size for this population (244), corresponding to a margin of error of ±8.0% at the 95% confidence level rather than ±5%. The sample is close to the population in gender composition (65.90% male versus 69.88%), whereas Master's holders are over-represented (69.10% versus 60.09%).

3.3 Research Instrument

The questionnaire was developed by adapting validated international scales to the Iraqi higher education context, reviewed by a panel of specialised referees to establish face validity, and pilot-tested before distribution. A five-point Likert scale was used (1 = strongly disagree … 5 = strongly agree). Table 2 presents the structure of the instrument and the sources of its items; the full questionnaire is provided in the Appendix.

Table 2: Structure of the questionnaire and sources of its scales

Variable	Dimension	Items	Item no.	Sources
TQM practices (X)	Top management commitment	5	1–5	Saraph *et al*., (1989); Kaynak (2003); Sahney *et al*., (2004)
	Continuous improvement	5	6–10	Flynn *et al*., (1994); Psomas & Antony (2017)
	Stakeholder focus	5	11–15	Kaynak (2003); Yahiaoui *et al*., (2022)
Quality culture (M)	Quality commitment	5	16–20	Hildesheim & Sonntag (2020); Ehlers (2009)
	Teamwork and participation	5	21–25	Bendermacher *et al*.,(2017); Verschueren *et al*., (2023)
	Communication and trust	5	26–30	Dzimińska *et al*., (2018); Hildesheim & Sonntag (2020)
Innovative work behaviour (Y)	Idea generation	5	31–35	Janssen (2000); De Jong & Den Hartog (2010)
	Idea promotion	5	36–40	Janssen (2000); Ayoub *et al.,* (2023)
	Idea realisation	5	41–45	Scott & Bruce (1994); De Jong & Den Hartog (2010)

Source*: prepared by the author.*

3.4 Research Limits and Data Analysis

The study was conducted at the University of Kut (spatial limit) among its faculty members holding PhD and Master's degrees (human limit), during the first semester of the 2026–2027 academic year (temporal limit), and was confined to three dimensions per variable (subject limit). Data were analysed using SPSS, AMOS and Python (statsmodels) at a significance level of 0.05. To reduce common method bias, respondents were assured of anonymity and confidentiality, item wording was varied and the variable sections were separated (Podsakoff *et al*., 2003), and Harman's single-factor test was applied statistically.

3.5 Ethical Considerations

Participation was voluntary and anonymous. Respondents were informed of the title and purpose of the study at the beginning of the questionnaire and were assured that their responses would be used for scientific research purposes

only and would remain confidential. Ethical approval: state the name of the approving committee and the approval reference number, if applicable.

4. RESULTS AND DISCUSSION

4.1 Sample Profile

Table 3 shows that 65.90% of respondents are male, and 30.90% hold a PhD, indicating a scientific qualification that enables them to understand and answer the items objectively. The title of assistant lecturer was the most frequent (67.50%), and the less-than-five-years service category was the largest (64.20%), suggesting a sample that combines experience with professional vitality and covers all colleges of the university.

Table 3: Characteristics of the research sample

Variable	Category	Frequency	Percentage
Gender	Male	81	65.90%
	Female	42	34.10%
Degree	Master's	85	69.10%
	PhD	38	30.90%
Academic title	Assistant lecturer	83	67.50%
	Lecturer	27	22.00%
	Assistant professor	9	7.30%
	Professor	4	3.30%
Years of service	Less than 5 years	79	64.20%
	5–10 years	25	20.30%
	11–15 years	6	4.90%
	More than 15 years	13	10.60%
College	Administration and Economics	23	18.70%
	Physical Education and Sport Sciences	19	15.40%
	Dentistry	18	14.60%
	Pharmacy	17	13.80%
	Law	14	11.40%
	Education	9	7.30%
	Science	5	4.10%
	Engineering Technology	3	2.40%
	Engineering	2	1.60%
	Applied Arts	2	1.60%
	Health and Medical Technologies	2	1.60%
	Nursing	1	0.80%
	Not specified	8	6.50%

Source*: prepared by the author based on the statistical analysis.*

4.2 Validity and Reliability of the Instrument

The Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity were used to assess the suitability of the data for factor analysis. As Table 4 shows, KMO values were 0.904, 0.872 and 0.891 for TQM practices, quality culture and innovative work behaviour respectively, all above the 0.70 threshold, and Bartlett's test was significant ($p < 0.001$), confirming sampling adequacy.

Table 4: KMO, Bartlett's test and Cronbach's alpha for the study variables

Variable	KMO	Bartlett χ^2	df	Sig.	Cronbach's α
TQM practices	0.904	876.12	105	< 0.001	0.913
Quality culture	0.872	842.14	105	< 0.001	0.896
Innovative work behaviour	0.891	934.27	105	< 0.001	0.913
Whole questionnaire	—	—	—	—	**0.950**

Source*: prepared by the author based on the statistical analysis.*

Convergent validity was assessed through standardised item loadings, composite reliability (CR) and average variance extracted (AVE). Item loadings were first examined; none fell below 0.40 (Hair *et al*., 2019), so all 45 items were retained. Table 5 shows that the item loadings ranged from 0.401 to 0.909. Cronbach's alpha and CR exceeded 0.70 for all dimensions. AVE exceeded 0.50 for stakeholder focus, communication and trust, idea promotion and idea realisation, and ranged from 0.370 to 0.480 for the remaining dimensions, which is acceptable as long as CR exceeds 0.60 (Fornell & Larcker, 1981).

