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Influence of intrinsic and extrinsic motivation on higher education performance: mediating effect of quality culture

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This study intends to investigate the effects of intrinsic and extrinsic motivation of faculty on higher education performance through quality culture in public and private universities of Pakistan. The study uses a nationwide survey approach, while data are collected from administrative managers through online and in-person questionnaires using stratified random sampling techniques. Of the 150 questionnaires distributed, 111 were received, however, 105 are considered valid while the data are analyzed by PLS-SEM. The results revealed the significant effect of intrinsic motivation and quality culture on higher education performance, and of intrinsic and extrinsic motivation on quality culture; however, the effect of extrinsic motivation on higher education performance is not empirically supported. Besides, quality culture is found to be a statistically significant mediator in the relationship between intrinsic motivation and higher education performance, and extrinsic motivation and higher education performance. The relatively smaller sample size and reliance on administrative managers as the sole respondents are the possible weaknesses of this study. This study has expanded the theoretical and empirical understanding by introducing intrinsic motivation and extrinsic motivation as predictor variables in relation to higher education performance and implicating quality culture as a mediator. This study has important implications for policymakers, administrators, and quality managers to focus on employees' motivation to create a quality culture, which in turn will improve the performance of their respective organizations.

KEYWORDS

intrinsic motivation, extrinsic motivation, quality culture, higher education performance, higher education

1. Introduction

Performance, despite being a widely recognized management concept, its definition still varies from one field to another, and yet there is no unified definition (Cotelnic, 2022). Likewise, the concept of organizational performance also suffers from fragmentation in different fields, including higher education (HE). Mostly, researchers have attempted to measure the performance of HE from a specific angle or dimension, such as financial performance (Feranečová and Krigovská, 2016), innovation performance (Asiedu et al., 2020), research performance (Alshaikhmubarak et al., 2020), operations performance (Martin and Thawabieh, 2018), service performance (Rodríguez-González and Segarra, 2016; Kinanti et al., 2020), internationalization (Gao, 2018), and governance (Lokuwaduge and Armstrong, 2015). While others have taken a holistic approach to measuring university performance

(Abubakar et al., 2018; Hernandez-Diaz et al., 2020). In a recent study, researchers conducted a systematic literature review and found teaching, research, and service to be the most prevalent dimensions in the context of HE globally (Iqbal et al., 2022b). These three dimensions are also supported by several other researchers who refer to them as the three key roles/missions every university must perform (Martin, 2012; Sánchez-Barrionuengo, 2014; Agasisti and Bertolotti, 2019; Compagnucci and Spigarelli, 2020). However, the concept of service performance is not limited to the traditional service role of faculty members (also known as the third mission), as the services involve multiple stakeholders and perspectives in a HE context. Therefore, the present study has attempted to investigate higher education performance (HEP) in terms of teaching, research, and services (from the perspective of internal and external customers, as well as the traditional service role of faculty members). Furthermore, the study aimed to employ positive coping strategies in the prevailing competitive environment which in turn improves organizational performance and one such strategy is the emphasis on employee motivation.

The term motivation is derived from the word “motive” and has different meanings such as a person’s aspirations, needs, wants, and drives (Badura et al., 2020). Motivation is one of the factors that allows employees to perform well at work (Abbas and Kumari, 2023), motivates, guides, and supports them in their efforts to achieve their goals (Dewi and Wibowo, 2020). Researchers have also found that employee motivation is strongly and positively associated with organizational performance (Ochola, 2018; Geelmaale, 2019). Similarly, researchers have found a significant relationship between intrinsic motivation (IMOT), extrinsic motivation (EMOT), and employee performance (Makki and Abid, 2017; Engidaw, 2021). The motivation of employees, especially teachers, is equally important in the context of HE in developing countries like Pakistan. Particularly, faculty motivation is an overall process that leads faculty members to initiate, support, and regulate goal-oriented behavior (Daumiller et al., 2020). However, despite the significant nature of motivation, the previous literature on the association of IMOT and EMOT with employee performance has been fragmented. For some, EMOT is significantly associated with faculty performance, while IMOT is not (Olushola and Adewumi, 2021). Conversely, others revealed that IMOT is significantly related to employee engagement, while EMOT is not (Zeng et al., 2022).

Likewise, the creation of a quality culture (QC) could be another strategy to face the prevailing challenges in the university context. Researchers have also argued that universities need to invest in organizational change processes to cope with declining government funding and gain a foothold in an increasingly competitive marketplace (Bendermacher et al., 2017). Even the various quality assurance (QA) strategies can fail in the absence of a QC. As some researchers have found insignificant or negative effect of accreditation on teaching/learning and quality of HEIs (Dattey et al., 2017; Jalal et al., 2017, 2020). QC is an organization-wide value system that creates a favorable environment for the development and constant improvement of quality (Herminingsih and Sadikin, 2021). The significance of QC is also apparent from past studies that have found a positive association regarding QC and organizational performance (Yusof and Ali, 2000; Ali and Musah, 2012; Katwalo and Asienga, 2015; Wu, 2015; Ullah et al., 2016; Hilman et al., 2017). However, only a handful of studies have examined QC as a mediator in the

construction and health sectors (Alotaibi and Islam, 2013; Alotaibi et al., 2016; Abubakar and Hilman, 2017). Therefore, the previous literature suffers from theoretical and empirical gaps. Given the background of the study, the gaps identified in the preliminary literature and the lack of empirical evidence regarding IMOT, EMOT, QC, and HEP; three research questions (RQ) have been proposed, and are as follows:

RQ1: What is the effect of intrinsic and extrinsic motivation on higher education performance in universities?

RQ2: What is the effect of intrinsic and extrinsic motivation on quality culture in universities?

RQ3: Does quality culture mediate the association between intrinsic, extrinsic motivation and higher education performance in universities?

To answer these research questions, this study has adopted a survey approach with the institution (public and private universities in Pakistan) as the unit of analysis. The research article proceeds in the following order. The next section reviews the literature, followed by the methodology and results in the third and fourth sections. In the fifth section, the findings of the study are discussed. While the sixth section is composed of conclusions and implications. The seventh section presents the limitations of the study and recommendations for future research.

2. Literature review

2.1. Higher education performance

The past two decades have seen an implausible increase in the number of universities in Pakistan. Although this seems to be a positive sign of a thriving education sector in developing countries like Pakistan. However, there has been no substantial improvement in the performance of Pakistani universities, which is why it is often criticized by various segments of society. Instead, this dramatic increase has created immense competition among universities for survival and profitability, resulting in a compromise in the quality of education. Such a competitive environment induces university authorities to use deceptive marketing tactics to attract more students than others. Several researchers have highlighted the use of deceptive marketing strategies to attract potential students, including image manipulation and misleading claims such as exaggerating graduate employment rates and university rankings (Bradley, 2013, 2018; Ramsey and Wesley, 2015; Chiang et al., 2020). Therefore, researchers have opined that while aiming for university profitability and survival, academic quality should never be undermined (Iqbal et al., 2023). This is also supported by researchers that such performance of Pakistani universities is due to low academic quality (Iqbal et al., 2022a), particularly in three domains, teaching, research, and services (Hoodbhoy, 2009; Banuri, 2021; Murtaza and Hui, 2021). These three domains are also known as three academic roles/goals that universities must fulfill, including (1) teaching; (2)

research; and (3) service or third-mission (Edgar and Geare, 2013; Agasisti and Bertolotti, 2019).

