

Quality Dynamics in Tertiary Education of Pakistan: Investigating the Role of Governance and Financial Resources in Affiliated Colleges

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This research study aims to assess the impact of governance on the quality of tertiary education and the moderating role of financial resources. Data were collected from the principals of public sector affiliated colleges. Regression analysis was applied for hypothesis testing. Results demonstrate that governance has a significant and positive impact on the quality of education. Financial resources have a moderating effect on the relationship between governance and education quality. This study provides theoretical implications and practical recommendations to diverse interested parties, such as educational policymakers, institutional leaders, and administrators, who should try their best to distinguish the diversity of affiliated colleges and modify governance structures, management practices and the mechanisms for quality assurance to address the needs of each institution accordingly.

Keywords: Governance, higher education, financial resources, quality of tertiary education, affiliated colleges.

Tertiary education in Pakistan has experienced noteworthy growth and diversification, shaped by an intricate interaction of socio-economic, historical, and policy dynamics. It incorporates various institutions, including universities, degree-awarding institutes, and affiliated colleges. These institutions collectively accommodate the academic objectives of Pakistan's increasing population (Qazi & Javid, 2023; Shoaib, Siddique & Younis, 2024; World Bank, 2021).

The origins of Pakistan's tertiary education can be traced back to British colonial times when the University of Punjab was established in 1882 as the first formal institute of tertiary education. With time, the tertiary education system expanded, spreading affiliated colleges and universities throughout the country. In particular, affiliated colleges have played a dynamic role in intensifying access to tertiary education by offering undergraduate programs in several disciplines (Khan, Ali & Arain, 2022; Rehman, Khan & Akhtar, 2024).

However, the extensive growth of higher education in Pakistan has caused several issues and challenges, predominantly from the affiliated colleges' perspective. These include the concerns associated with standardization, financial resources, governance, and quality assurance (Aslam, Imran & Perveen, 2023; Dove & Douglas, 2023). Although the affiliated colleges significantly contribute to the availability and accessibility of tertiary education, questions have arisen about their adherence to governance mechanisms and quality standards. The Higher Education Commission (HEC) of Pakistan, established in 2002, has been to regulate and oversee higher education institutions, including the affiliated colleges (Iqbal, Moosa & Taib, 2024). In this context, HEC has laid down various frameworks for the affiliated colleges. However, these institutions have received limited scholarly attention, and their governance and financial resource complexities still need to be noticed. This research, therefore, attempts to address the void by focusing on governance and financial resource dynamics specific to the affiliated colleges in Pakistan. In this context, Resource-Based Theory (RBT) has been applied to understand the effects of the above two variables on the quality of education.

The existing literature predominantly focuses on governance and quality assurance issues in universities and degree-awarding colleges (Dove & Douglas, 2023). Although these institutions are undoubtedly essential components of Pakistan's higher education system, their dynamics and unique challenges have received limited scholarly attention. Affiliated colleges often operate within an intricate structure. These colleges are usually affiliated with universities or degree-awarding institutions, whereas the regulating oversights rest with the provincial or federal education departments.

The research has witnessed that higher education institutions operating within countries linked with remarkable governance practices have better accountability indicators and, consequently, have advanced quality of education (Hénard & Mitterle, 2010). According to Leal Filho et al., (2021), governance positively impacts sustainable development at universities. The study of Heaton, Teece and Agronin (2023) points out that governance influences the financial performance of the higher education sector. There is also research on whether national governance impacts education quality (Gerged & Elheddad, 2020). The research study by Manuhutu, Rahardjo and Nurtjahjono (2024) has examined the role of governance in enhancing teacher performance. Fan and Zhang (2020) have witnessed the relationship between education governance and school autonomy. Shira (2023) has assessed the linkage between governance and performance.

Furthermore, the research by Dwipananda et al., (2024) has analysed the effect of good governance on the quality of university teaching. However, research on governance and quality of tertiary education in affiliated colleges, particularly from Pakistan's perspective, is still being conducted. A few studies have examined the role of governance in higher education institutions in the Pakistani context. For example, Babbar et al., (2024) have witnessed the relationship between governance and the learning environment in the context of higher education institutions in Pakistan. The impact of governance on the quality of education in the context of public and private universities was assessed by Usman (2014). In their research paper, Khan and Azhar (2024) analysed educational governance and its effect on quality from the perspective of higher education institutions. Mangi, Chachar and Shah (2019) examined the effect of governance on education quality. However, the relationship between governance and the quality of tertiary education has yet to be explored from the perspective of affiliated colleges of Pakistan. Most studies focus on larger universities or provide a generalized view of higher education governance. This lack of research also highlights the originality and novelty of this research study. Moreover, the moderating role of financial resources on the relationship between governance and the quality of education has yet to be explored in previous research studies.

The current study, therefore, addresses this substantial research gap by accompanying a quantitative examination of governance mechanisms, financial resources, and the dynamics of the quality of tertiary education, particularly in affiliated colleges of Pakistan. By investigating the detailed issues, challenges, and opportunities faced by affiliated colleges in Pakistan, the present research contributes worthwhile insights and valuable understanding to the broader discussion on governance structure, financial resources, and tertiary education quality. It provides valuable insight for the strategic leadership, administrators, academics and administrators to enhance the quality of education.