Table 5: Convergent validity and reliability of the dimensions

Variable	Dimension	Loadings range	α	CR	AVE	√AVE
TQM practices	Top management commitment	0.637 – 0.771	0.819	0.821	0.480	0.693
	Continuous improvement	0.560 – 0.743	0.794	0.798	0.445	0.667
	Stakeholder focus	0.746 – 0.831	0.883	0.883	0.603	0.777
Quality culture	Quality commitment	0.575 – 0.685	0.740	0.745	0.370	0.608
	Teamwork and participation	0.401 – 0.816	0.799	0.814	0.478	0.691
	Communication and trust	0.649 – 0.909	0.863	0.867	0.569	0.754
Innovative work behaviour	Idea generation	0.619 – 0.692	0.780	0.782	0.418	0.647
	Idea promotion	0.707 – 0.757	0.850	0.851	0.534	0.731
	Idea realisation	0.686 – 0.843	0.890	0.893	0.627	0.792

Source: prepared by the author based on the statistical analysis.

Discriminant validity was assessed using the heterotrait–monotrait ratio (HTMT) proposed by Henseler *et al*., (2015). Table 6 shows that all values fall below the conservative threshold of 0.85, indicating that each construct is empirically distinct. Harman's single-factor test showed that the first factor accounts for 31.95% of total variance, below 50%, suggesting that common method bias is not a serious concern (Podsakoff *et al*., 2003).

Table 6: Discriminant validity (HTMT ratio)

Variable	TQM practices	Quality culture	Innovative work behaviour
TQM practices	—		
Quality culture	0.780	—	
Innovative work behaviour	0.468	0.652	—

Source*: prepared by the author based on the statistical analysis.*

4.3 Descriptive analysis

Weighted means, standard deviations, coefficients of variation and relative importance were used to diagnose the level of the study variables. Levels were judged using a class width of 0.80 on the five-point scale: 1.00–1.79 very low, 1.80–2.59 low, 2.60–3.39 moderate, 3.40–4.19 high and 4.20–5.00 very high.

Table 7 shows that TQM practices achieved an overall mean of 4.13 (SD = 0.530, CV = 12.80%), i.e. a high level with a relative importance of 82.60%, indicating relatively high agreement among respondents. Top management commitment ranked first (mean = 4.27), whereas stakeholder focus ranked last (mean = 3.98). At the item level, item 1 recorded the highest mean (4.35) and item 14 the lowest (3.90), which represents an area for improvement.

Table 7: Descriptive statistics for TQM practices (X)

No.	Item	Mean	SD	CV	Rel. imp.	Level
1	The university leadership adopts a clear vision and mission that make quality a strategic priority.	4.35	0.640	14.70%	87.00%	very high
2	The university leadership provides the material and human resources needed to implement the quality system.	4.19	0.739	17.70%	83.70%	high
3	University leaders actively participate in quality activities and act as role models.	4.25	0.685	16.10%	85.00%	very high
4	The university leadership monitors performance and quality indicators and bases its decisions on them.	4.25	0.708	16.70%	85.00%	very high
5	The university leadership disseminates the quality policy and objectives among faculty members.	4.33	0.775	17.90%	86.70%	very high
Top management commitment		**4.27**	**0.542**	**12.70%**	**85.50%**	**very high (1)**
6	The university periodically reviews its academic and administrative processes to develop them.	4.20	0.712	16.90%	84.10%	very high

No.	Item	Mean	SD	CV	Rel. imp.	Level
7	The university uses the results of performance evaluation and self-assessment in improvement plans.	4.10	0.729	17.80%	82.00%	high
8	Curricula are updated regularly in light of scientific developments.	4.17	0.765	18.30%	83.40%	high
9	The university encourages faculty members to propose better ways of doing the work.	4.18	0.915	21.90%	83.60%	high
10	The university provides continuous training and professional development programmes for faculty members.	3.99	0.864	21.60%	79.80%	high
Continuous improvement		**4.13**	**0.593**	**14.40%**	**82.60%**	**high (2)**
11	The university systematically identifies students' needs and expectations.	3.93	0.856	21.80%	78.70%	high
12	The university periodically measures students' satisfaction with educational services.	3.97	0.868	21.90%	79.30%	high
13	The university surveys employers and graduates to develop its programmes.	3.94	0.843	21.40%	78.90%	high
14	The university responds to stakeholders' complaints and suggestions in a timely manner.	3.90	0.882	22.60%	78.00%	high
15	The university considers the needs of the local community and labour market when planning its programmes.	4.15	0.796	19.20%	82.90%	high
Stakeholder focus		**3.98**	**0.701**	**17.60%**	**79.60%**	**high (3)**
Overall: TQM practices		**4.13**	**0.530**	**12.80%**	**82.60%**	**high**

Source*: prepared by the author based on the statistical analysis.*

Table 8 shows that quality culture achieved an overall mean of 4.23 (SD = 0.494, CV = 11.70%), i.e. a very high level with a relative importance of 84.60%, indicating relatively high agreement among respondents. Quality commitment ranked first (mean = 4.41), whereas communication and trust ranked last (mean = 4.10). At the item level, item 17 recorded the highest mean (4.59) and item 25 the lowest (3.92), which represents an area for improvement.

Table 8: Descriptive statistics for quality culture (M)

No.	Item	Mean	SD	CV	Rel. imp.	Level
16	I consider quality an essential part of my professional responsibility rather than an extra burden.	4.50	0.578	12.90%	89.90%	very high
17	I exert extra effort to achieve the highest levels of quality in my work.	4.59	0.572	12.50%	91.70%	very high
18	Faculty members in my department are proud of the quality of what they deliver.	4.28	0.707	16.50%	85.70%	very high
19	I adhere to quality standards even in the absence of monitoring and auditing.	4.44	0.715	16.10%	88.80%	very high
20	Faculty members share common values regarding the importance of quality at the university.	4.24	0.769	18.20%	84.70%	very high
Quality commitment		**4.41**	**0.471**	**10.70%**	**88.20%**	**very high (1)**
21	Faculty members work as a team to improve the quality of academic programmes.	4.24	0.823	19.40%	84.90%	very high

