MALAYSIAN JOURNAL OF LEARNING AND INSTRUCTION
https://e-journal.uum.edu.my/index.php/mjli

How to cite this article:
Waqas Mahmood, Siti Noor Ismail & Mohd Norakmar Omar. (2024). Mediating role of school climate and job satisfaction in total quality management and school performance. *Malaysian Journal of Learning and Instruction, 21*(2), 117-146. https://doi.org/10.32890/mjli2024.21.2.5

MEDIATING ROLE OF SCHOOL CLIMATE AND JOB SATISFACTION IN TOTAL QUALITY MANAGEMENT AND SCHOOL PERFORMANCE

[1]Waqas Mahmood, [2]Siti Noor Ismail & [3]Mohd Norakmar Omar
[1]Department of Educational Training
The Islamia University Bahawalpur, Pakistan
[2]School of Education,
Universiti Utara Malaysia, Malaysia
[3]School Management Sector,
Baling District Education Office, Malaysia

[2]Corresponding author: siti.noor@uum.edu.my

Received: 24/8/2023 Revised: 18/2/2024 Accepted: 14 /3/2024 Published: 15/8/2024

ABSTRACT

Purpose – Due to the dynamic nature of schools, the Department of Education currently faces significant issues including low teaching quality, teacher shortages, absenteeism, poor school climate, lack of well-trained and motivated instructors, and instability. Total Quality Management (TQM) is often linked to the school environment, teacher satisfaction, and performance, playing a crucial role in improving the quality of education. This paper aims to identify how teacher job satisfaction and school climate influence the relationship between TQM and school performance.

Methodology – A total of 346 teachers from Pakistan's high-performance schools and low-performance schools, with diverse positions and wage scales, were chosen as participants in this study using stratified random sampling. Data was collected quantitatively using a survey inquiry and SPSS version 24 was utilized to analyze the data and answers the study questions. The mediation procedure was evaluated using the Sobel test.

Findings – Findings showed that the TQM variable has the highest mean value (mean=4.87) compared to the other variables tested, namely job satisfaction, school performance and school climate. According to the study's findings, TQM, job satisfaction, and school climate all have a favourable and significant direct influence on school performance. Additionally, school climate and job satisfaction variables were found to be partial mediators linking TQM and school performance.

Significance – This study significantly enhances school quality management through a positive environment and capable human resources. The findings are also anticipated to encourage the Pakistan government to establish organizational management and educational leadership training courses to emphasise the significance of TQM and its most efficient use in the education sector.

Keywords: Total quality management (TQM), job satisfaction, school climate, school performance, mediator.

INTRODUCTION

A nation's social and economic environment can be strengthened through education, which also helps prepare future generations with knowledge and skills. Education is essential as it helps mould a person's personality (Mahmood et al., 2020). Considering the growing global competition in education in the twenty-first century, education is crucial to the growth of nations (Awan & Zia, 2015). A country's education quality determines its progress, making it a primary global concern (Akareem & Hossain, 2016; Masino, 2016). It is common knowledge that high-quality education is seen as a necessity in the age of globalization.

Many studies on quality management face challenges due to disparate conceptions of what constitutes quality, especially in developing

nations (Mahmood et al., 2022). Thus, educational institutions are attempting to meet this demand and overcome the associated difficulties by searching for effective and creative strategies to enhance their overall quality management systems (Mahmood & Ismail, 2018). One approach to improving the quality of instruction is to implement comprehensive quality management, or TQM (Mahmood et al., 2020).

Total Quality Management (TQM) is a philosophy for encouraging continual improvement (Edward, 1996). For the benefit of all the services offered to the students, TQM in education strongly emphasizes continual improvement and change. According to Goldberg (2002), it is necessary to identify the connections and interdependencies that impact how well a school's systems, processes, and personnel work. This will allow us to assess the effectiveness of school reform and student accomplishment. The school climate which comprises student interactions, school resources, teamwork, innovative teaching practices, teachers' decision-making abilities, and the lack of TQM implementation, are just one of the many factors that influence educational processes and student achievement. This study aims to identify the relationships among TQM, school performance, school climate, and job satisfaction.