Two research objectives have been outlined for this research study. The first objective is to examine the governance mechanisms in affiliated colleges and assess their influence on the quality of tertiary education in affiliated colleges of Pakistan. The second objective is to look into the moderating role of financial resources in the association between the quality of the tertiary nature of education with governance. The novelty of this research lies in investigating the dynamics of affiliated colleges and using Resource-Based Theory (RBT) to analyse how the availability or absence of financial resources enhances or curtails the governance of these institutions.

Literature Review

This section comprises theoretical orientation, literature review, and the study's conceptual framework. The literature review synthesizes research findings to substantiate the current study, while the theoretical framework lays the foundation for understanding variable relationships. The formulated hypotheses guide data analysis in subsequent parts.

Resource – Based Theory

This study is anchored on Resource-Based Theory, which posits that the competitive advantage of organizations is largely determined by the resources they control. According to Barney (1991), values, rare, inimitable and non-substitutable resources are critical for sustaining organizational success. Resources can be grouped into three categories, namely physical capital resources, human capital resources and organisational capital resources (Barney, 1991). In the context of affiliated colleges of Pakistan, governance mechanisms and financial resources are viewed as critical internal resources directly influencing the quality of education.

Governance

Tertiary education governance has been a part of a significant investigation by academic scholars. However, there is not a common definition for this term. The Code of Governance of Irish Universities 2012 defines governance in tertiary education as “the systems and procedures under which organizations are directed and controlled. A robust system of governance is vital in order to enable organizations to operate effectively and to discharge their responsibilities as regards transparency and accountability to those they serve” (Governance of Irish Universities, 2012).

Governance may be defined as “overall, institution-wide aims or policy, versus those specific to a particular unit or topical focus’ within the context of tertiary education” (Vaughter et al., 2016, p. 25).

The Organization for Economic Cooperation and Development (OECD) defines governance as "Governance encompasses the structures, relationships and processes through which, at both national and institutional levels, policies for tertiary education are developed, implemented and reviewed. Governance comprises a complex web including the legislative framework, the characteristics of the institutions and how they relate to the whole system, how money is allocated to institutions and how they are accountable for the way it is spent, as well as less formal structures and relationships which steer and influence behaviour" (OECD, 2008, p. 68). Within the contemporary study, governance is the decision-making, administration, and leadership process. In Pakistan, the dual accountability or distribution of functions and responsibilities – to both affiliating universities and provincial/federal authorities creates a complex environment that differs from the contexts examined in various international studies. However, governance and financial resources have a strong interplay in affiliated colleges.

Financial Resources

Financial resources cover funds, capital and assets, which are indispensable to executing activities, making investments, and meeting the financial requirements of an organization (Gitman, Juchau & Flanagan, 2015). Financial resources are imperative for businesses to address financial requirements, support operations, and pursue development and growth prospects comprising bank accounts, cash, lines of credit, loans, and several fiscal mechanisms (Das & Mahapatra, 2023; Kieso, Weygandt, & Warfield, 2011). They provide funding to maintain facilities, provide scholarships, recruit qualified faculty, and support student services from the perspective of tertiary education institutions. Adequate financial resources are a cornerstone for ensuring the quality and sustainability of educational programs within an evolving educational landscape (Alcaraz, 2020). Public sector affiliated colleges in Pakistan experience the availability of scarce financial resources that impede the effective governance and quality of education. Limited budgetary allocation causes regression in faculty development programs, modern teaching, research, and academic infrastructure, weakening governance initiatives.

Quality of Tertiary Education

Tertiary education denotes all formal post-secondary education, encompassing private and public universities, vocational schools, technical training institutes, and colleges (World Bank, 2021). Tertiary education is influential in boosting shared prosperity, reducing poverty, and fostering growth. Highly skilled people, along with ultimate access to a solid post-secondary education, are essential for growth and innovation because well-educated individuals are more likely to be more productive, have more employability opportunities, can cope with economic shocks, and earn higher salaries. In higher education institutions, faculty members are urged to follow the course outline (Abbas, 2020). They are also urged to plan their lessons carefully before delivering the lectures to the students (Latif, 2017). The administration of these institutions demonstrates dutiful and polite behaviour to the teachers and the students (Petreska, Prodanova & Kocarev, 2024). Rules and regulations must be implemented in true letter and spirit to run the educational activities smoothly (Ogunode et al., 2024).

Quality encompasses various dimensions in higher education. LeBlanc and Nguyen (1997) recognized seven quality dimensions from an education perspective: reputation, physical evidence, contact personnel/faculty, curriculum, access to facilities, responsiveness, and contact personnel/ administration. Latif (2017) gives quality dimensions such as attitudes, specific skills, and knowledge service. El Alfy and Abukari (2020) present four quality dimensions: administrative services, academic facilities, academic services, and student service roles. Abbas (2020) provides facets of quality, such as teacher quality, curriculum, infrastructure, management and support staff, employment quality, safety and security, and students' skill development. In the present study, quality dimensions include teacher quality, administrative services, knowledge services, activities, academic programs, and quality of students. Teacher quality exhibits the extent to which students are satisfied with the quality of teachers at the institute (Latif et al., 2019). The quality of teachers, encompassing their expertise, qualifications, and instructional approaches, significantly influences students' learning experience and outcomes (Canales & Maldonado, 2018; Lapcharoen, 2021). Assessing and ensuring teacher performance through evaluation mechanisms and feedback loops is essential in maintaining and enhancing an institution's overall quality of education (Yada et al., 2022). While emphasizing the pivotal role of teachers, it is essential to maintain a balanced perspective, acknowledging that teacher quality is just one facet of a comprehensive approach to achieving high-quality education (Wächter et al., 2024).