International Organization for Standardization, famously known as “ISO,” has defined teaching as “working with learners to assist and support them with learning” (ISO 21001, 2018). As for teaching performance (TP), it is comprised of outputs related to teaching and learning goals for HE systems (Agasisti and Bertolotti, 2019). TP is one of the problem areas in the Pakistani HE context, and researchers have identified several reasons including: the absence of the latest knowledge; poor teaching methods (Banuri, 2021; Murtaza and Hui, 2021); poor learning skills; poor evaluation systems (Hoodbhoy, 2009; Banuri, 2021; Murtaza and Hui, 2021); superficial hiring process of teachers with political interference (Banuri, 2021; Murtaza and Hui, 2021); student disciplinary problems, academic scams by teachers, and shorter working days (Hoodbhoy, 2009); and lack of faculty members with PhDs (Hoodbhoy, 2009; Murtaza and Hui, 2021).

Research performance (RP) implies the “research output of academic staff and HE researchers” (Agasisti and Bertolotti, 2019). RP is the knowledge acquired through research and transfers it to others (Bazeley, 2010). Many researchers have attempted to measure RP, but have mostly used secondary sources such as bibliometric approaches, systematic reviews of the literature, university ranking data, and articles extracted from various databases (Abramo et al., 2013; Aldieri et al., 2020; Javed et al., 2020). RP is weak in Pakistani universities due to many reasons including: corrupt culture; scam/fraud journals; poor criteria for evaluating research work systems (Hoodbhoy, 2009; Banuri, 2021); lack of proper (quality) research; imbalance between teaching and research; and poor research skills (Nisar, 2019).

As for service performance (SP), it is also called a third-mission performance, which means “to capture the contribution of universities to society, including the benefits outside the academic environment that arise from HE” (Agasisti and Bertolotti, 2019). SP is another weak area in the Pakistani HE context. Services are a kind of facts, processes and performances (Zeithaml et al., 2018). According to ISO, educational service is a “process that supports acquisition and development of learners’ competence through teaching, learning or research” (ISO 21001, 2018). The quality of student services in Pakistani universities is considered poor, which affects the HE system in Pakistan (Nisar, 2019). The researchers argued that multi-stakeholder involvement is the obvious reason for poor service performance in HE (Hwang and Teo, 2001). The researchers have argued that, as part of the service industry, universities are expected to provide quality services to all customers (academic and non-academic) and any deviation from this will lead to poor service quality and thus low customer satisfaction (Iqbal et al., 2023). Similarly, university faculty are also expected to take on service roles in addition to academic roles, such as teaching and research (Brazeau, 2003; Neumann and Terosky, 2007). However, it is argued that the service role of the faculty is often ignored by the university administration, despite the fact that they spend a reasonable amount of time in various service positions at their respective universities (Throm, 2018). Service performance in a HE context is therefore a broader concept that involves services for internal and external customers, as well as faculty service roles. However, in the previous literature, there is no evidence that researchers have attempted to investigate services that combine all three of the above.

2.2. Intrinsic motivation and higher education performance

The term motivation originated from the word “motive” and is conceptualized in terms of a person’s wants, needs, desires, and drives (Badura et al., 2020). Motivation is an urge or mobilization force that can drive, direct, and organize human behaviors (Inceoglu et al., 2012). Similarly, motivation is also described as the provision of incentives to encourage people to act in accordance with their desires (Certo, 2019). Motivation can be divided into two forms of intrinsic and extrinsic motivation, depending on the characteristics or subject matter of the various factors that trigger the behavior (Deci et al., 1975). IMOT is defined as the task undertaken based purely on the inherent satisfaction of an individual rather than depending on some consequence (Zeng et al., 2022). Simply put, IMOT is an internal desire that drives an individual to produce more and better (Mazllami, 2020). People are said to be intrinsically motivated when they act because of the attraction or satisfaction associated with a particular activity (Rita et al., 2018). Some researchers have investigated the influence of IMOT and EMOT factors on organizational performance, and the results found that IMOT is more influential than EMOT in relation to organizational performance (Senanayake and Gamage, 2017; Olugu et al., 2018). Researchers believe that a lack of IMOT may lead to poor job performance, which in turn negatively impacts organizational performance (Kusumah et al., 2021). This is consistent with some recent findings that IMOT strongly affects employee/job performance (Kuvaas et al., 2017; Tran et al., 2021; Jnaneswar and Ranjit, 2022).

In the context of HE, little evidence is available regarding IMOT and organizational performance. For instance, a researcher in her qualitative research conducted at a private sector university in Dhaka, Bangladesh, found that most faculty believe IMOT is a way to stimulate enthusiasm for teaching and research, continually improve quality of teaching and maintain satisfaction (Rahnuma, 2020). Conversely, some empirical studies have also been conducted to examine the association between IMOT and faculty performance, but their results are not consistent. For instance, a study conducted at Romanian public universities showed that IMOT was positively associated with the research productivity of faculty members (Horodnic and Zait, 2015). However, this study has some limitations. First, the survey only involved faculty members from the Department of Economics and Business Administration of 22 Romanian public universities. Second, the study ignored faculty members at private universities. Furthermore, the study aimed to examine the relationship between IMOT, EMOT, and faculty research performance, which is just one performance aspect among others, including teaching, assessment, and service roles. Therefore, the results of the study cannot be generalized to faculty members of other disciplines, nor to private universities around the world. While another study conducted at three technical/vocational colleges in Lagos, Nigeria, did not show a significant relationship between IMOT and instructor performance (Olushola and Adewumi, 2021). However, the context of this study was quite different from that of Romanian public universities. Romania is a European country, so faculty members at Romanian public universities can get good salaries, fringe benefits, and a more favorable environment. Conversely, the Nigerian counterpart vocational and technical colleges (instructors) may lack such resources and facilities due to Nigeria’s weak economy. They may have a hard

time meeting their basic needs, so their priority may be meeting their monetary needs and then following their inner drives. Given the limited studies involving IMOT and HEP, and the lack of sufficient empirical evidence in the context of HE, the following hypothesis is proposed:

H1: Intrinsic motivation is significantly related to higher education performance.

2.3. Extrinsic motivation and higher education performance

Extrinsic motivation involves valuing or complimenting someone's behavior as a tool, so the satisfaction obtained does not come from the activity, but as an external result leading to the activity (Rita et al., 2018). According to another definition, EMOT relates to performing an activity to obtain some separable result rather than engaging in an activity solely for its instrumental value (Zeng et al., 2022). EMOT is primarily expressed in terms of various financial incentives such as wages, salaries, bonuses, promotions, and other fringe benefits that an organization offers its employees to improve their performance (Jeni et al., 2020). In prior literature, many researchers attempted to determine the relationship between EMOT and employee and/or organizational performance, however, the results were inconsistent. For example, some studies have shown that EMOT has a positive and significant effect on employee performance (Makki and Abid, 2017; Jeni et al., 2020; Mazllami, 2020; Noorazem et al., 2021). In contrast, few studies have indicated that EMOT does not affect employee performance (Olafsen et al., 2015; Kuvaas et al., 2017; Nurennny and Hidayat, 2020). Similarly, in a relatively new study, researchers found that EMOT had no effect on the work engagement of nurses in Japanese welfare and healthcare institutions (Zeng et al., 2022).