No.	Item	Mean	SD	CV	Rel. imp.	Level
22	Faculty members participate in quality committees and in quality-related decisions.	4.20	0.816	19.50%	83.90%	high
23	Faculty members share expertise and good practices with one another.	4.24	0.793	18.70%	84.90%	very high
24	Quality is regarded as a collective responsibility shared by all staff.	4.37	0.792	18.10%	87.30%	very high
25	Students are involved in quality evaluation and improvement processes.	3.92	0.902	23.00%	78.40%	high
Teamwork and participation		**4.19**	**0.615**	**14.70%**	**83.90%**	**high (2)**
26	Quality-related information flows transparently between management levels.	4.24	0.728	17.20%	84.90%	very high
27	I trust the integrity and objectivity of performance evaluation processes.	4.19	0.682	16.30%	83.70%	high
28	Open communication channels allow me to express my views freely.	4.03	0.886	22.00%	80.70%	high
29	Leaders treat mistakes as learning opportunities rather than occasions for blame.	3.94	0.935	23.70%	78.90%	high
30	I receive clear and constructive feedback on my performance.	4.10	0.794	19.40%	82.00%	high
Communication and trust		**4.10**	**0.652**	**15.90%**	**82.00%**	**high (3)**
Overall: Quality culture		**4.23**	**0.494**	**11.70%**	**84.60%**	**very high**

Source*: prepared by the author based on the statistical analysis.*

Table 9 shows that innovative work behaviour achieved an overall mean of 4.41 (SD = 0.441, CV = 10.00%), i.e. a very high level with a relative importance of 88.20%, indicating relatively high agreement among respondents. Idea generation ranked first (mean = 4.48), whereas idea promotion ranked last (mean = 4.31). At the item level, item 32 recorded the highest mean (4.51) and item 39 the lowest (4.26), which represents an area for improvement.

Table 9: Descriptive statistics for innovative work behaviour (Y)

No.	Item	Mean	SD	CV	Rel. imp.	Level
31	I create new ideas for developing teaching methods.	4.49	0.606	13.50%	89.80%	very high
32	I search for new methods and techniques in my field of work.	4.51	0.645	14.30%	90.20%	very high
33	I offer unconventional solutions to the problems I face.	4.48	0.563	12.60%	89.60%	very high
34	I propose new research ideas relevant to community needs.	4.45	0.630	14.20%	88.90%	very high
35	I use digital transformation tools to generate new educational ideas.	4.46	0.631	14.20%	89.10%	very high
Idea generation		**4.48**	**0.449**	**10.00%**	**89.50%**	**very high (1)**
36	I seek to win colleagues' support for my new ideas.	4.30	0.768	17.80%	86.00%	very high
37	I present my new ideas to leaders persuasively.	4.31	0.759	17.60%	86.20%	very high
38	I motivate colleagues to adopt innovative ideas.	4.38	0.684	15.60%	87.60%	very high
39	I build a network of cooperation inside and outside the university to support my ideas.	4.26	0.699	16.40%	85.20%	very high

No.	Item	Mean	SD	CV	Rel. imp.	Level
40	I defend new ideas even in the face of opposition.	4.28	0.719	16.80%	85.70%	very high
Idea promotion		**4.31**	**0.574**	**13.30%**	**86.10%**	**very high (3)**
41	I transform new ideas into useful practical applications.	4.41	0.651	14.80%	88.10%	very high
42	I introduce innovative ideas into the work environment systematically.	4.41	0.638	14.50%	88.10%	very high
43	I evaluate the results of applying new ideas and improve them.	4.44	0.603	13.60%	88.80%	very high
44	I contribute to implementing development initiatives in my department or college.	4.42	0.627	14.20%	88.50%	very high
45	I make sure that successful ideas continue to be applied.	4.51	0.578	12.80%	90.20%	very high
Idea realisation		**4.44**	**0.517**	**11.60%**	**88.70%**	**very high (2)**
Overall: Innovative work behaviour		**4.41**	**0.441**	**10.00%**	**88.20%**	**very high**

Source*: prepared by the author based on the statistical analysis.*

Figure 3 compares the mean levels of the nine dimensions. All dimensions fall within the high or very high range; idea generation, idea realisation and quality commitment record the highest means, whereas stakeholder focus and communication and trust record the lowest, pointing to the areas that most need development.