The administrative services dimension defines the responsibility and accountability of the administration (Teeroovengadam et al., 2016). A logical understanding of administration is a key dynamic influencing academic

development. The first contact a student has with the academic institution is through the admission services (Kitchroen, 2004); therefore, providing high-quality service to the students is more likely to contribute to the constructive valuation of the institute. The administrative staff must be able to provide service in a friendly and rapid manner, work for defined working hours, and be capable of guiding the students (Arena, Arnaboldi & Azzone, 2013; Bukhari, Khan & Bukhary, 2023). Trained administrative staff, who can deliver comprehensive information, should be employed. Kuo and Ye (2009) have observed that administrative service quality, which is directly associated with pedagogic implementation, predicts student satisfaction.

Knowledge services are an approach to managing an organization's knowledge. It is done by converging information management, knowledge management (KM), and strategic learning into a single enterprise-wide discipline. Its main goal is to ensure the highest levels of knowledge sharing within the organization (Mikolajuk, 2019). From the perspective of the education sector, the dimension of knowledge services highlights whether the institute is taking all essential steps for imparting knowledge by providing up-to-date courses, access to research facilities, and constructing a strong theoretical foundation (Latif et al., 2019).

The activities facet of quality highlights the aspects related to co-curricular and extra-curricular activities at the institute. The quality of the academic program factor highlights that academic programs and subjects are compatible with international purposes of students' survival and will be helpful in graduates' employability. The quality of students' dimension shows that they have learning outcomes, follow professional ethics, and lead successful lives after completing their degree (Abbas, 2020).

Governance and Quality of Tertiary Education in Affiliated Colleges

The relationship between governance and the quality of tertiary education within the context of affiliated colleges is a multifaceted and critical dimension of higher education management and policy. Governance structures play a pivotal role in shaping the quality of educational experiences for students (Neave, 2012).

The resource-based view (RBV) is considered an appropriate overarching theory within the given relationship of governance and education quality. According to Barney (1991), the resource-based view theory highlights the necessity of structured approaches to organizational transitions. In the tertiary educational system, the governance structures of these institutions are tasked with managing and overseeing the processes of resource management aimed at enhancing educational excellence.

Previous research has exhibited that governance plays a key role in higher education. For example, the research by Hénard and Mitterle (2010) has witnessed that governance is more likely essential for the sustainability and progress of education quality in higher institutions. Yirdaw (2016) recognized the governance and leadership in educational institutions of Ethiopia to conclude that the associated institutions are frequently dignified in a challenging situation (underfunding, poor infrastructure, lack of qualified teachers, etc.) to balance stakeholder requirements with the government's demands. Dao (2015) examines the principal concerns of reform regarding governance, financial resources, and insurance quality in higher education in Vietnam. The scholar determines that reforms at the tertiary level are slow, and impediments at institutional and national levels are restrictive in the education quality in the state. The inferences of Dao (2015) are mostly consistent with Logli (2016) from the viewpoint of higher education in the country. In addition, the study of Asongu and Odhiambo (2020) has examined the relevance of good governance in increasing education in a panel of 49 sub-Saharan African countries.

The policy and regulatory framework set by higher education authorities also intersects with governance, influencing quality assurance practices within affiliated colleges. Governance structures must align with national policies and regulations to ensure compliance and the delivery of education that meets established standards (Farooqi & Forbes, 2020). According to Gerged and Elheddad (2020), the national governance structure is positively and substantially associated with the quality of education. Moreover, the national standards related to governance play a key role in enhancing education quality within higher education. Chien and Thanh (2022) explored that enterprises with robust governance structures display well-organized administrative systems, which might lead to improved delivery of services along with proper allocation of resources. Alimbekova et al., (2018) examined the role of governance practices in contributing to the development of different activities and improving the growth of students. The study by Al-Kassem, Aguenza and Alghurabli (2022) observed that organizations with robust governance frameworks are more likely to display academic program quality because these organisations involve stakeholders in decision-making. The study by Naylor et al., (2021) witnessed that institutions practising robust and effective governance practices are more likely to attract students with calibre and exercise policies and practices enhancing student success and supporting academic

excellence. Considering these arguments, it can be hypothesized that governance positively affects the quality of tertiary education in affiliated colleges. Accordingly, the following hypothesis can be developed:

Hypothesis 1: Governance is positively related to the quality of tertiary education in affiliated colleges.