PROBLEM STATEMENT

Research on TQM has demonstrated its deep roots in the sector and its role in making organizations successful (Anil & Satish, 2016; Jain & Gupta, 2011; Karia & Hasmi Abu Hassan Asaari, 2006; Khurram Hashmi, 2011; Miyagawa & Yoshida, 2010; Prabhu et al., 2000; Prajogo & Cooper, 2010; Prajogo, 2005). Additionally, further research has indicated that TQM can enhance the performance of educational organizations (Ahire et al., 1999; Anderson & Sohal, 1999; Das et al., 2008; Gálvez et al., 2016; Ismail, 2014; Karia & Hasmi Abu Hassan Asaari, 2006; Mahmood et al., 2021; Mahmood et al., 2022; Mahmood et al., 2020).

Through the quality of education, individuals are equipped to address societal challenges and contribute to its successful growth. However, the quality of education has been declining over time in southern Punjab, Pakistan. In this nation, numerous organizations are involved in delivering education, including public schools, private, for-profit,

and non-profit schools, institutions of higher learning, and other secular institutions. Therefore, utilizing TQM principles in education is desirable. The review conducted for this study revealed four critical problems:

1. Poor student retention in schools (Shah et al., 2019; Rehman & Malik, 2023).
2. The necessity to improve education standard by ensuring education for all children (Farooq, 2018; Jabeen et al., 2023).
3. The need to reduce student dropout rates (Mughal, 2020; Nazim et al., 2023).
4. The lack of motivated and well-trained teachers (Parveen & Tran, 2020; Ahmed et al., 2023).

The following sections present some of the flaws in Pakistan's educational system concerning quality education, school climate, and employee happiness that require further research.

LITERATURE REVIEW

TQM and School Performance

TQM has a continuous and positive effect on improving performance in an organization. Sadikoglu and Olcay's (2014) study shows that implementing TQM thoroughly and systematically will positively impact the organization's development and change. In the context of education, implementing TQM is crucial for improving students' academic performance. According to Khurniawan et al. (2021) students at school will excel, and academic achievements will be encouraging when TQM is applied effectively. This is attributed to the school leaders' ability to make TQM an indicator in guiding and making appropriate decisions aligned with the organization's vision and mission.

Indeed, the achievement and improvement of school performances may vary based on the organization's locality, culture, and environment. This gap can be narrowed when the school organization is managed by an individual who understands the environment (Siddique et al., 2021). Among the criteria that can be considered is the attitude of a leader who is highly committed to the task and reliably responsible

(Yusuf, 2023). On the other hand, there are other practices that school leaders can adopt to develop the organization. However, regular TQM practice is superior because TQM focuses on quality improvement and the necessity for continuous change. If TQM is consistently practised, its impact significantly contributes to the entire organization, including students, teachers, and the entire school community (Karageorgos et al., 2021).

TQM and Job Satisfaction

Various studies indicate that the organizations' services based on TQM positively affect job satisfaction and customer satisfaction. Studies by Brown and Lam (2008) and Akdere (2009) have shown that customers are satisfied with the service provided by an organization when service quality is prioritized. Additionally, studies linked to human resource management, which gradually improve the quality of management, are excellent (Schroeder et al., 2005). This systematic management of human resources encourages employees to pay more attention to tasks and at the same time, produce the desired quality of work.

Furthermore, issues such as employee safety, salary increases, division of duties, work autonomy, and work environment also play an essential role in ensuring an individual job satisfaction. Based on the study by Cass et al. (2003), factors such as employee welfare are essential in ensuring a conducive workplace and a positive work culture. When employees are comfortable performing tasks, the ability to work and interact socially with other colleagues becomes more effective. Therefore, this element of TQM is crucial in increasing job satisfaction to facilitate career advancement in the future (Carlopio & Gardner, 1996).