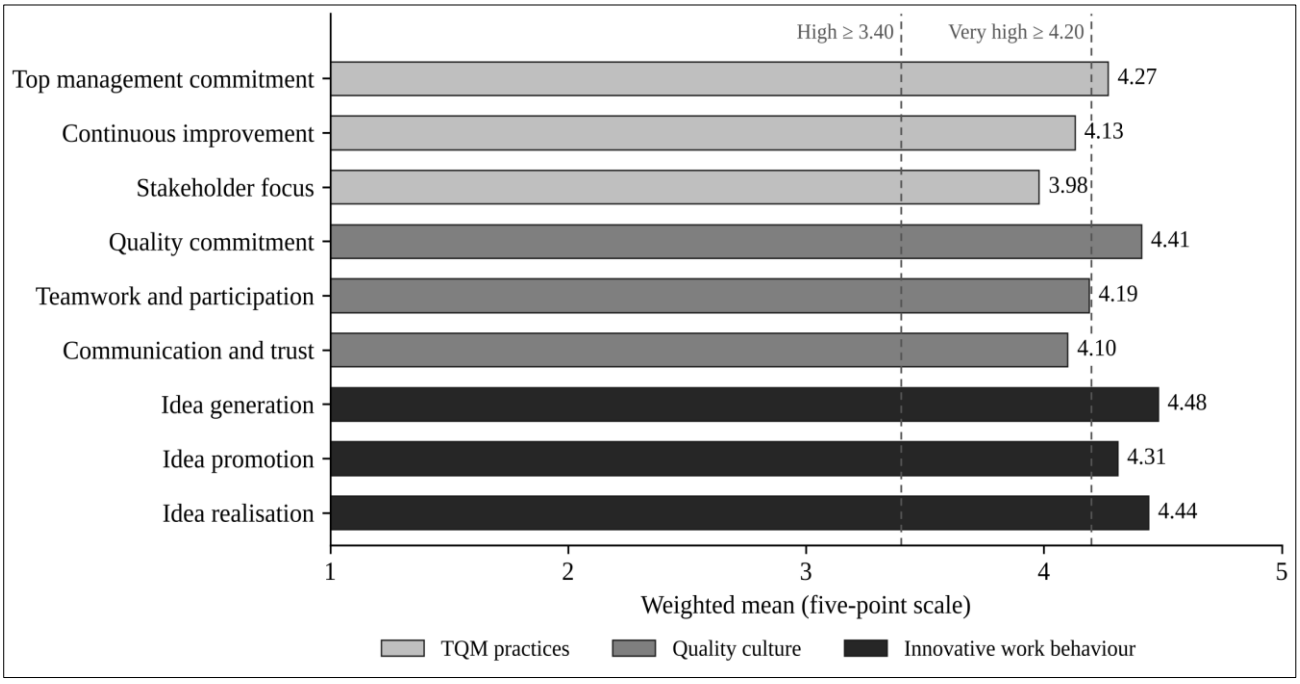


Figure 3: Mean levels of the study dimensions

Source*: prepared by the author based on Tables 7–9. Dashed lines mark the thresholds of the high (3.40) and very high (4.20) levels.*

4.4 Correlation Analysis

Table 10 presents the Pearson correlation matrix. There are significant positive correlations between TQM practices and innovative work behaviour (r = 0.422), between TQM practices and quality culture (r = 0.710), and between quality culture and innovative work behaviour (r = 0.571), all significant at the 0.01 level. Correlations between the dimensions of different variables ranged from 0.166 to 0.653; all were significant except one correlation (IG–CI). The main correlation hypothesis is therefore supported, and its sub-hypotheses are partially supported.

Table 10: Correlation matrix of the study variables and dimensions

	LC	CI	SF	QCM	QTP	QCT	IG	IP	IR	X	M	Y
LC	1											
CI	0.688**	1										
SF	0.528**	0.663**	1									
QCM	0.485**	0.421**	0.473**	1								
QTP	0.411**	0.553**	0.604**	0.566**	1							
QCT	0.482**	0.537**	0.653**	0.498**	0.668**	1						
IG	0.351**	0.166	0.282**	0.473**	0.338**	0.413**	1					
IP	0.380**	0.287**	0.289**	0.340**	0.314**	0.415**	0.535**	1				
IR	0.346**	0.296**	0.412**	0.493**	0.434**	0.561**	0.575**	0.685**	1			
X	0.830**	0.899**	0.868**	0.530**	0.612**	0.652**	0.306**	0.364**	0.410**	1		
M	0.537**	0.600**	0.688**	0.772**	0.889**	0.876**	0.472**	0.421**	0.584**	0.710**	1	
Y	0.419**	0.297**	0.382**	0.501**	0.421**	0.540**	0.797**	0.884**	0.884**	0.422**	0.571**	1

*** significant at the 0.01 level (two-tailed); n = 123. LC top management commitment; CI continuous improvement; SF stakeholder focus; QCM quality commitment; QTP teamwork and participation; QCT communication and trust; IG idea generation; IP idea promotion; IR idea realisation. Source: prepared by the author.*

4.5 Hypothesis Testing: Direct Effects

Simple linear regression was used to test the first three main hypotheses and their sub-hypotheses (Table 11). TQM practices had a significant positive effect on innovative work behaviour ($\beta = 0.422$, $t = 5.12$, $p < 0.001$), explaining 17.80% of its variance ($F = 26.21$); H1 is therefore supported. At the sub-hypothesis level, all three dimensions (top management commitment, continuous improvement and stakeholder focus) had significant effects, led by top management commitment. TQM practices also had a significant positive effect on quality culture ($\beta = 0.710$, $t = 11.08$, $p < 0.001$, $R^2 = 0.504$), supporting H2. Quality culture significantly affected innovative work behaviour ($\beta = 0.571$, $t = 7.66$, $p < 0.001$, $R^2 = 0.326$), supporting H3, with communication and trust being the strongest dimension.

Table 11: Simple regression results for the impact hypotheses

Hyp.	Path	B	β	t	Sig.	R^2	F	Decision
H1	**TQM → IWB**	**0.351**	**0.422**	**5.12**	**< 0.001**	**0.178**	**26.21**	**Supported**
H1-1	Top management commitment → IWB	0.341	0.419	5.08	< 0.001	0.176	25.82	Supported
H1-2	Continuous improvement → IWB	0.221	0.297	3.42	< 0.001	0.088	11.68	Supported
H1-3	Stakeholder focus → IWB	0.240	0.382	4.55	< 0.001	0.146	20.72	Supported
H2	**TQM → Quality culture**	**0.661**	**0.710**	**11.08**	**< 0.001**	**0.504**	**122.79**	**Supported**
H2-1	Top management commitment → Quality culture	0.489	0.537	7.00	< 0.001	0.288	48.96	Supported
H2-2	Continuous improvement → Quality culture	0.499	0.600	8.24	< 0.001	0.360	67.96	Supported
H2-3	Stakeholder focus → Quality culture	0.485	0.688	10.44	< 0.001	0.474	108.95	Supported
H3	**Quality culture → IWB**	**0.510**	**0.571**	**7.66**	**< 0.001**	**0.326**	**58.63**	**Supported**
H3-1	Quality commitment → IWB	0.469	0.501	6.36	< 0.001	0.251	40.50	Supported
H3-2	Teamwork and participation → IWB	0.301	0.421	5.10	< 0.001	0.177	26.01	Supported
H3-3	Communication and trust → IWB	0.365	0.540	7.05	< 0.001	0.291	49.75	Supported

Source*: prepared by the author based on the statistical analysis.*

Multiple regression was used to determine the relative contribution of the dimensions when entered jointly (Table 12). The TQM dimensions jointly explained 22.00% of the variance in innovative work behaviour and 52.50% of the variance in quality culture, while the quality culture dimensions explained 36.30%. In Model 1, top management commitment and stakeholder focus were significant; in Model 2, only stakeholder focus was significant; and in Model 3, quality commitment and communication and trust were significant. The changes in significance, contrary to the positive correlations and simple regressions, reflect the high intercorrelations among the dimensions of each variable (a statistical suppression effect): the dimensions operate as an interrelated system, and the coefficient of each dimension in the joint model expresses its effect after removing what it shares with the others.