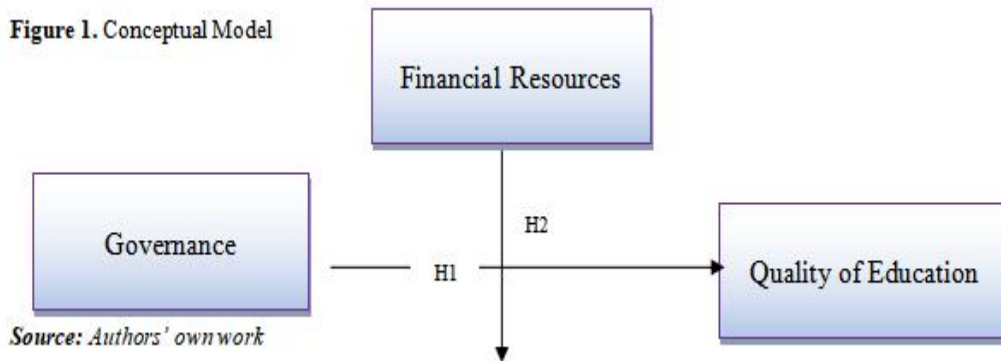
Moderating Role of Financial Resources

Financial resources moderate the relationship between governance and the quality of tertiary education in affiliated colleges. In order to support the perspective about financial resources, which is a moderator of this study, earlier studies have established the significant values of financial resources. Lonbani, Sofian and Baroto (2015) and Tran et al., (2024) provide evidence on the moderating role of financial resources in various organizational contexts suggesting that adequate funding can reinforce the positive effects of governance to achieve a high quality of education. Mubarik et al., (2020) observed the moderator impact of financial resources on financial satisfaction and inclusion. Furthermore, Tran et al., (2024) elaborated on the moderation role of financial type resources within the competitiveness of the organizations and international integration.

Additionally, the work by Adomako and Ahsan (2022) examined the moderatory impact of financial resources on SMEs' performance and entrepreneurial passion. Considering the conclusions of the above-highlighted works, it is likely hypothesized that financially valuable resources have a moderator impact on the quality of tertiary education and governance and that the availability of financial resources in the organization makes the intensive relationship. Thus, the following hypothesis has been developed:

Hypothesis 2: Financial resources moderate the association between governance and the quality of tertiary education in affiliated colleges.

Figure 1. Conceptual Model



Conceptual Model

Figure 1 depicts the proposed model of this research study. It is obvious from the figure that governance is an independent variable of this study. The quality of tertiary education is the dependent variable. Financial resources have been taken as a moderating variable. It is anticipated that financial resources play a moderating role in the relationship between governance and education quality in such a way that the presence of financial resources makes this relationship strong and positive. Literature support for the hypothesized relationships among these variables has already been provided in the previous section.

Method

The methodology section depicts the comprehensive structure employed to examine the valuable governance' dynamics, financial type resources, and the excellence of tertiary education, particularly in Pakistan, within colleges affiliated with other institutions. In this segment, the research design, data collection procedure, sampling method and sample size, and considerations about ethical issues that support the observed investigation have been illuminated. By setting up a quantitative approach, the present work has been carried out to understand the principals' perceptions of these institutions comprehensively. The sections below provide a comprehensive overview of the technique, confirming transparency and flexibility in this study's research process.

Research Design

Exploratory and descriptive research designs have been incorporated into the current study. Concepts related to financial resources, education quality, governance, the theory of resource-based view, and affiliated colleges fall in the domain of exploratory research design. Conversely, demographic analysis of the respondents, validity and reliability, and hypotheses testing fall in descriptive research.

Participants

In the present research study, participants were selected utilizing a purposive sampling technique focusing on the respondents' experience and perspectives related to governance, financial resources, and the quality of tertiary education in the affiliated colleges. The specific positions and roles of the participants linked to the research questions of this study were also considered. Principals of public sector affiliated colleges were chosen as the respondents for this study, assuming they have considerable knowledge about management practices in the institutions for which they are responsible. Moreover, their perceptions and perspectives are valuable in highlighting these institutions' governance mechanisms, financial resources, and quality dynamics. Seven hundred questionnaire-based survey forms were distributed among the respondents through Google Forms. Four hundred ninety-nine participants responded well in time. In this way, 71% of respondents received a response. Out of these respondents, 27 respondents were from the federal government institutions, 119 were from Khyber Pakhtunkhwa (KPK), 169 from Punjab, 25 from Balochistan, 121 from Sindh, 15 from Gilgit Baltistan (GB), and 23 were from Azad Jammu and Kashmir (AJK). Two hundred forty-four respondents worked in rural areas, whereas 255 worked in affiliated colleges located in urban areas. Moreover, 175 respondents were from boys' colleges, and 324 rendered their services in girls' colleges.

Measurement and Scale

In this research study, a self-administered questionnaire was used for data collection. This questionnaire consisted of two parts. The primary part incorporated questions about the participants' demographics. The second part consisted of statements about variables, i.e., governance and quality of education.