TQM and School Climate

Various studies at different levels of education have been conducted to establish a connection between TQM and school climate. For example, Aboudahr and Mohamad's (2020) study shows that leaders in primary schools strongly agree that TQM and school climate are related. A simple analogy is that the work culture becomes more positive when the school climate is positive, especially when combined with TQM aspects. Leaders' acceptance of TQM makes the quality of organizational management manageable, thus creating

a conducive school climate. A similar situation occurred during an interview with a group of high school teachers in the United States who stated that the implementation of TQM did not cause problems but instead produced a work environment and school climate that the majority of the organizational community could accept (Marshall et al., 2004).

The appreciation given to the organization through the best practices of TQM is also a factor that contributes to a positive school climate. Prajogo (2005) stated that the criteria in TQM can serve as a model for awarding organizations for their achievements throughout the years of service. This award is not new but has been used in various implementation methods. If TQM becomes a critical element of recognition, it could potentially nurture a superior organization. Therefore, a positive school climate may include good communication between colleagues, effective information delivery, and fair task allocation (Kumar & Sankaran, 2007).

School Climate and School Performance

The study by Hoy et al. (2002) demonstrated a significant relationship between school climate and school performance. The findings of their study indicated that a positive school climate significantly influenced the success achieved by students. Teachers were more motivated to implement the teaching and learning process, and students were increasingly eager to receive knowledge presented by the teacher. This situation arises when teachers feel that the school environment supports them in delivering high-quality teaching concepts (Dinham & Scott, 2000). They can provide suitable teaching materials and carry out meaningful teaching based on the objectives set for the day.

This assertion is also supported by the studies of Kwong and Davis (2015) and Zysberg and Schwabsky (2020) where schools with a favourable climate exhibit higher student achievement compared to schools with a less conducive climate. Characteristics of the school climate such as openness and freedom in carrying out tasks, guided by teaching objectives, also help teachers in planning and demonstrating their expertise in imparting knowledge. Additionally, Hoy et al. (1998) previously stated that school climate practices such as learning outside the classroom, profoundly impact students leading to higher achievement in counting, reading, and writing.

Job Satisfaction and School Performance

In schools, teacher job satisfaction is crucial for effectively mobilizing human resources. A satisfied teacher will diligently conduct the teaching and learning process diligently, regardless of time, cost, or place (Omar & Ismail, 2021). Asif et al. (2016) found that teachers who are satisfied with their jobs ensure that their students achieve high marks in exams. The test results demonstrate increased school performance, leading to the school's recognition in public and national ranked exams.

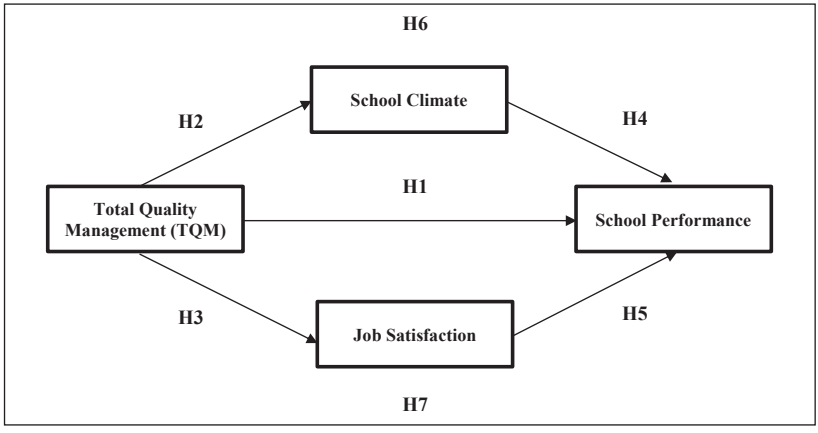
Chapagain (2021) strongly supports this view, as initial research indicates that students' test results improve during end-of-year exams. This suggests that teachers' satisfaction in the teaching process is reflected in students' excellence in exams. Typically, satisfied teachers possess an excellent career background, are of high quality, and have the required level of competence in line with current educational changes (Ismail et al., 2020).