Table 12: Multiple regression results for the effect of the dimensions

Predictor	B	β	t	Sig.	Result
Model 1: TQM dimensions → IWB ($R^2 = 0.220$, $F = 11.20$, Sig. < 0.001)					
Top management commitment	0.301	0.369	3.28	0.001	Significant
Continuous improvement	-0.108	-0.145	-1.14	0.258	Not significant
Stakeholder focus	0.178	0.283	2.60	0.011	Significant
Model 2: TQM dimensions → Quality culture ($R^2 = 0.525$, $F = 43.85$, Sig. < 0.001)					

Predictor	B	β	t	Sig.	Result
Top management commitment	0.153	0.168	1.91	0.059	Not significant
Continuous improvement	0.129	0.155	1.56	0.122	Not significant
Stakeholder focus	0.350	0.497	5.84	< 0.001	Significant
Model 3: Quality culture dimensions → IWB (R^2 = 0.363, F = 22.62, Sig. < 0.001)					
Quality commitment	0.296	0.316	3.49	< 0.001	Significant
Teamwork and participation	-0.018	-0.025	-0.24	0.813	Not significant
Communication and trust	0.270	0.399	3.98	< 0.001	Significant

Source*: prepared by the author based on the statistical analysis.*

4.6 Hypothesis Testing: The Mediating Role of Quality Culture

H4 was tested following the logic of Baron and Kenny (1986), supported by bootstrapping with 5,000 resamples and bias-corrected confidence intervals (Preacher & Hayes, 2008) and the Sobel test, and mediation types were classified following Zhao *et al.,* (2010). As shown in Table 13 and Figure 2, the total effect of TQM practices on innovative work behaviour was c = 0.422, the effect of TQM practices on quality culture was a = 0.710, and the effect of quality culture on innovative work behaviour controlling for TQM was b = 0.548, all significant. When quality culture was entered, the direct effect decreased to c′ = 0.033 and became non-significant (p = 0.755). The indirect effect was a×b = 0.389, with a 95% bias-corrected CI of [0.228, 0.561] excluding zero (Sobel Z = 4.663, p < 0.001). Because the indirect effect is significant while the direct effect is not, quality culture fully mediates the relationship (indirect-only mediation); the VAF was 92.1%, above the 80% threshold for full mediation (Hair *et al*., 2019; Zhao *et al*., 2010). The effect size of adding the mediator was f^2 = 0.221. H4 is therefore supported.

Table 13: Mediation analysis results (standardised coefficients)

Effect	Path	Coefficient	Sig. / Z	95% CI (BC)
Total effect (c)	X → Y	0.422	< 0.001	—
Path a	X → M	0.710	< 0.001	—
Path b	M → Y (controlling X)	0.548	< 0.001	—
Direct effect (c′)	X → Y (controlling M)	0.033	0.755	—
Indirect effect (a×b)	X → M → Y	**0.389**	Sobel Z = 4.663	[0.228, 0.561]
Bootstrap SE of indirect effect	—	0.085	—	Percentile: [0.228, 0.562]
Variance accounted for (VAF)	—	92.1%	—	Full mediation
Full-model R^2 / f^2 of mediator	—	0.327	—	f^2 = 0.221

Source: Prepared by the author based on the statistical analysis.