In the HE context, some researchers conducted an exploratory study to examine the various IMOT and EMOT factors of teacher motivation at 5 public universities in Pakistan. The results of the study showed that extrinsic factors including (1) wages, (2) job design and work environment, (3) performance management system, and (4) training and development positively influence the motivation of teachers in public sector universities in Pakistan (Rasheed et al., 2016). In addition, a couple of empirical studies were conducted in the Nigerian educational context, and their findings revealed a positive relationship between EMOT and teacher performance. For instance, a study conducted in Nigerian colleges of education has revealed that monetary and non-monetary incentives positively influence teachers' job performance (Alade and Okeke, 2021). Likewise, another study conducted in three technical/vocational colleges in Lagos, Nigeria, revealed that EMOT is positively and significantly related to instructor performance (Olushola and Adewumi, 2021). On the contrary, in another study, the researchers found that although IMOT is positively correlated with the research productivity of academic staff in Romanian public universities, however, the relationship between EMOT and academic staff's research productivity was negative (Horodnic and Zait, 2015). This could be due to contextual differences such as the availability of

resources, facilities, environment, and salary packages given to academic staff from universities operating in Nigeria and Romania. Given both contexts, it can be argued that faculty members at Nigerian universities seem to be more influenced by monetary and non-monetary benefits, while academic staff at Romanian universities tend to perform their tasks for inner reasons like fun and enjoyment. Besides, the results of another study based on a literature review show that although there is no conclusive evidence on which motivation approach is better for driving a performance culture within an organization, the role of employees is definitely important in this regard. The study further added that EMOT often has a tendency to attract employees, but organizational leaders must clearly communicate to employees what they need to do so that leaders can motivate them externally (Turner, 2017). Based on the above discussion, inconsistent findings, and lack of sufficient evidence the following hypothesis has been proposed:

H2: Extrinsic motivation is significantly related to higher education performance.

2.4. Quality culture and higher education performance

Quality culture is a "set of group values that guide how improvements are made to everyday working practices and consequent outputs" (Harvey, 2004). Quality culture is a continuous improvement process where the entire organizational community is responsible for maintaining a favorable work environment leading to organizational excellence (Trewin, 2002). QC in the context of HE is understood as "the overall attitude of an institution, which focuses on the concept of quality and applies it to all aspects of its activities" (Ali and Musah, 2012). Researchers have examined QC as an independent variable in relation to organizational performance and found a positive relationship (Yusof and Ali, 2000; Ali and Musah, 2012; Wu, 2015). In a recent study, researchers examined the effect of QC on service quality (SQ) at public and private universities in Pakistan. The results showed that QC strongly affects SQ in both types of universities, however, this effect is stronger in private than public universities (Iqbal et al., 2023). Likewise, in another study, QC was examined in relation to Kenyan research university performance, and the findings showed a strong association (Katwalo and Asienga, 2015). However, since this study was only conducted at a single university in Kenya; therefore, the results need to be verified with a larger population. Similarly, the effect of QC was also found to be significant in relation to university performance in the context of Nigerian universities. However, the results revealed that QC predicted only 30.4% of the variation in university performance, while the scope of the study was also restricted to Nigerian universities. Therefore, the authors have recommended future researchers to introduce other predictor variables and to conduct a study on a broader spectrum (Hilman et al., 2017). Given the weaknesses of prior studies as discussed above, the following hypothesis can be formulated:

H3: Quality culture is significantly related to higher education performance.

2.5. Motivation and quality culture

Several studies in the previous literature investigated IMOT and EMOT as predictor variables, but not in relation to QC. However, only a few studies have examined employee motivation in relation to organizational culture (OC). OC is a broader term that consists of shared values, beliefs, attitudes, customs, and norms found within an organization that shapes the behaviors and decisions of its members, but still, there is no agreed definition (Gautam and Basnet, 2021). For instance, “organisational culture is the way that things are done in an organisation, the unwritten rules that influence individual and group behaviour and attitudes” (Chartered Management Institute, 2015). By contrast, QC is a subset of OC (Dellana and Hauser, 1999) and focuses specifically on shared values and commitment to quality (Bendermacher et al., 2017).

Some researchers investigated employee motivation as the dependent variable in relation to OC, and the results showed that OC was strongly correlated with employee motivation (Yusof et al., 2016). While few studies examined motivation as a mediator, however, the findings on OC and motivation were conflicting. Such as, researchers have found an insignificant and negative effect of OC on the IMOT of employees at a coal company in Indonesia (Hariadi et al., 2022). Likewise, in another study, researchers have found an insignificant effect of OC on the motivation of employees working in the “Employment Social Security Administering Agency” located in Tangerang City, Indonesia (Riyanto et al., 2021). However, both studies have different scenarios, and their samples are not truly representative of their population.

In contrast, there is little evidence that researchers have investigated employee motivation as an independent variable in relation to QC or even OC. For example, few researchers have sought to determine the influence of teacher motivation on the OC of undergraduate universities in the city of Bangalore, India, and the results found that teacher work motivation is positively related to OC (George and Sabhpathy, 2014). Given the distinct roles of motivation in relation to OC identified by these investigators, it has become apparent that these studies suffer from fragmentation as no agreement has been reached on a specific role of motivation in relation to OC. Based on the above-mentioned discussions, this study has proposed the following hypotheses:

H4: Intrinsic motivation is significantly related to the quality culture.

H5: Extrinsic motivation is significantly related to the quality culture.

2.6. Mediating effect of quality culture

Even though QC is a widely used term, its meaning remains unclear due to a lack of consensus (Nygren-Landgärds et al., 2022). In previous literature, researchers mainly investigated QC in qualitative studies (Adina-Petruța, 2014; Njiro, 2016; Bendermacher et al., 2017; Lycke and Tano, 2017; Tutko, 2019). While in quantitative studies QC has been mainly investigated as a predictor variable in

relation to organizational performance, and the results showed a positive effect on organizational performance (Ali and Musah, 2012; Katwalo and Asienga, 2015; Wu, 2015; Ullah et al., 2016; Hilman et al., 2017). Furthermore, some studies explored QC as dependent variable, and the results showed a positive association with TQM practices (Al-Otaibi, 2015); IQA (Do et al., 2020); and visionary leadership (Herminingsih et al., 2020). However, only a handful of studies have examined QC as a mediator, and the results showed that QC mediates between: talent management (two of the three dimensions) and university performance (Abubakar and Hilman, 2017); TQM practices and competitiveness of Saudi contractors (Alotaibi and Islam, 2013); while partial mediation between QMP and innovation performance (Alotaibi et al., 2016). Given the ambiguity regarding the exact role of QC and based on the guidance of the previous researcher (Al-Otaibi, 2015); current researchers have decided to investigate QC as a mediator in the relationship between IMOT, EMOT, and HEP in the Pakistani HE context. The aim was to examine the underlying mechanism in the relationship between IMOT, EMOT, and HEP, and to explain why this relationship exists. Given the above discussions, the following hypotheses have been postulated:

H6: Quality culture mediates the relationship between intrinsic motivation and higher education performance.

H7: Quality culture mediates the relationship between extrinsic motivation and higher education performance.