OBJECTIVES OF THE STUDY

Figure 1

Study's Conceptual Framework

Based on the literature review, the conceptual framework is developed and presented in Figure 1.



This study aims to investigate the association between TQM and school performance, while also examining the mediating roles of job satisfaction and school climate in this relationship. This study addresses the following research questions:

RQ1: Is there a significant relationship between TQM and school performance?
RQ2: Is there a significant relationship between TQM and school climate?
RQ3: Is there a significant relationship between TQM and job satisfaction?
RQ4: Is there a significant relationship between school climate and school performance?
RQ5: Is there a significant relationship between job satisfaction and school performance?
RQ6: Does school climate act as a mediator in the relationship between TQM and school performance?
RQ7: Does job satisfaction act as a mediator in the relationship between TQM and school performance?

The following alternative hypotheses were formulated to be evaluated at a significance level of 0.05, based on the aforementioned research goals and questions:

H1: There is a significant relationship between TQM and school performance.
H2: There is a significant relationship between TQM and school climate.
H3: There is a significant relationship between TQM and job satisfaction.
H4: There is a significant relationship between school climate and school performance.
H5: There is a significant relationship between job satisfaction and school performance.
H6: School climate is a mediator variable in the relationship between TQM and school performance.
H7: Job satisfaction is a mediator variable in the relationship between TQM and school performance.

METHODOLOGY

Research Design

This study employed a cross-sectional survey design, focusing on four variables: Total Quality Management (TQM) as the independent variable, school performance as the dependent variable, and job satisfaction and school climate as mediator variables. According to Creswell (2014), a cross-sectional survey typically involves sampling a group from a larger population. Additionally, Sekaran and Bougie (2013) suggest that such studies are quantitative and require adherence to proper procedures including defining the purpose of the study, sampling, instrument selection, data collection, and data analysis.

Population and Sampling

The study population consisted of 3,268 teachers working in secondary schools in Bahawalpur, Pakistan. Among them, 1,791 teachers were employed in High-Performance Schools (HPS), while the remaining 1,477 teachers worked in Low-Performance Schools (LPS). It is worth noting that HPS represents schools with outstanding characteristics, including excellence in academics, personality development, co-curricular activities, and adherence to regulations set by the Ministry of Education of Pakistan. These schools achieve annual performance evaluation results above 50 percent Table 1 provides details of the total sample of teachers in secondary schools in Bahawalpur. Data sourced from the Ministry of Education confirmed that 3,268 teachers were distributed across 153 secondary schools, including both HPS and LPS.

Table 1

Number of Teachers from Government Secondary Schools in the Bahawalpur Region

Category of Schools	Number of Schools	Number of Teachers
HPS	84	1791
LPS	69	1477
Total	153	3268

Source: Ministry of Education, Pakistan.

Based on the numbers in Table 1, a method of selecting the study sample was implemented using stratified sampling. According to Krejcie and Morgan (1970), the sample size for the study population of 3,268 should be 346 teachers. As stated by Creswell (2014), the sample selected through accurate sampling represents and meets the actual criteria based on the set objectives. Meanwhile, Table 2 shows how to calculate the sample size in this study. According to Krejcie and Morgan's Table (1970), the necessary sample size was determined to be 346 teachers. Therefore, the division of the sample size was distributed based on school category first. Finally, the study sample was divided into gender groups, as shown in Table 3.