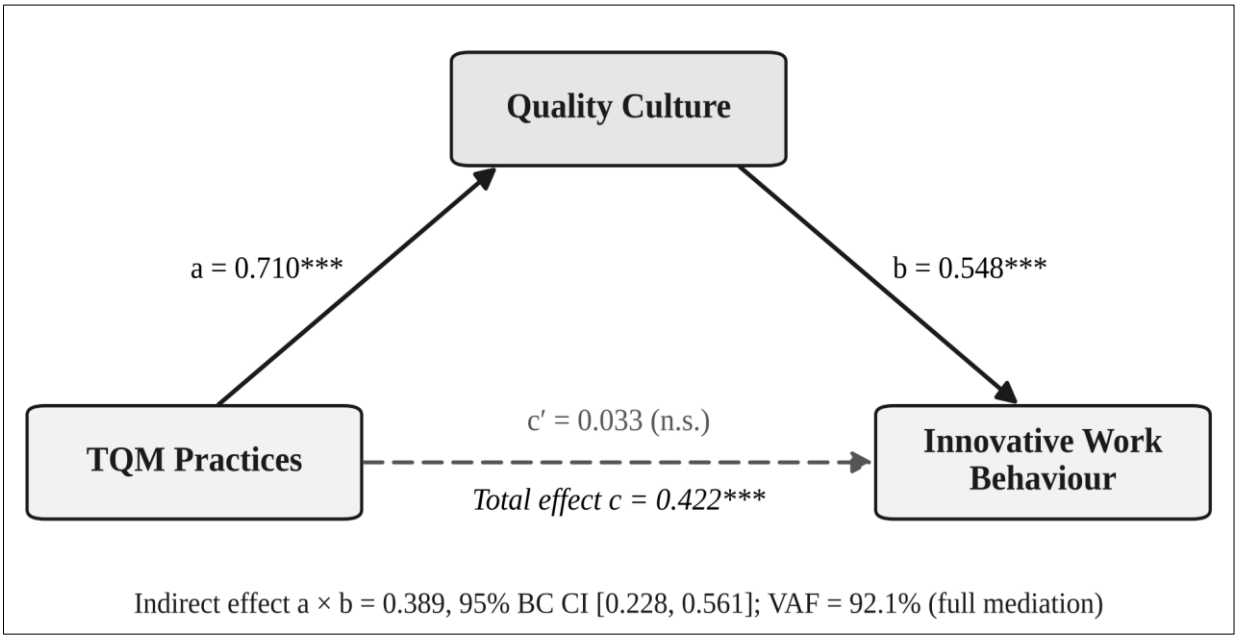


Figure 2: Standardised coefficients of the mediation paths

Source: prepared by the author based on the statistical analysis. Standardised coefficients; *** p < 0.001; n.s. = not significant.

Table 14: Summary of hypothesis testing

Hypothesis	Statement	Key statistic	Decision
Correlation	Significant positive correlations among the variables and their dimensions	r = 0.422 – 0.710	Supported (partially for dimensions)
H1	TQM practices have a significant positive effect on faculty members' innovative work behaviour.	β = 0.422	Supported
H2	TQM practices have a significant positive effect on quality culture.	β = 0.710	Supported
H3	Quality culture has a significant positive effect on faculty members' innovative work behaviour.	β = 0.571	Supported
H4	Quality culture mediates the relationship between TQM practices and faculty members' innovative work behaviour.	a×b = 0.389	Supported (full)

Source*: prepared by the author based on the statistical analysis.*

4.7 DISCUSSION

Levels of the Variables

TQM practices were at a high level, with top management commitment ranking first and stakeholder focus last. As a relatively young private university, the University of Kut appears to have focused first on building the leadership infrastructure for quality in response to ministerial and accreditation requirements, while mechanisms for measuring and responding to the needs of students and employers are still maturing. The leading position of leadership commitment is consistent with Bendermacher *et al.,* (2017), but partly differs from Psomas and Antony (2017), who found student focus among the most widely adopted TQM elements. Quality culture was at a very high level, led by quality commitment and trailed by communication and trust, suggesting that faculty members embrace quality as a personal professional value more than institutional communication and trust channels allow, in line with Harvey and Stensaker (2008) and Ehlers (2009), and with Dzimińska *et al*., (2018), who see trust as the foundation of quality culture. Innovative work behaviour was at a very high level, with idea generation ahead of idea promotion, implying that academics possess ideas more than the channels needed to champion them institutionally (Scott & Bruce, 1994). These very high, self-reported levels should be read with caution because of possible social desirability bias (Podsakoff *et al*., 2003).

Effect of TQM on Innovative Work Behavior

TQM practices and all three of their dimensions had significant positive effects on faculty innovative behaviour, supporting the view that quality and innovation are complementary (Prajogo & Sohal, 2003) and consistent with Sadikoglu and Zehir (2010) and Yirga and Beshir (2025). The effect was moderate (R^2 = 0.178) and led by top management commitment, whereas continuous improvement had the weakest effect (β = 0.297) and lost significance when entered with the other two dimensions. This is consistent with the research problem, namely that part of the improvement practice is perceived as a procedural and documentation requirement rather than an opportunity for renewal, and with the mixed findings on the quality–innovation link (Zehir *et al*., 2012). Social exchange theory (Blau, 1964) explains the positive effects: academics reciprocate the support of committed leaders, and the university's openness to students' and society's needs, with innovative behaviours beyond their formal roles.

Effects of TQM on Quality Culture and of Quality Culture on Innovation

TQM practices explained about half of the variance in quality culture (R^2 = 0.504), led by stakeholder focus, confirming that the structural/managerial element nourishes the cultural/psychological element (Bendermacher *et al.,* 2017; Ehlers, 2009). Quality culture explained innovative work behaviour (R^2 = 0.326) better than TQM practices did directly, with communication and trust as its most influential dimension; together with quality commitment it retained a significant unique effect in the multiple regression. Transparency, trust in leaders and fair evaluation, combined with personal commitment to quality, thus appear to create a psychologically safe environment in which academics voice ideas without fear of failure (Dzimińska *et al*., 2018), consistent with the effects of collaborative climate and perceived organisational support on academics' innovative behaviour (Liu & Sun, 2025; Musenze & Mayende, 2023; Zargar *et al*., 2025).

Mediating Role of Quality Culture

Quality culture fully mediated the TQM–innovative behaviour relationship: the indirect effect was significant (0.389) while the direct effect became non-significant once the mediator was controlled ($c' = 0.033$), which Zhao *et al*., (2010) classify as indirect-only mediation. Quality practices thus stimulate innovation not by themselves but to the extent that they build commitment, trust and shared values among faculty members, consistent with studies showing intermediate mechanisms such as organisational learning (Shuaib & He, 2023b) and innovation speed (Anifowose *et al.,* 2022), and adding evidence from Iraqi higher education that quality culture is the bridge that turns procedures into intrinsic motivation for renewal.

Theoretical and Practical Implications

Theoretically, the findings extend the quality–innovation debate (Prajogo & Sohal, 2003; Zehir *et al.,* 2012) to the level of individual academics and suggest that the mixed results reported in earlier studies may stem from overlooking cultural mechanisms: TQM practices relate to innovative behaviour mainly through the shared values, commitment and trust that they cultivate. The results also support the dual structural–cultural conception of quality culture (Bendermacher *et al*., 2017; Ehlers, 2009) and the social exchange explanation of discretionary behaviour (Blau, 1964). Practically, university leaders should not expect procedures, audits and documentation alone to stimulate faculty innovation; investment in communication, trust and staff participation is what converts quality systems into innovative behaviour, and continuous-improvement mechanisms need to be redesigned so that faculty members perceive them as opportunities for renewal rather than as reporting requirements.