2.7. Research framework

Given the gaps identified in the existing literature, a conceptual framework has been proposed based on the resource-based view (RBV) theory. RBV theory holds that a firm’s resources and capabilities are the primary sources of its competitive advantage and economic value creation. The present study has underpinned the RBV theory, so that universities can use their unique resources, such as IMOT, EMOT, and QC, as key determinants of their long-term performance and competitive advantage (Wernerfelt, 1984; Barney, 1991). The framework consists of two independent variables (IMOT and EMOT), a mediator (QC) and a dependent variable (HEP). The conceptual framework is shown below in Figure 1.

3. Methods

3.1. Research design

This study employed a survey-based quantitative cross-sectional research design. Survey-based design is highly effective and has many advantages, such as its ability to cover geographically dispersed areas, its ethical nature, and because it implies economy and rapid response time in data collection (Creswell, 2014; Fowler, 2014). Similarly, the cross-sectional approach is more suitable for collecting data at a certain time (Sekaran and Bougie, 2016) since it reduces time, cost, and effort.

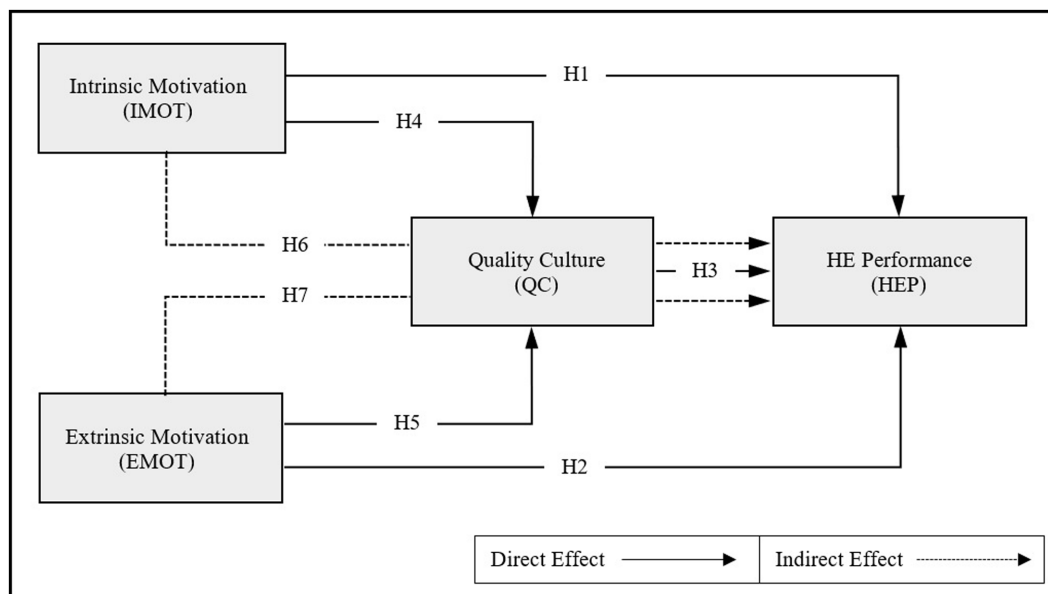


FIGURE 1 Conceptual framework.

TABLE 1 Sample distribution and response rate.

Questionnaire	Frequency			Rate (%)
	Online survey	Personal visit	Total	
Distributed	130	20	150	100
Returned	97	14	111	74
Usable	94	11	105	70

Developed by authors.

was 70% and for the online surveys, it was 74.6%. The response rate of the online survey was slightly higher than that of the in-person method (pencil and paper questionnaires). This is because the online survey is considered more convenient and easily accessible via a laptop or even a cell phone and takes less time than the in-person method. Of the 150 questionnaires administered, 111 were returned, of which 105 were usable, resulting in a valid response rate of 70.0%. The details regarding sample distribution and the response rate are shown in Table 1. The data were collected from March 2022 to May 2022.

3.2. Sample and procedure

The study population ($N=226$) consisted of public and private universities in Pakistan, with institutions as units of analysis and administrative managers (such as VCs, Deans, Directors, and HODs) as respondents. Considering the institution as the unit of analysis, only one respondent from each randomly selected university was selected. The sample size was determined as 144 universities based on the formula of previous researchers (Krejcie and Morgan, 1970). However, the questionnaires were administered at 150 randomly selected universities using proportional stratified random sampling techniques by dividing the entire population into seven strata based on provinces/administrative units across Pakistan. Stratified sampling is a highly precise and cost-effective technique that allows researchers to collect data from subgroups (Lynn, 2019). In addition, the stratified sampling technique was employed to maximize the random participation of universities located throughout the country to collect data and increase the generalizability of the results. The questionnaires were administered via online surveys and in-person visits. The questionnaires were distributed in person at 20 universities located in “Punjab” (one of the seven strata) that were relatively close to one of the authors. While online survey method was employed to collect data from 130 universities located in distant areas (the rest of the six strata) across Pakistan. The response rate recorded for the in-person method

3.3. Measures

Since all statements of the questionnaire were adapted from previous studies, it was necessary to pre-test the questionnaire. Therefore, the initial questionnaire was pre-tested by six experts working in leading universities in Pakistan or participating in TQM consulting activities. Overall, the experts agreed with most of the statements in the questionnaire. However, they did suggest modifications to improve the understanding and clarity of some statements, such as avoiding long, negative, and double-barreled statements, and standardizing the wording of all statements as much as possible. In addition, they suggested contextualizing QC statements from an HE perspective, reframing motivational statements from the perspective of academic staff, and rephrasing HEP statements from an institutional perspective.

Based on expert feedback, the questionnaire was refined and subsequently subjected to a pilot study involving 30 respondents. The results of the pilot study revealed that Cronbach’s alpha values for all constructs were greater than 0.70 and were therefore considered satisfactory (Hair et al., 2017). Such as IMOT (0.939), EMOT (0.911), QC (0.842), and HEP, including TP (0.914), RP (0.920) and SP (0.909), respectively. In summary, all the statements in the questionnaire were found to be reliable, demonstrating that the questionnaire design and

TABLE 2 Demographic characteristics.

Items	Frequency	Percentage
<i>Sector</i>		
Public Sector	59	56.2
Private Sector	46	43.8
<i>Province</i>		
Azad Jammu Kashmir (AJK)	3	2.9
Balochistan	5	4.8
Gilgit Baltistan (GB)	1	1.0
Islamabad	17	16.2
Khyber Pakhtunkhwa (KPK)	20	19.0
Punjab	36	34.3
Sindh	23	21.9
<i>Gender</i>		
Male	81	77.1
Female	24	22.9
<i>Designation</i>		
VC	4	3.8
Dean	17	16.2
Director QEC	13	12.4
Director ORIC	2	1.9
HOD	67	63.8
Other	2	1.9

Developed by authors.

TABLE 3 Descriptive statistics.

	Mean (M)	Median (Mdn)	Std. Deviation (SD)
IMOT	3.43	3.44	0.73
EMOT	3.31	3.28	0.76
QC	3.32	3.25	0.88
HEP	3.37	3.41	0.72

IMOT, intrinsic motivation; EMOT, extrinsic motivation; QC, quality culture; HEP, higher education performance.

the sequence of the statements were acceptable for conducting a large-scale study.