Franco-Santos et al., (2017) used the scale to measure governance. This scale includes coverage of elements of governance and reveals well-built psychometric characteristics. However, this measurement scale includes a set of intentionally technical statements designed to capture various aspects falling in governance, particularly in academic institutions. The respondents had to explain disagreement or agreement with all the given items on a Likert scale consisting of five points, where 1 = "Strongly Disagree", 2 = "Disagree", 3 = "Neutral", 4 = "Agree", and 5 = "Strongly Agree." Illustration items are, "Your institution has key performance indicators (KPIs) for monitoring of performance", "Your institution is fostering a culture of diversity and inclusiveness", and "Your institution provides freedom of action to adopt best management practices". In this study, the scale utilized for the governance measurement consisted of thirteen items.

Roxas and Chadee (2012) used the scale to measure financial resources. In the current work, the respondents were asked to rate the adequacy of their institution's financial resources on a 5-point scale where 1 = "Not Adequate", 2 = "Fairly Adequate", 3 = "Neutral", 4 = "Adequate", and 5 = "Very Adequate". A few illustration items of this scale are, "Your institution has different sources of funds such as government funds, tuition fees, donations and grants", and "Your institution has adequate financial resources to support institution activities".

The scale developed by Abbas (2020) and Latif (2017) was utilized to measure the quality of education. Some example statements are: "Faculty follow the course outline and plan the lessons before delivering the lectures," "The administration shows respectful behaviour towards teachers and students," and "Rules and regulations are in place for smooth operation of academic activities."

Common Method Biases

This research study collected data from a single source (principals of affiliated colleges). Therefore, it became imperative to examine the potential common method biases. Procedural and statistical steps were taken to minimize this bias arising from single-source data (Podsakoff et al., 2003). The researcher tried his best to ensure the anonymity and confidentiality of the respondents' data provided as a procedural modality. Herman's single-factor test was used for the statistical procedure. The threshold value for this test should be less than 50%. The results show a score of 33.145%, indicating no issue regarding common method biases in the current research study.

Results

The contemporary research study used Analysis of Moment Structures (AMOS) software to perform confirmatory factor analysis (CFA). Statistical Package for Social Sciences (SPSS) was used for descriptive statistics and correlation analysis. Moreover, SPSS was used to test hypotheses while applying regression analysis. Results have been presented in the following sections.

Descriptive Analysis

Table 1 presents descriptive statistics results, including Std. Deviation, Mean, and Correlation among the study constructs. The results indicate that all the constructs are significantly and positively correlated with each other.

Table 1
Results of Descriptive Statistics and Correlations among Study Constructs

	Mean	Std. Deviation	GOV	FR	QE
GOV	4.0322	.69217	-		
FR	4.0647	.71860	.528**		
QE	3.8516	.67247	.757**	.567**	-

Note: **. Correlation is significant at the 0.01 level (2-tailed).

GOV, Governance; FR, Financial Resources; QE, Quality of Tertiary Education

Normality of Data

Skewness and Kurtosis are most commonly used in research studies to assess the normality of data. Skewness is considered a measure of symmetry prevailing in the collected data. The data distribution is considered symmetric if it is witnessed as the same to the right and left of the centre point. According to Hair et al., (2010), in the case of normal distribution, the value of Skewness is zero or near zero. Meanwhile, Kurtosis measures whether the collected data is light-tailed or heavy-tailed to a normal distribution. In other words, the collected data with high Kurtosis will likely have heavy tails or outliers.

Meanwhile, the data showing low Kurtosis is more likely to have light tails or a deficiency of outliers. In the case of normal distribution, the value of Kurtosis is near zero, just like the value of Skewness. Furthermore, the value of Kurtosis and Skewness falling between +2.00 and -2.00 is considered acceptable (Hair et al., 2010). Results detailed in Table 2 demonstrate that the values of Skewness and Kurtosis are within acceptable range and that the data is normally distributed.

Table 2
Values of Mean, Std. Dev, Kurtosis and Skewness

Items	Mean	Std. Dev	Skewness	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	
Governance	G1	3.853	0.986	-0.889	0.577
	G2	4.194	0.996	-1.487	2.074
	G3	4.252	0.898	-1.552	1.823
	G4	3.994	0.938	-1.099	1.491
	G5	3.923	0.943	-0.871	0.607
	G6	4.126	0.906	-1.324	1.189
	G7	4.062	0.964	-1.042	0.859
	G8	4.144	0.852	-1.297	1.549
	G9	4.178	0.860	-1.148	1.588
	G10	4.166	0.884	-1.189	1.604
	G11	4.038	0.952	-1.138	1.347
	G12	3.367	1.237	-0.511	-0.690
Financial Resources	G13	4.116	0.908	-1.115	1.651
	FR1	2.803	1.280	0.026	-1.190
	FR2	3.158	1.243	-0.284	-1.012
	FR3	2.382	1.243	0.455	0.899
	FR4	2.401	1.290	0.415	-1.052
	FR5	2.502	1.280	0.282	-1.128
Quality of Education	FR6	2.724	1.282	0.111	-1.190
	FR7	2.661	1.283	0.075	-1.119
	QE1	4.220	0.857	-1.477	1.923
	QE2	3.705	1.050	-0.776	0.113
	QE3	3.743	1.206	-0.901	-0.097
	QE4	4.404	0.814	-1.808	1.164
	QE5	4.212	0.849	-1.328	2.029
QE6	4.200	0.893	-1.454	2.003	
QE7	4.112	0.948	-1.304	1.799	