Limitations

The results rest on 123 valid responses (18.5% of the population), which is adequate for the regression model (Green, 1991) but below the Krejcie and Morgan (1970) sample size; the data were collected online through convenience sampling, and PhD holders are under-represented relative to the population. The descriptive levels should therefore be generalised with caution. The study also relies on self-reports and a cross-sectional design that does not permit firm causal inference.

5. CONCLUSION

5.1 Conclusions

1. TQM practices at the University of Kut are at a high level; top management commitment is the main strength, whereas stakeholder focus is a development priority.
2. A very high level of quality culture prevails, driven by individual commitment to quality that exceeds institutional communication and trust.
3. Faculty members report a very high level of innovative work behaviour, with idea generation exceeding the institutional promotion of ideas.
4. Significant positive correlations exist among the three main variables and all their dimensions, except between continuous improvement and idea generation.
5. TQM practices and all three of their dimensions make a significant positive contribution to innovative work behaviour ($R^2 = 0.178$), led by top management commitment, with continuous improvement having the weakest effect.
6. TQM practices strongly shape quality culture ($R^2 = 0.504$), with stakeholder focus as the most influential dimension.
7. Quality culture explains innovative work behaviour better than TQM practices do directly, led by communication and trust followed by quality commitment.
8. Quality culture fully mediates the relationship between TQM practices and innovative work behaviour: the effect of quality on innovation passes through shared values and trust rather than through procedures as such.
9. The dimensions of each variable operate as an interrelated system, as the significance of some dimensions declines when they are entered jointly.
10. The findings need confirmation in a larger sample that better represents PhD holders and all colleges.

5.2 Recommendations

1. Activate continuous improvement by linking self-assessment, performance evaluation and student-survey results to published improvement plans with clear timelines and responsibilities, monitored by the Quality Assurance and Academic Performance Department.
2. Strengthen open communication and trust through regular meetings between leaders and faculty members, transparent publication of evaluation results, and treating mistakes as learning opportunities.
3. Broaden faculty participation in quality committees and improvement teams at department and college levels to reinforce shared ownership of quality.
4. Establish an institutional platform (an academic idea incubator) to receive, evaluate and support the implementation of faculty members' innovative ideas, closing the gap between generating and promoting ideas.
5. Include indicators of innovative behaviour (curriculum development initiatives, e-learning and applied research) in the annual faculty performance evaluation and link them to incentives.
6. Design training programmes on TQM, creative thinking and digital transformation tools in cooperation with the university's Continuing Education Centre.
7. Measure quality culture annually as a tool for diagnosing its maturity and planning its development.
8. Strengthen the focus on external stakeholders through advisory boards including employers and graduates.

5.3 Suggestions for future research

1. Re-test the model on a sample of at least the statistically required size (244 faculty members) that represents all colleges proportionally, and extend it to Iraqi public and private universities for comparison.
2. Adopt a longitudinal design to test causal relationships over time.

3. Introduce moderating variables such as digital leadership or perceived organisational support.
4. Examine the effect of quality culture on institutional innovative performance and university ranking indicators.
5. Use multi-source data (e.g. supervisors' ratings of innovative behaviour) to reduce common method bias.
6. Conduct an in-depth qualitative study of the barriers to promoting faculty members' innovative ideas.

Conflict of Interest

The author declares that the research was conducted in the absence of any personal or financial relationships that could be construed as a potential conflict of interest.

Declaration of Generative Ai Use

During the preparation of this work the author used a generative AI tool (Claude, Anthropic) to help organise the initial draft, draft parts of the text, format tables and run the statistical procedures. The author reviewed and edited all content, verified the sources, data and results, and takes full responsibility for the content of the publication.

REFERENCES

- Ab Wahab, F., Subramaniam, A., Ho, J. A., & Mahomed, A. S. B. (2024). Augmenting effect of inclusive and ambidextrous leadership on public university academic staffs' innovative performance: The mediating role of innovative work behavior. *SAGE Open, 14*(1), 21582440241232761. https://doi.org/10.1177/21582440241232761
- Ababneh, O. M. A. (2021). The impact of organizational culture archetypes on quality performance and total quality management: The role of employee engagement and individual values. *International Journal of Quality & Reliability Management, 38*(6), 1387–1408. https://doi.org/10.1108/IJQRM-05-2020-0178
- Anifowose, O. N., Ghasemi, M., & Olaleye, B. R. (2022). Total quality management and small and medium-sized enterprises' (SMEs) performance: Mediating role of innovation speed. *Sustainability, 14*(14), 8719. https://doi.org/10.3390/su14148719
- Ayoub, A. E. A. H., Almahamid, S. M., & Al Salah, L. F. (2023). Innovative work behavior scale: Development and validation of psychometric properties in higher education in the GCC countries. *European Journal of Innovation Management, 26*(1), 119–133. https://doi.org/10.1108/EJIM-04-2021-0176
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173
- Bendermacher, G. W. G., oude Egbrink, M. G. A., Wolfhagen, I. H. A. P., & Dolmans, D. H. J. M. (2017). Unravelling quality culture in higher education: A realist review. *Higher Education, 73*(1), 39–60. https://doi.org/10.1007/s10734-015-9979-2
- Blau, P. M. (1964). *Exchange and power in social life*. Wiley.
- De Jong, J., & Den Hartog, D. (2010). Measuring innovative work behaviour. *Creativity and Innovation Management, 19*(1), 23–36. https://doi.org/10.1111/j.1467-8691.2010.00547.x
- Deming, W. E. (1986). *Out of the crisis*. MIT Press.
- Dzimińska, M., Fijałkowska, J., & Sułkowski, Ł. (2018). Trust-based quality culture conceptual model for higher education institutions. *Sustainability, 10*(8), 2599. https://doi.org/10.3390/su10082599
- Ehlers, U.-D. (2009). Understanding quality culture. *Quality Assurance in Education, 17*(4), 343–363. https://doi.org/10.1108/09684880910992322
- Flynn, B. B., Schroeder, R. G., & Sakakibara, S. (1994). A framework for quality management research and an associated measurement instrument. *Journal of Operations Management, 11*(4), 339–366. https://doi.org/10.1016/S0272-6963(97)90004-8
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104
- Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioral Research, 26*(3), 499–510. https://doi.org/10.1207/s15327906mbr2603_7
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203
- Harvey, L., & Stensaker, B. (2008). Quality culture: Understandings, boundaries and linkages. *European Journal of Education, 43*(4), 427–442. https://doi.org/10.1111/j.1465-3435.2008.00367.x
- Hassan, R. S., Amin, H. M. G., & Ghoneim, H. (2024). Decent work and innovative work behavior of academic staff in higher education institutions: The mediating role of work engagement and job self-efficacy. *Humanities and Social Sciences Communications, 11*, 702. https://doi.org/10.1057/s41599-024-03177-0
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8
- Hildesheim, C., & Sonntag, K. (2020). The Quality Culture Inventory: A comprehensive approach towards measuring quality culture in higher education. *Studies in Higher Education, 45*(4), 892–908. https://doi.org/10.1080/03075079.2019.1672639