As for the structure and design of the questionnaire, it consisted of nine demographic questions, while 47 questions related to latent variables such as IMOT, EMOT, QC, and HEP. The items used to measure the latent variables were based on a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. The detail of the adapted scales and their items is as follows: IMOT and EMOT were measured using two scales, with nine items for each scale, and were developed by previous researchers (Mertler, 2001; Cruz et al., 2009; Hung, 2020). Similarly, QC was measured by adapting a four-item scale (Wu, 2015). The HEP consisted of three dimensions, the five items of the TP were adapted from two studies (Goos and Salomons, 2017;

Dicker et al., 2019); five RP items adapted from a previous study (Yaakub and Mohamed, 2020); and 15 SP items were adapted from several studies (Nedwek and Neal, 1994; Hui et al., 2003; Badri and Abdulla, 2004; Asif et al., 2013; Asif and Searcy, 2014).

4. Results

Initially, the current researchers used SPSS-25 for preliminary analyses, such as descriptive statistics and tests for common method bias. However, for advanced-level analysis, a structural equation modeling (SEM) technique was employed using Smart PLS 4 software. The partial least squares (PLS-SEM) technique is recommended for a variety of reasons, including its ability to capture smaller sample sizes, non-normal data, and the use of latent variable scoring models (Hair et al., 2019).

4.1. Demographic characteristics

The demographic characteristics of the respondents from the participating universities are presented in Table 2. Of the 105 participating universities, 59 universities were from the public sector (56.2%) and 46 (43.8%) were from the private sector. Most of the universities were 36 (34.3%) from Punjab while 23 (21.9%) were from Sindh, 20 (19%) from KPK, 17 (16.2%) from Islamabad, 5 (4.08%) from Balochistan, 3 (2.9%) from Azad Jammu Kashmir and 1 (1%) from Gilgit Baltistan, respectively. As for the gender of the respondents, there were 81 males (77.1%) and 24 females (22.9%). Also, most respondents were HODs 67 (63.8%), Deans 17 (16.2%), and QEC Directors 13 (12.4%), followed by respondents in other positions.

4.2. Descriptive statistics

The mean, median, and standard deviation values for all the variables based on the perceptions of the administrative managers were as IMOT ($M = 3.43$, $Mdn = 3.44$, $SD = 0.73$), EMOT ($M = 3.31$, $Mdn = 3.28$, $SD = 0.76$), QC ($M = 3.32$, $Mdn = 3.25$, $SD = 0.88$) and HEP ($M = 3.37$, $Mdn = 3.41$, $SD = 0.72$), respectively. The IMOT mean and median scores were the highest, followed by HEP, QC, and EMOT. The descriptive statistics of all the variables are presented in Table 3.

4.3. Common-method Bias

When data is collected from a single source and/or at the same time, the analysis could suffer from common method bias (Podsakoff et al., 2012). Thus, we applied Harman's single-factor test to assess whether CMB is present, and the results showed that a one-factor solution explained only 41.12% of the total variance, which is below the 50% threshold. This is followed by another "Full Collinearity Test" recommended by a previous researcher (Kock, 2015); all resulting VIF values (Table 4) were found to be below 3.3, i.e., the threshold. Given the results of both tests, it can be assumed that the results of present study are not affected by CMB.

4.4. Measurement model assessment

4.4.1. Reliability and convergent validity

The measurement model (Figure 2) was evaluated in terms of internal consistency reliability, convergent validity, and discriminant

validity as suggested in previous studies (Hair et al., 2014, 2017). The factor loadings of all the items were evaluated and found to be greater than 0.600 except for five items (EMOT 4, EMOT 6, SP1, SP2, and SP3) which had values less than 0.500 (Hair et al., 2016), hence they were removed. The internal consistency reliability is verified through the composite reliability (CR) to confirm whether the study items are reliable (McNeish, 2018). The results indicated that the Alpha and CR values of all constructs were greater than 0.700 (Wasko and Faraj, 2005), and the average variance extracted (AVE) was greater than 0.500 (Hair et al., 2014, 2016). Therefore, reliability and convergent validity have been established for all constructs (Table 5).

TABLE 4 Full-collinearity test results.

Criterion variable	Predictor variables	Tolerance	VIF
IMOT	EMOT	0.678	1.474
	QC	0.494	2.022
	HEP	0.511	1.957
EMOT	QC	0.519	1.926
	HEP	0.407	2.459
	IMOT	0.502	1.990
QC	HEP	0.496	2.014
	IMOT	0.480	2.084
	EMOT	0.680	1.470
HEP	IMOT	0.598	1.672
	EMOT	0.643	1.556
	QC	0.599	1.670

IMOT, intrinsic motivation; EMOT, extrinsic motivation; QC, quality culture; HEP, higher education performance.

4.4.2. Discriminant validity

The third measure involved in evaluating the measurement model is determining the discriminant validity of the constructs. Discriminant validity is “extent to which as a construct is truly distinct from other constructs by empirical standards” (Hair et al., 2017). Two approaches are most common to assess discriminant validity: (1) heterotrait–monotrait method (HTMT) and the Fornell and Larcker criterion. Discriminant validity was established through the Fornell and Larcker criterion (Table 6), since the square root of AVE for each construct was greater than its correlation with all the other constructs (Fornell and Larcker, 1981); and by the HTMT method, since the HTMT ratio for all variables (Table 7) was lower than the recommended value of 0.85 (Henseler et al., 2015).