Table 2

Calculation of Sample Size

Category	No. of Schools	No. of Teachers	Sample Size
HPS	84	1791 (346*1791/3268)	190
LPS	69	1477 (346*1477/3268)	156
Total	153	3268	346

Table 3

Calculation of Sample Size Based on Male and Female

Category	Sample	Male	Female
HPS	190	190*(55/100) = 105	190*(45/100) = 85
LPS	156	156*(55/100) = 86	156*(45/100) = 70
Total	346	191	155

Research Instrument

This exploratory study was conducted using a quantitative approach. The instrument consisted of four main sections: Section A, Section B, Section C, and Section D. Section A addressed respondents' background, while Section B contained items on TQM constructs (27 items). Section C consisted of items on school climate (21 items), and Section D focused on job satisfaction (20 items). The TQM questionnaire comprised five constructs: (a) top management commitment, (b) continuous improvements, (c) customer service, (d) employee participation, and (e) education and training (Ahire et al., 1996; Dale et al., 2003; Ismail, 2014; Mahmood et al., 2020; Ngware et al., 2006; Zhang et al., 2000).

Similarly, school climate was assessed through five constructs: (a) collaboration, (b) student relationships, (c) school resources, (d) decision-making, and (e) teaching innovation, as outlined by Johnson et al. (2007). Job satisfaction was evaluated across four constructs: (a) salary and incentives, (b) working conditions, (c) security, and (d) advancement, developed by Lester (1987). Testing the dependability of the designed instruments revealed an alpha value above 0.70. (Chin, 1988).

Validity and Reliability Test

To ensure that the instrument used in this study accurately measured the study's objectives, both content validity and face validity were conducted. The validity process commenced with three experts in the field reviewing the questionnaire items. These experts were lecturers at Universiti Utara Malaysia and Islamia University, Pakistan. They assessed the questionnaires based on criteria such as sentence structure, spelling, and language use, ensuring that respondents could understand them and provide feedback based on the study's objectives.

Following the expert review, an exploratory factor analysis (EFA) was conducted. According to Hair et al. (2014), the EFA procedure helps to determine which items contribute to each construct in each variable. Through EFA, the researcher identified weaknesses in individual items in the instrument. If necessary, these weak items were either revised or removed (Awang et al., 2018). The following Table 4 below presents the Cronbach's Alpha values for each construct in the study variable. A Cronbach's Alpha value exceeding 0.70 indicates the robustness of the dimensions in this study (Hair et al., 2014).

Table 4

Reliability Statistic Based on Each Dimension

Dimension	Cronbach's Alpha	No. of Items
Total Quality Management		
Top Management Commitment	.904	11
Customer Focus	.827	4
Training and Education	.791	4

(continued)

Dimension	Cronbach's Alpha	No. of Items
Involvement of Staff	.796	3
Continuous Improvement	.725	3
School Climate		
Collaboration	.816	6
Student Relations	.802	4
School Resources	.792	4
Decision-Making	.953	3
Teaching Innovation	.770	4
Job Satisfaction		
Salary and Incentives	.884	5
Working Conditions	.705	5
Security	.811	3
Advancement	.779	5

RESULTS

Level of Each Variable

Table 5 shows the mean (M) and standard deviation (SD) values for all four variables in the study. Based on descriptive statistics, it was found that the mean value for TQM was the highest (M = 4.87, SD = 0.74), followed by school climate (M = 4.84, SD = 0.57), and school performance (M = 4.76, SD = 0.80). The lowest mean value for the variable in this study was job satisfaction, with a mean value of 4.65 and a standard deviation of 0.19. Overall, this finding suggests that the level of all four variables remained moderate consistent with the study conducted by Mahmood et al. (2020).