- Janssen, O. (2000). Job demands, perceptions of effort–reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology, 73*(3), 287–302. https://doi.org/10.1348/096317900167038
- Kaynak, H. (2003). The relationship between total quality management practices and their effects on firm performance. *Journal of Operations Management, 21*(4), 405–435. https://doi.org/10.1016/S0272-6963(03)00004-4
- Kim, D.-Y., Kumar, V., & Kumar, U. (2012). Relationship between quality management practices and innovation. *Journal of Operations Management, 30*(4), 295–315. https://doi.org/10.1016/j.jom.2012.02.003
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308
- Liu, Q., & Sun, Y. (2025). The impact of collaborative atmosphere on innovative work behavior of college teachers, North China. *Frontiers in Psychology, 15*, 1497503. https://doi.org/10.3389/fpsyg.2024.1497503
- Musenze, I. A., & Mayende, T. S. (2023). Ethical leadership (EL) and innovative work behavior (IWB) in public universities: Examining the moderating role of perceived organizational support (POS). *Management Research Review, 46*(5), 682–701. https://doi.org/10.1108/MRR-12-2021-0858
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879
- Prajogo, D. I., & Sohal, A. S. (2003). The relationship between TQM practices, quality performance, and innovation performance: An empirical examination. *International Journal of Quality & Reliability Management, 20*(8), 901–918. https://doi.org/10.1108/02656710310493625
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879
- Psomas, E., & Antony, J. (2017). Total quality management elements and results in higher education institutions: The Greek case. *Quality Assurance in Education, 25*(2), 206–223. https://doi.org/10.1108/QAE-08-2015-0033
- Sadikoglu, E., & Zehir, C. (2010). Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms. *International Journal of Production Economics, 127*(1), 13–26. https://doi.org/10.1016/j.ijpe.2010.02.013
- Sahney, S., Banwet, D. K., & Karunes, S. (2004). Conceptualizing total quality management in higher education. *The TQM Magazine, 16*(2), 145–159. https://doi.org/10.1108/09544780410523044
- Saraph, J. V., Benson, P. G., & Schroeder, R. G. (1989). An instrument for measuring the critical factors of quality management. *Decision Sciences, 20*(4), 810–829. https://doi.org/10.1111/j.1540-5915.1989.tb01421.x
- Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). Jossey-Bass.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*(3), 580–607. https://doi.org/10.5465/256701
- Shuaib, K. M., & He, Z. (2023a). Moderating role of organizational culture in the relationship between total quality management and organizational innovation among manufacturing SMEs in Nigeria. *African Journal of Science, Technology, Innovation and Development, 15*(6), 743–766. https://doi.org/10.1080/20421338.2023.2190258
- Shuaib, K. M., & He, Z. (2023b). Mediating effect of organisational learning and moderating role of organisational culture on the relationship between total quality management and innovation among manufacturing companies in Nigeria. *Total Quality Management & Business Excellence, 34*(7–8). https://doi.org/10.1080/14783363.2022.2138313
- University of Kut. (2026). *Actual teaching staff statistics for all colleges and departments* [Unpublished institutional record]. University of Kut.
- Verschueren, N., Van Dessel, J., Verslyppe, A., Schoensetters, Y., & Baelmans, M. (2023). A maturity matrix model to strengthen the quality cultures in higher education. *Education Sciences, 13*(2), 123. https://doi.org/10.3390/educsci13020123
- Yahiaoui, F., Chergui, K., Aissaoui, N., Brika, S. K. M., Lamari, I. A., Musa, A. A., & Almezher, M. (2022). The impacts of total quality management practices in Algerian higher education institutions. *Frontiers in Psychology, 13*, 874209. https://doi.org/10.3389/fpsyg.2022.874209
- Yirga, S. A., & Beshir, M. A. (2025). The effect of total quality management practices on innovation: Evidence from selected agricultural technical and vocational education training colleges in Ethiopia. *Journal of Innovation and Entrepreneurship, 14*, 21. https://doi.org/10.1186/s13731-024-00460-x
- Zargar, P., Daouk, A., & Chahine, S. (2025). Driving innovative work behavior among university teachers through work engagement and perceived organizational support. *Administrative Sciences, 15*(7), 246. https://doi.org/10.3390/admsci15070246
- Zehir, C., Ertosun, Ö. G., Zehir, S., & Müceldilli, B. (2012). Total quality management practices' effects on quality performance and innovative performance. *Procedia – Social and Behavioral Sciences, 41*, 273–280. https://doi.org/10.1016/j.sbspro.2012.04.031
- Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197–206. https://doi.org/10.1086/651257.