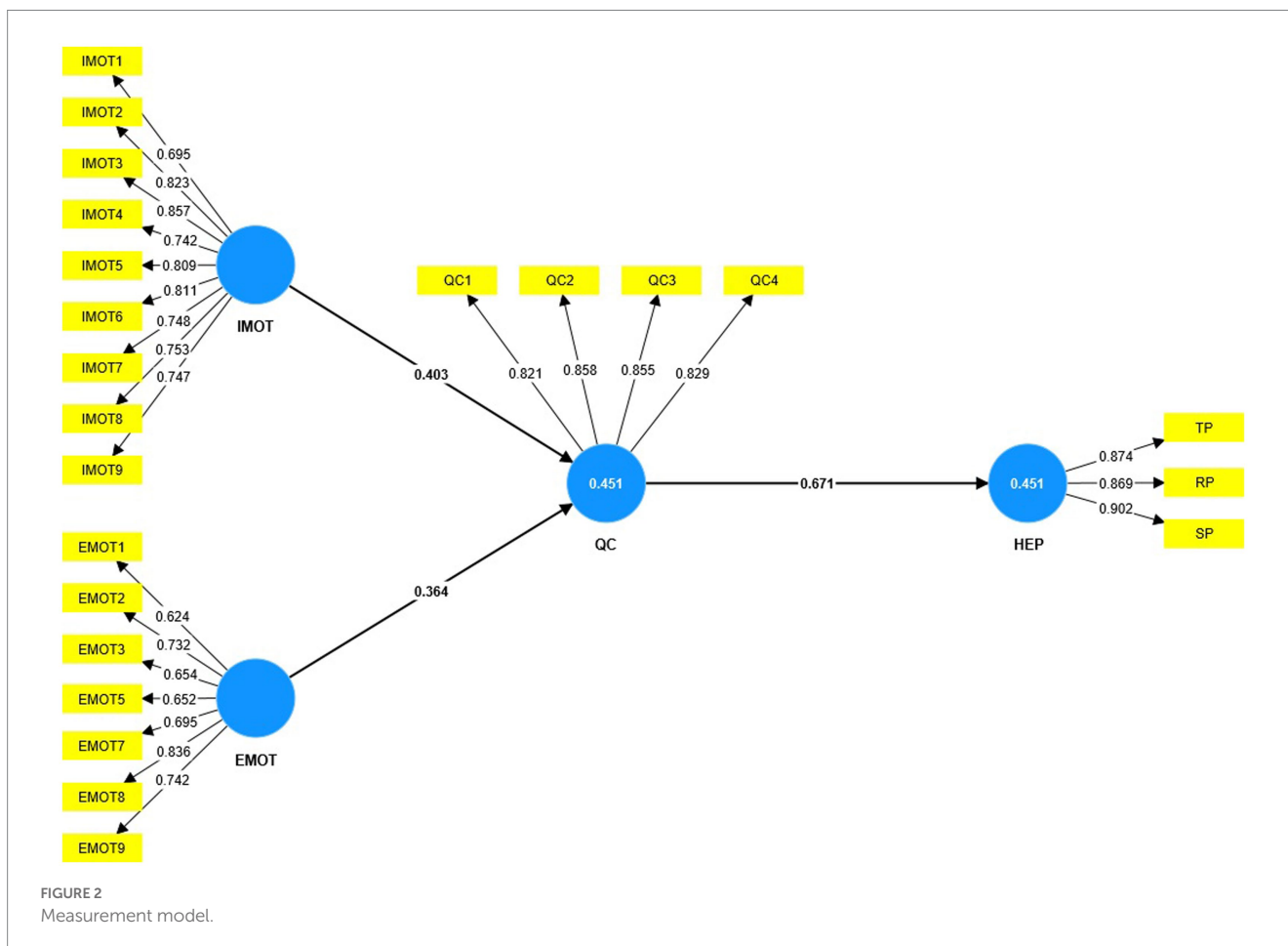


TABLE 5 Reliability and convergent validity.

Constructs	Item	Loading	Alpha	rho_A	CR	AVE					
Intrinsic motivation (IMOT)	IMOT1	0.695	0.918	0.928	0.932	0.605					
	IMOT2	0.823									
	IMOT3	0.857									
	IMOT4	0.742									
	IMOT5	0.809									
	IMOT6	0.811									
	IMOT7	0.748									
	IMOT8	0.753									
	IMOT9	0.747									
Extrinsic motivation (EMOT)	EMOT1	0.624	0.837	0.871	0.875	0.502					
	EMOT2	0.732									
	EMOT3	0.654									
	EMOT5	0.652									
	EMOT7	0.695									
	EMOT8	0.836									
	EMOT9	0.742									
	Quality culture (QC)	QC1					0.821	0.862	0.864	0.906	0.707
		QC2					0.858				
QC3		0.855									
QC4		0.829									
Higher education performance (HEP)	TP1	0.680	0.858	0.873	0.913	0.777					
	TP2	0.854									
	TP3	0.849									
	TP4	0.835									
	TP5	0.854									
	RP1	0.848									
	RP2	0.868									
	RP3	0.902									
	RP4	0.812									
	RP5	0.887									
	SP4	0.783									
	SP5	0.798									
	SP6	0.843									
	SP7	0.847									
	SP8	0.807									
SP9	0.653										
SP10	0.811										
SP11	0.832										
SP12	0.844										
SP13	0.828										
SP14	0.820										
SP15	0.681										

AVE, average variance extracted; CR, composite reliability.

TABLE 6 Discriminant validity: Fornell–Larcker criterion.

	IMOT	EMOT	QC	HEP
IMOT	0.778			
EMOT	0.531	0.708		
QC	0.597	0.578	0.841	
HEP	0.694	0.517	0.671	0.882

IMOT, intrinsic motivation; EMOT, extrinsic motivation; QC, quality culture; HEP, higher education performance.

TABLE 7 Discriminant validity: heterotrait–monotrait method (HTMT) ratio.

	IMOT	EMOT	QC	HEP
IMOT				
EMOT	0.611			
QC	0.648	0.628		
HEP	0.775	0.594	0.768	

IMOT, intrinsic motivation; EMOT, extrinsic motivation; QC, quality culture; HEP, higher education performance.

4.5. Structural model assessment

The evaluation of the structural model (Figure 3) is the second stage in the PLS-SEM; and was based on determining the explanatory power (R^2 , f^2) of the model, PLSpredict (Q^2), and then the significance of the paths.

4.5.1. Explanatory power of model

The coefficient of determination (R^2) is the most widely used metric to assess the explanatory power of the path model (Shmueli et al., 2019). The coefficient of determination (R^2) is “a measure of the model’s predictive power and is calculated as the squared correlation between a specific endogenous construct’s actual and predicted values” (Hair et al., 2017). Generally, R^2 values of 0.19, 0.33, and 0.67 are deemed weak, moderate, and substantial, respectively (Chin, 1998). The R^2 values for both endogenous constructs are greater than 0.33 (HEP = 0.451 and QC = 0.451), indicating a moderate level of explanatory power of the model. In addition, the study also evaluated the effect size (f^2) for each exogenous variable in the model. Effect size (f^2) is “the change in the R^2 value when a specified exogenous construct is omitted from the model can be used to evaluate whether the omitted construct has a substantive impact on the endogenous constructs.” The recommended values of f^2 and their corresponding strengths are as follows: 0.35 (substantial), 0.15 (moderate), and 0.02 (weak; Cohen, 1988). The result revealed that the effect of IMOT and EMOT on QC is medium (i.e., 0.213 and 0.173 respectively), while the effect of QC on HEP is high (0.820). The results of the values of R^2 and f^2 are given in Table 8.

4.5.2. Predictive relevance of the model

Apart from the explanatory power, the predictive relevance of the model is equally important. However, the traditionally used R^2 metric does not provide any information about predictive relevance. Such as, researchers have argued that the R^2 value only assesses the explanatory power of a model (in-sample model fit), but does not provide any indication of its out-of-sample predictive power (Shmueli

et al., 2019). Therefore, researchers often calculate the value of Q^2 (Geisser, 1974; Stone, 1974), using a blindfolding procedure (Chin, 1998) to assess the predictive quality of the model. Given the importance of the predictive relevance of models, researchers have recommended the use of PLSpredict when evaluating PLS-SEM results (Shmueli et al., 2016). In this study, the predictive performance of the PLS model was evaluated in terms of (Q^2) and prediction errors, such as root mean square error (RMSE) and mean absolute error (MAE) for latent variables, as suggested by Schmueli et al. (2016) through PLSpredict using SmartPLS4. The results showed that the Q^2 values for both endogenous variables were greater than 0 (HEP = 0.493 and QC = 0.410), which means that the current study model offers better predictive performance. Likewise, the values of RMSE (HEP = 0.725 and QC = 0.780) and MAE (HEP = 0.610 and QC = 0.607) of the two endogenous variables were close to 0 (Moriassi et al., 2007), so the predictive performance of the model has been established in terms of prediction errors. Given the results of Q^2 , RMSE, and MAE, it can be deduced that the study model is significant and has predictive relevance in the context of HE. Furthermore, IMOT, EMOT, and QC have been found to be strong predictors of HEP based on empirical data collected from Pakistani universities. The values of Q^2 , RMSE, and MAE of the endogenous variables are presented in Table 9.