Table 5

Descriptive Statistics

Variable	N	Mean	Standard Deviation
Total Quality Management	346	4.87	0.74
Job Satisfaction	346	4.65	0.19
School Performance	346	4.76	0.80
School Climate	346	4.84	0.57

H1: The Relationship between TQM and School Performance

Pearson's correlation analysis was employed to examine the relationship between TQM and learning outcomes. The result presented in Table 6 showed a strong correlation between TQM and school performance. The model is well explained, as the correlation coefficient value is close to 1 (Pallant, 2007). Pearson's correlation coefficients (r) ranging from -1 to +1, indicate either a positive or negative correlation. The absolute value of the coefficient indicates the strength of the relationship between the variables. The strong positive relationship between TQM and school performance suggests that higher TQM practices correspond to higher levels of school performance, thereby enhancing overall school effectiveness ($r = 0.73$, $p<0.01$, as shown in Table 6). Therefore, the hypothesis H1, proposed at the beginning of this study, is supported.

Table 6

Correlation between TQM and School Performance

Variable	School Performance	
	Correlation value (r)	P
TQM Practices	0.73	0.00

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

H2: The Relationship between TQM and School Climate

Pearson's correlation analysis was conducted to investigate the relationship between TQM and school climate. As shown in Table 7, the results indicated a strong relationship between TQM and school climate. The model is well-explained, as the correlation coefficient value approaches 1 (Pallant, 2007). Pearson's correlation coefficients (r) ranging from -1 to +1, indicate either a positive or negative correlation. The absolute value of the coefficient shows the strength of the relationship between the variables. The strong positive relationship between TQM and school climate showed that higher TQM practices correspond to enhanced school climate, fostering better school performance ($r = 0.94$, $p < 0.01$, as shown in Table 7). Therefore, the hypothesis H2, posited at the beginning of this study is supported.

Table 7

Correlation between TQM and School Climate

Variable	School Climate	
	Correlation value (r)	P
TQM Practices	0.94	0.00

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

H3: The Relationship between TQM and Job Satisfaction

A significant, strong, and positive association was found between TQM and job satisfaction (r = 0.60, p <0.01). When determining the strength of the relationship between variables, a value of 0.70 is deemed essential, a range of 0.30 to 0.60 is moderate, and a value of 0.30 or less is weak. Table 8 shows a moderate positive association (r = 0.60; p < 0.01) between the two variables. The absolute value of the correlation coefficient was close to 1, indicating a well-described model. This correlation suggests that job satisfaction among staff increases with TQM implementation, leading to enhanced school performance. Therefore, the hypothesis H3, formulated at the beginning of this study, is supported.

Table 8

Correlation between TQM and Job Satisfaction

Variable	Job Satisfaction	
	Correlation value (r)	P
TQM Practices	0.60	0.00

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

H4: The Relationship between School Climate and School Performance

Pearson's correlation analysis was utilized to explore the association between school climate and school performance. As presented in Table 9, the findings demonstrated a strong positive correlation (r = 0.74, p < 0.01) between the two variables. A correlation coefficient approaching 1 indicates a well-explained model. This correlation suggests that school performance improves with a higher level of school climate. Teachers play a crucial role in nurturing the school climate to foster a supportive learning environment, thereby enhancing

the school's performance across various domains, including academic and extra-curricular activities.

Table 9

Correlation between School Climate and School Performance

Variable	School Performance	
	Correlation value (r)	P
School Climate	0.74	0.00

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

H5: The Relationship between Job Satisfaction and School Performance

Pearson's correlation analysis was used to investigate the relationship between job satisfaction and school performance. As shown in Table 10, the results indicated a weak positive relationship between these two variables ($r = 0.53$, $p < 0.01$). This indicates that when teachers dissatisfied with their work, it may negatively affect their contribution to school performance. This finding underscores the importance of addressing teacher job satisfaction to enhance overall school performance. Therefore, hypothesis H5, proposed at the outset of this study is accepted.

Table 10

Correlation between Job Satisfaction and School Performance

Variable	School Performance	
	Correlation value (r)	P
Job Satisfaction	0.53	0.00

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

H6: School Climate as Mediator in the Relationship between TQM and School Performance

To investigate whether school climate served as a mediator in the relationship between TQM and academic performance, the Sobel test and multiple regression analysis were used. The Sobel test equation formula is as follows.

$$\textbf{Z-value} = a*b/SQRT\ (b^2*s_a^{\ 2} + a^2*s_b^{\ 2})$$

Where,

a = raw (Unstandardized) regression coefficient for the association between independent variable and mediator.
b = raw coefficient for the association between the mediator and the dependent variable (when the independent variable is also a predictor of the dependent variable).
s_a = standard error of a.
s_b = standard error of b.