QE8	4.124	0.929	-1.078	1.031
QE9	4.058	0.863	-1.221	2.001
QE10	4.090	0.912	-1.293	2.006
QE11	3.839	0.936	-0.779	0.586
QE12	4.485	0.841	-2.007	1.159
QE13	4.378	0.837	-1.918	1.698
QE14	4.250	0.911	-1.634	1.986
QE15	3.801	1.117	-0.991	0.425
QE16	4.140	0.878	-1.384	2.005
QE17	3.531	1.060	0-.649	-0.067
QE18	3.609	1.100	-0.615	-0.278
QE19	4.026	0.894	-1.233	1.916
QE20	2.511	1.330	0.329	-1.137
QE21	4.042	0.992	-1.150	1.119
QE22	3.775	1.059	-0.875	0.291
QE23	4.046	0.924	-1.269	1.975
QE24	4.370	0.867	-1.871	1.194
QE25	3.352	1.126	-0.387	-0.562
QE26	3.731	1.000	-0.784	0.408
QE27	3.735	1.007	-0.766	0.394
QE28	3.458	1.054	-0.618	-0.124
QE29	3.743	0.972	-0.822	0.612
QE30	4.080	0.885	-1.236	2.009
QE31	3.771	0.967	-0.786	0.488
QE32	3.446	1.042	-0.611	0.054
QE33	2.511	1.362	0.388	-1.226

Reliability and Validity Testing

Cronbach's Alpha is a coefficient that shows the reliability of study items. The value of Cronbach's Alpha falls between 0 and 1. This measure's most acceptable threshold value is 0.70 (Hair et al., 2011). The results of Cronbach's Alpha are exhibited in Table 3. The results depict that all the Cronbach's Alpha are above 0.70; therefore, these items are considered reliable for this research study.

Table 3
Results of the Reliability and Validity Test

Variable	CA	AVE	CR
Governance	0.925	0.59	0.92
Financial Resources	0.888	0.53	0.84
Quality of Education	0.861	0.53	0.75

Note: CA, Cronbach's Alpha; AVE, Average Variance Extracted; CR, Composite Reliability

Validity denotes how exactly a process measures what it is projected to measure. If research has high validity, it is more likely to produce results corresponding to real characteristics, properties, and variations in the physical or social world. Validity testing was carried out through confirmatory factor analysis (CFA). The results of CFA are exhibited in Table 3. The values of composite reliability (CR) for the constructs have also been presented in Table 3. The CR values for each construct have ranged from 0.75 to 0.92. All the values of CR are above the threshold value of 0.70, indicating satisfactory convergent consistency (Fornell & Larcker, 1981).

Moreover, the average variance extracted (AVE) values are also presented. The values for AVE for each construct are also above 0.50, which is an acceptable threshold value indicating adequate convergent validity of items in each construct (Fornell & Larcker, 1981). Overall, the results indicate adequate validity of this study.

Hypothesis Testing

The current research study used SPSS for hypothesis testing while performing regression analysis. Table 4 exhibits the model summary of regression analysis. The results reveal that R Square is .573, representing that predictors show 57.3% variation in the quality of tertiary education in affiliated colleges.

Table 4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757 ^a	.573	.570	.44078

Note: a. Predictors: FR X GOV, GOV, FR

Table 5 presents the results of regression coefficients. It is apparent from the results that governance is positively and significantly related to the quality of education, where the Beta value is .501, and the t value is 25.156. In this way, hypothesis 1 is supported. The results show that financial resources are positively and significantly related to the quality of education (Beta=.525, t=26.548). It is evident from the results that the interaction term of financial resources x governance is positively and significantly associated with the quality of education (Beta=.111, t=14.102). In this way, hypothesis 2 is supported, i.e. financial resources moderate the relationship between governance and quality of tertiary education.

Table 5
Regression Coefficients

Construct	Standardized Coefficients Beta	t	Sig.
Governance	.501	25.156	.000
Financial Resources	.525	26.548	.000
FR X GOV	.111	14.102	.000

Note: FR X GOV is the interaction term; Quality of education is the dependent variable

Discussion

This section examines the significance and implications of the study findings by presenting a comprehensive exploration of the association between the governance landscape and the quality of education along with the moderating role of financial resources in affiliated colleges of Pakistan. It also triangulates the findings of the previous research studies in this area with the findings of this study's framework and the underpinning theories.

The resource-based view has been taken as the underpinning theory in this research study. This theory demonstrates that an organization or institution is well equipped to present quality products or services owing to its unique, inimitable, valuable resources and assets (Barney, 1991). The results of this research study posit that governance has been taken as a valuable resource for affiliated colleges. Governance has been witnessed to directly influence the decision-making and other activities related to the implementation of policies in the context of affiliated colleges. By triangulating the theory of resource-based, it is inferred that the finding is well aligned with this theory. In this regard, this study postulates that governance can be taken as a resource, which can be used for competitive differential advantage by these institutions, and can eventually enhance the quality of tertiary education (Hénard & Mitterle (2010).