4.5.3. Hypotheses testing

The results of the hypothesis tests on direct relationships (H1–H5) are presented below: hypothesis H1: IMOT → HEP ($\beta = 0.439$, $t = 6.097$, $p = 0.000$), H3: QC → HEP ($\beta = 0.367$, $t = 4.846$, $p = 0.000$), H4: IMOT → QC ($\beta = 0.402$, $t = 4.131$, $p = 0.000$) and H5: EMOT → QC ($\beta = 0.354$, $t = 4.341$, $p = 0.000$) were found to be positive and significant. Therefore, H1, H3, H4, and H5 were supported. However, the results of hypothesis H2: EMOT → HEP ($\beta = 0.075$, $t = 0.987$, $p = 0.324$) was found insignificant, and thus H2 was not supported. The hypotheses (H6 and H7) represent indirect relationships. The mediation results of the hypotheses H6: IMOT → QC → HEP ($\beta = 0.148$, $t = 3.554$, $p = 0.000$), and H7: EMOT → QC → HEP ($\beta = 0.130$, $t = 2.786$, $p = 0.005$) were positive and significant. Therefore, H6 and H7 were also supported. In other words, the results confirmed the mediating effect of QC in the hypothesized relationships. The summary of the seven hypotheses is presented in Table 10.

5. Discussion

This study concentrates on exploring the influence of IMOT, and EMOT on HEP through QC based on RBV theory. The RBV theory affirms that the competitiveness of firms depends on their capabilities or resources, which in turn determine their performance (Wernerfelt, 1984; Barney, 1991). However, resources must be valuable, rare, inimitable, and non-substitutable for sustainable competitive advantage (Barney, 1991). The findings of this study validate the applicability of RBV theory in the context of HE, while identifying faculty members’ intrinsic and extrinsic motivation and culture of quality as valuable resources for improving performance and gaining competitive advantage.

This study aimed to answer three RQs. To this end, a total of seven hypotheses (H1 – H7) were formulated. Of which five hypotheses

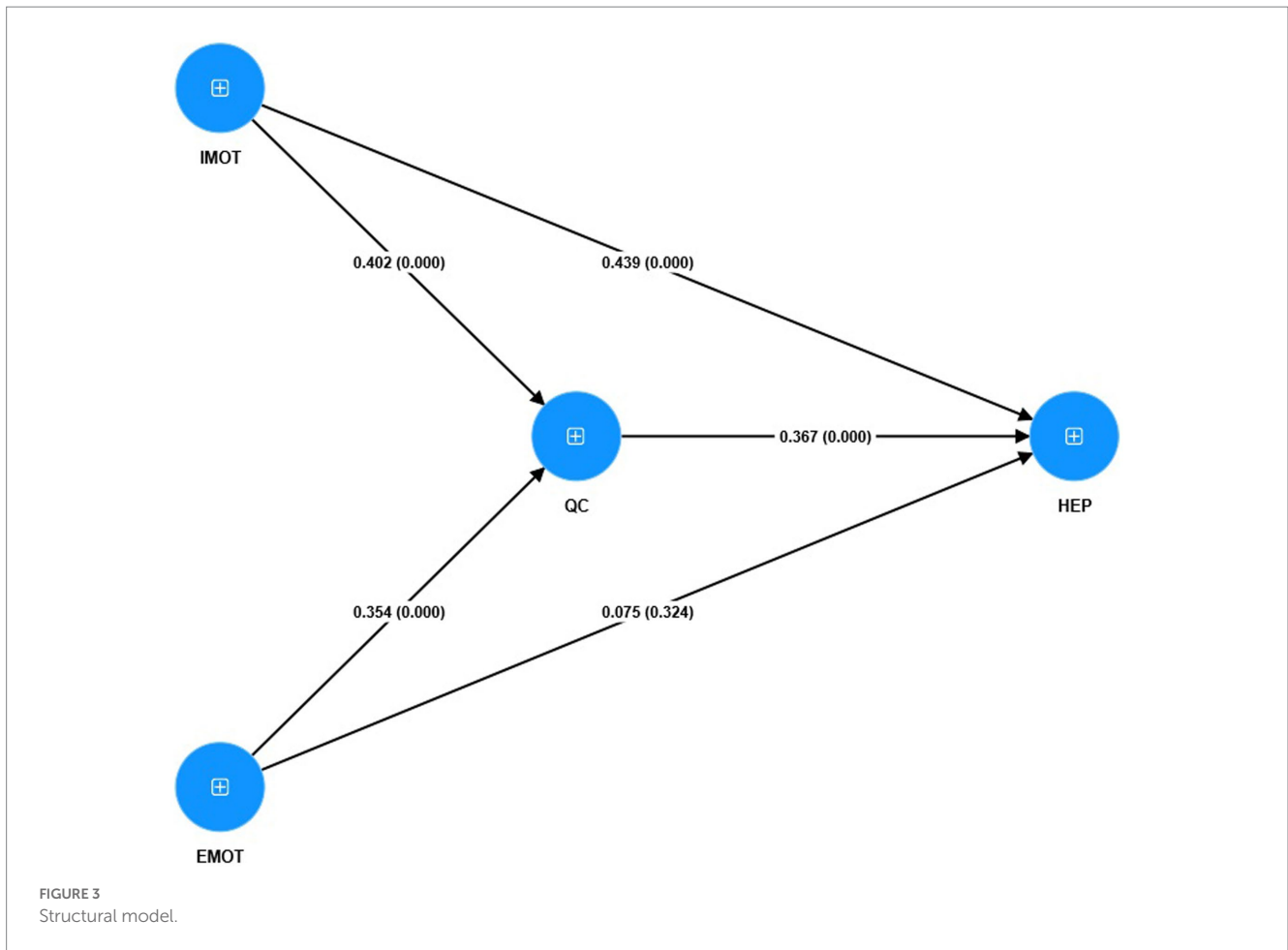


TABLE 8 Explanatory power of model.

Predictors	Outcome	R ²	f ²
QC	HEP	0.451	0.820
IMOT			-
EMOT			-
IMOT	QC	0.451	0.213
EMOT			0.173

IMOT, intrinsic motivation; EMOT, extrinsic motivation; QC, quality culture; HEP, higher education performance.

TABLE 9 Predictive relevance of model.

	Q ² predict	RMSE	MAE
HEP	0.493	0.725	0.610
QC	0.410	0.780	0.607

QC, quality culture; HEP, higher education performance.

(H1 – H5) were of direct relationships. The first hypothesis (H1) was about examining the direct effect of IMOT on HEP in a university setting. The results showed that IMOT was significantly associated with HEP in the Pakistani university setting. These results are supported by several other studies in which researchers found a significant effect of IMOT on employee/organizational performance (Horodnic and Zait, 2015; Kuvaas et al., 2017; Senanayake and Gamage, 2017; Olugu et al., 2018; Rahnuma, 2020; Tran et al., 2021;

Jnaneswar and Ranjit, 2022). The second hypothesis (H2) was about examining the direct effect of EMOT on HEP in a university setting. However, the present study did not provide empirical evidence of the relationship between EMOT and HEP. This is in line with the findings of some previous studies, where the researchers found no association between EMOT and employee performance (Horodnic and Zait, 2015; Olafsen et al., 2015; Kuvaas et al., 2017; Nurenniy and Hidayat, 2020; Zeng et al., 2022). This may be because EMOT often works with low or mid-level employees to achieve short-term goals. However, the faculty members are highly educated individuals with broader visions and long-term goals. Their academic work depends primarily on IMOT, such as the desire for intellectual challenge, curiosity, and a sense of purpose, which result in better performance at both the individual and institutional levels. The third hypothesis (H3) was about examining the direct relationship between QC and HEP in a university setting. The study found a significant relationship between QC and HEP, which is in line with the findings of previous studies (Yusof and Ali, 2000; Ali and Musah, 2012; Katwalo and Asienga, 2015; Wu, 2015; Hilman et al., 2017; Iqbal et al., 2023). The role of QC is crucial for organizations in different sectors as it increases the quality awareness of employees at all levels, facilitates the continuous improvement efforts of the organization, improves the quality of products and services, and thus enhances organizational performance.

Also, the fourth and fifth hypotheses (H4 and H5) were about whether IMOT and EMOT are significantly associated with QC, and the results demonstrated the significant effects of IMOT and

TABLE 10 Hypotheses testing results.

	Relationship	β	SD	t-Value	Value of p	Decision
H1	IMOT → HEP	0.439	0.072	6.097	0.000	Supported
H2	EMOT → HEP	0.075	0.076	0.987	0.324	Not Supported
H3	QC → HEP	0.367	0.076	4.846	0.000	Supported
H4	IMOT → QC	0.402	0.097	4.131	0.000	Supported
H5	EMOT → QC	0.354	0.082	4.341	0.000	Supported
H6	IMOT → QC → HEP	0.148	0.042	3.554	0.000	Supported
H7	EMOT → QC → HEP	0.130	0.047	2.786	0.005	Supported

Developed by authors.

EMOT on QC in Pakistani universities. These findings are important for two reasons: first, it provides interesting new insights by introducing IMOT and EMOT as predictors in relation to QC, which are lacking in the existing literature. Second, it also provides empirical evidence for the direct effects of IMOT and EMOT on QC. Although the previous literature does not provide any evidence for the direct effects of IMOT and EMOT on QC, studies examining the relationship between employee motivation (IMOT, EMOT) and OC, or vice versa, are somewhat consistent with the findings (George and Sabhapathy, 2014; Yusof et al., 2016; Rahnuma, 2020; Hariadi et al., 2022). While there has been some research on the role of IMOT and EMOT as predictors in shaping OC, these relationships have not been extensively studied. Therefore, it can be challenging to untangle the specific influence of IMOT and EMOT on these broader cultural factors, resulting in a small number of studies on such relationships. However, since QC emphasizes the participation of people at all levels of the organization, it is very imperative to mobilize the enthusiasm of all staff, especially academic staff, to participate in the creation and promotion of QC in their respective universities.

As for indirect effects, two hypotheses (H6 and H7) were proposed, stating whether QC mediates the relationship between IMOT and HEP, and between EMOT and HEP. The results confirmed the indirect effects of IMOT and EMOT on HEP through QC. Simply put, the present study also empirically validated the mediating role of QC in relation to IMOT and HEP, and EMOT and HEP. Although in the previous literature, some researchers investigated the mediating effect of QC, their results were not consistent. This is probably the first study to introduce and empirically validate QC as a mediator related to IMOT and HEP, and EMOT and HEP in the Pakistani HE context. These findings are important and provide a starting point for future researchers to test these links in different settings. Emphasizing the motivation of staff, especially faculty, in the context of HE is critical to creating QC that will improve the quality of university education and thus performance.

6. Conclusion

Overall, seven hypotheses were proposed in this study, and after testing almost all hypotheses were found to be supported except one. First, the study provides empirical evidence for the significant relationship between IMOT and HEP. Second, the results confirmed the significant effect of QC on HEP. Third, the results found a significant and

positive effect of IMOT and EMOT on QC. However, the study provided no empirical evidence for the direct relationship between EMOT and HEP. Finally, the results also confirmed the mediating role of QC in the relationship between IMOT and HEP, and EMOT and HEP in the context of Pakistani universities. The results suggest that university leaders, administrators, and quality managers should emphasize the motivation of university staff, especially faculty members, to raise quality awareness and create a QC among them for the effective implementation of quality standards in universities. This will lead to a higher level of quality, credibility, and performance of universities around the world.

This study provides relevant and interesting insights from theoretical and empirical perspectives in the fields of HE and quality management. First, this study broadens our theoretical understanding by introducing IMOT and EMOT as predictor variables related to QC and HEP, while presenting QC as a mediator variable related to IMOT and HEP, and EMOT and HEP. Second, this study also substantiates all proposed relationships (except EMOT and HEP) by providing empirical evidence in the Pakistani HE context.

This study has important implications for organizational leaders, administrators, and quality managers to emphasize staff motivation, especially among faculty members. Because they are directly involved in providing a variety of academic and non-academic services to internal and external stakeholders. If they are motivated enough, they will tend to create a culture of quality in their respective universities, leading to the effective implementation of quality standards. In addition, the increased emphasis on faculty motivation will also enable them to perform tasks such as teaching, research, and service more effectively, thereby enhancing the performance of their respective universities. This is especially important for universities in developing countries such as Pakistan, where management systems are relatively weak, and accountability is not valued at all levels. Therefore, the creation of QC will ultimately lead to a higher level of university performance.

7. Limitations and recommendation

Despite some valuable contributions, this study has a few limitations that will help future researchers advance the relationships examined in this study. First, the study sample is limited to 105 public and private universities in Pakistan. Therefore, future researchers from other countries could replicate this model with a larger sample and diverse cultures to improve its generalizability. Second, the study only incorporated the perception of administrative managers, so the researchers can add teachers, students, or employers as respondents

TABLE 11 List of acronyms.

Terms	Acronyms	Terms	Acronyms
Average Variance Extracted	AVE	Median	Mdn.
Azad Jammu Kashmir	AJK	Mediating Variable	MV
Common-Method Bias	CMB	Organizational Performance	OP
Composite Reliability	CR	Office of Research, Innovation and Commercialization	ORIC
Dependent Variable	DV	Partial Least Square	PLS
Extrinsic Motivation	EMOT	Quality Assurance	QA
Head of Department	HOD	Quality Culture	QC
Gilgit Baltistan	GB	Quality Enhancement Cell	QEC
Heterotrait-Monotrait	HTMT	Research Performance	RP
Higher Education	HE	Research Question	RQ
Higher Education Institution	HEI	Resource-Based View	RBV
Higher Education Performance	HEP	Service Performance	SP
Independent Variable	IV	Standard Deviation	SD
International Organization For Standardization	ISO	Structural Equation Modeling	SEM
Internal Quality Assurance	IQA	Teaching Performance	TP
Intrinsic Motivation	IMOT	Total Quality Management	TQM
Khyber Pakhtunkhwa	KPK	Variance Inflation Factor	VIF
Mean	M	Vice Chancellor	VC

Developed by authors.

in future studies. Third, there could also be the opportunity to introduce new variables to better predict HEP in countries around the world. Finally, the present study has used various acronyms, therefore a list of acronyms has been added below as Table 11, for the better understanding of readers and to avoid any confusion.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

SI conceived the idea for this study, analyzed the data, and wrote the manuscript. CT and MR contributed to the design and implementation of the research, performed the review, reviewed the manuscript, checked the analytical methods, and supervised the

findings of this work. All authors discussed the results and contributed to the final manuscript.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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