The findings exhibit a significant positive association between education quality and governance structures. A valuable governance structure has been witnessed as a self-motivated force for improvements in the excellence of tertiary education systems. This research study's findings align with the findings of previous studies. In this regard, a few research studies are being referred here for comparison. The relationship between governance and the quality of education has been examined by Khan and Azhar (2024). George and Elheddad (2020) have observed how governance influences the quality of education. Rabbani and Chowdhury (2014) have analysed the governance and quality of higher education.

Similarly, the effect of governance on education quality has been investigated by Ahmed, Ali and Taha (2023). These research studies advocate that the governance landscape, such as transparency, responsibility, and accountability, are key players in the development of higher education institutions. It can be inferred the system is more likely to improve the quality of tertiary education. An effective governance system can improve the quality of education while sustaining other conditions, such as transparency and accountability in the education industry (Machin & Vignoles, 2018; Yingqiang & Yongjian, 2016). Similarly, the study by Verger et al., (2019) demonstrates that governance

significantly influences the quality of education. The contemporary research study proposes that introducing effective governance reforms and improving governance dynamics can lead to improved quality in the education sector.

Effective governance in the affiliated colleges is more likely to contribute to high-quality teachers' training, recruitment, and support (Hendra, Kurnianto & Endrawijaya, 2024). Well-governed academic institutions are more likely to offer access to technology, information, and resources enhancing learning experiences and teaching skills (Rees, 2021). Processes of effective decision-making, mechanisms for accountability, and clear policies are more likely to contribute to the overall efficiency of an academic institution (Bukhari, Khan & Bukhary, 2023; Carstensen & Ibsen, 2021). Although governance plays a key role in forming different facets of institutes, its direct effect on the quality of academic programs might be more indirect and manifold and needs more exploration.

Financial resources have been observed as significantly and positively moderating the association between education quality and governance. Financial resources also as a resource play a key role in this perspective, supporting the assertion of resource-based theory. The moderator mechanism of financial resources in this association has yet to be found in previous works. It is a considerable value addition to this research work. The accessibility of financial resources proceeds as a moderator, fortification of the relationship linking governance with the excellence of the tertiary education system. Institutions with adequate funding can effectively leverage their governance practices to drive educational excellence. The availability of more financial resources is more likely to facilitate students and teachers by providing them with an atmosphere (Amin & Soomro, 2021; Prasad & John, 2022) which is very favourable for their learning as well as teaching. Financial resources support the assertion of resource-based views that facilitate affiliated colleges to invest in collaboration, teamwork, and partnership (Núñez Chicharro et al., 2024). These resources are more likely to favour academic institutions in research activities. All these aspects facilitate the enhancement of education quality.

In this study, resource-based theory was integrated as an underpinning theory. Resource-based theory within academic institutions plays a key role in enhancing education quality. Well-planned initiatives, including infrastructure enhancement, faculty development, and curriculum updates, are more likely to influence education quality positively. These discoveries resound with resource-based theory, highlighting the importance of organized resources in the institutions (Barney, 1991). There is a dire need to focus on stakeholder involvement, ongoing evaluation, and resource allocation to implement constructive resource management approaches aligned with the objectives of academic institutions.

Conclusions

Contemporary studies have witnessed the association between governance and education quality within Pakistani-affiliated colleges. Data were collected from the principals of affiliated colleges. Regression analysis was performed for hypothesis testing. The results exhibit the key role of governance in influencing and improving the quality of tertiary education. These findings align with previous studies on the role of governance dynamics in higher education (Babbar et al., 2023). The results also reveal the moderation effect of financial resources on the relationship between governance and quality of education. The governance structures in public sector affiliated colleges underscore the requirement for tailored practices considering the challenges of each college. The current study contributes to the governance, financial resources and education quality dynamic within the tertiary education system of Pakistan. The results offer helpful perceptions and views informing policies, practices, and recommendations for the enrichment of the excellence of tertiary education mainly within these colleges.

Theoretical Implications

The present study confirms the relationship between governance and education quality. This outcome is well aligned with Hendra, Kurnianto and Endrawijaya (2024) finding. Most earlier studies observed the association between governance in diverse perspectives and contexts (Couture, Jarzabkowski & Lê, 2023; Shira, 2023). However, this research study has assessed the linkage between governance and the quality of tertiary education from the context of affiliated colleges. The perspective has been overlooked in previous studies. In addition, the moderation effect of financial resources on the association between governance and tertiary education quality has been tested in the contemporary study. The study's outcome about moderation infers that the presence and availability of adequate funds can make the linkage between governance and quality positive and more robust (Núñez Chicharro et al., 2024). The moderation effect of financial resources is a noteworthy contribution of the present research study.

The resource-based theory has been taken as an overarching theory in the present study. This theory is likely to play an important role in improving the quality of tertiary education in the context of educational institutions and academic colleges. It also obliquely indicates the need for quality assurance mechanisms to deliberate the pedagogy and

curriculum as well as governance practices underpinning the delivery of education. Contemporary research enriches existing theories. It underlines the importance of governance and management practices, the role of financial resources, and the integration of resource-based theory to comprehend the dynamics and aspects, which are more likely to play their key role in determining the education quality, predominantly in the context of affiliated colleges and institutions. These theoretical implications offer the basis for more examination and improvement of theoretical outlines in higher education systems.

Practical Implications

This study's findings have several implications for administrators and educational policymakers. It highlights the significance of nurturing governance practices, prioritizing stakeholder engagement, transparency, and adherence to quality standards. It underscores resource management's critical role in ensuring institutions can maximize educational output through innovative resource articulation. Educational policymakers and administrators should try their best to distinguish the diversity of affiliated colleges and modify governance structures, management practices and the mechanisms for quality assurance so that the needs of each institute may be addressed accordingly (Creswell & Poth, 2016).

Policymakers in Pakistan can learn from the successful practices of Finland and South Korea and adopt decentralized and transparent governance models to improve responsiveness in affiliated colleges and enhance quality education. A multi-dimensional strategy should be pursued to improve the quality of education. It entails a framework of short and long-term comprehensive reforms. Grant of autonomy in financial and human resource management and introduction of a clear system of checks and balances should be followed. A transparent auditing process and regular evaluation of the colleges in connection with continuous quality improvement, which refers to the ongoing process of identifying and implementing improvements to the education system, must underpin it. Reduction of bureaucratic inertia and delays will be the mainstay of these initiatives. From a long-term perspective, the focus should be on decentralized governance, creating a national governance framework like HEC, capacity building of college leadership, and robust faculty development, which must attract the serious attention of those at the helm of affairs.

After the 18th amendment in the 1973 constitution of Pakistan, the responsibility for higher education is confused and shared between the federal and provincial governments (Shah, Shah & Shah, 2021). In Punjab and Sindh, the Higher Education Commissions have been established on a provincial basis. However, KPK and Balochistan still need to establish higher education commissions. Secondary and higher secondary education have been transferred to the provincial government. Overall, higher education is still available to the federal government affiliated whereas affiliated colleges mostly fall in the domain of provincial administration. The core issue is that the provinces must be in harmony with the federal government.

Some independent universities need to be established to be affiliated with affiliated colleges, taking the lead from the United Kingdom Higher Education System. These universities should be responsible for controlling and focusing on these institutions' capacity building. The federal and provincial governments should collaborate to fund these colleges. Furthermore, privately affiliated colleges may also be allowed to establish this model based on set criteria.

A cluster should be developed for a few affiliated colleges at the district level to regulate their issues. KPIs should be developed, and the principals' performance should be assessed according to these KPIs. Moreover, the principals should be given autonomy and accountability. The involvement of local government in their grooming and development will play a key role in this regard. Similarly, posting and transferring the faculty should be done on a divisional basis at the provincial level. In addition, the appointment of teachers should be on a contract basis to reduce the financial burden on the government.

A governing board at the municipality level should regulate the issues of affiliated colleges. At the strategic level, education policy should lay down the objectives of education and define what is desired from these colleges. It is also suggested that the governance of affiliated colleges be transformed into a private-public partnership model.

Financial resources are key to efficient and effective governance in affiliated colleges. Policymakers should adopt a targeted approach by increasing funds allocation for the institution, particularly in underdeveloped and marginalized areas. The focus should be on improving academic infrastructure, faculty development and technology. Funding should be driven by incentivizing better-performing colleges in the domain of effective governance practices, transparency and accountability. Policymakers should devise a need cum performance-based model for the allocation of financial resources with a strong audit system, ensuring transparency and accountability at every step. Public-private partnerships should be encouraged to provide colleges with access to more funds, faculty development and

technology—a well-resourced institution is more likely to carry out research activities, which can facilitate innovation and research. The involvement of stakeholders, including parents, students, teachers, the local community, and policymakers in the governance and allocation of financial resources, can contribute to the quality of education in affiliated colleges

The study can be beneficial for faculty members in providing them with opportunities for professional development. The findings of the present research study can facilitate affiliated colleges by allocating adequate financial resources, investing in workshops and training opportunities, enhancing the skills of teachers and preparing them to modify themselves according to the needs of the evolving education system.

Limitations and Directions for Future Study

Despite having valuable insights and imperative strengths, the current study has several limitations. This research study employed a quantitative method. The context of this study also has a limitation. It was carried out in Pakistan; its findings may not be fully applied to other settings and contexts. A mono-method was used for data collection, which may need to capture qualitative insights into governance and financial resources in the tertiary education system.

Furthermore, the current study involves cross-sectional data, which were collected once. In addition, a single independent variable, governance, was used. Lastly, this study investigated the moderating role of only one variable, financial resources, on the relationship between governance and the quality of education.

To overcome these limitations, future studies can use a qualitative approach to incorporate different institutions, such as private-sector ones. Future research should be carried out in countries with different contexts and cultures. Cross-cultural study is also one of the promising avenues for future study. Using mixed methods for data collection can provide a more comprehensive view of this area. The longitudinal study is recommended for future investigation, where the data can be collected at different intervals to understand the subject comprehensively. More variables can be used as independent variables in future studies. Strategic alignment, academic infrastructure, leadership and human resources are promising dynamics for future research. Lastly, multiple mediating or moderating variables, such as institutional culture, evaluation mechanism, self-efficacy curriculum, etc., can be considered for a comprehensive understanding of the governance and management of affiliated colleges.

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