First, a regression test was performed with school climate as the dependent variable and TQM as the independent variable. Subsequently, the Sobel test method was applied to examine the mediating role of school climate. The results of the regression test between these two variables are presented in Table 11.

Table 11

Coefficients of Regression between TQM and School Climate

Model B	Unstandardized Coefficients Std. Error		t-test	p-value
(Constant)	.94	0.07	13.22	0.00
TQM	0.78	0.01	47.76	0.00

Additionally, a regression analysis was conducted with school performance as the dependent variable, TQM as the independent variable, and school climate as the mediator variable. The results of the regression test are presented in Table 12 as follows.

Table 12

Coefficients of Regression between Predictor and Mediator Effect

Model B	Unstandardized Coefficients Std. Error		t-test	p-value
(Constant)	-1.40	0.07	-18.98	0.00
TQM	0.26	0.04	6.57	0.00
School Climate	0.16	0.04	3.54	0.00

Before applying the formula, Sobel, Aroian, and Goodman tests were conducted to detect the presence of mediators. The results of these tests are shown in Table 13.

Table 13

Sobel, Aroian and Goodman Test for Mediating Effect

Test		Coefficients	Std. Error
Independent Variable	Mediating Variable	0.78 (a)	0.017 (Sa)
Mediating Variable	Dependent Variable	0.16 (b)	0.048 (Sb)
		Test Statistic	**Sig.**
Sobel Test		3.49	0.00
Aroian Test		3.48	0.00
Goodman Test		3.49	0.00

By putting the values in Sobel equation,

$$\textbf{z-value} = a*b/SQ;RT(b^2*s_a^{\,2} + a^2*s_b^{\,2})$$
$$\textbf{z-value} = 0.78*0.16/SQ;RT(0.16)^2*(0.017_)^2 + (0.78)^2*(0.048)^2$$

Where,

a = raw (Unstandardized) regression coefficient for the association between independent variable and mediator.
b = raw coefficient for the association between the mediator and the dependent variable (when the independent variable is also a predictor of the dependent variable).
s_a = standard error of a.
s_b = standard error of b.

The values of the Sobel test, including the standard error and p-value are given in Table 14. Under the assumption of a two-tailed z-test, where the null hypothesis posits that the mediated effect equals zero in the population, the obtained p-values (rounded to eight decimal places) were calculated from the unit normal distribution. The significant 95 percent of the normal distribution was represented by the crucial test ratio values of +/- 1.96. Table 14 shows that the p-value of the Sobel test was 0.00 indicating a significant positive influence of the mediator variable (school climate) in the association between TQM and school performance. Therefore, hypothesis H6, proposed at the beginning of this study is supported.

Table 14

Sobel Test p-Value

Sobel Test Statistic	Standard Error	p-Value
3.49	0.03	0.00

H7: Job Satisfaction as Mediator in the Relationship between TQM and School Performance

Before conducting the Sobel test, the regression analysis between job satisfaction as the dependent variable, and TQM as the independent variable, was performed. The results of this regression test of the two variables is presented in Table 15.

Table 15

Coefficients of Regression between TQM and Job Satisfaction

Model	Unstandardized Coefficients		t-test	p-value
	B	Std. Error		
(Constant)	3.49	0.04	70.66	0.00
TQM	0.22	0.01	19.64	0.00

The subsequent step involved the regression analysis of school performance on TQM with job satisfaction as the mediator. The coefficients resulting from this analysis are presented in Table 16 which shows the regression test results concerning the presence of the mediator variable.

Table 16

Coefficients of Regression between Predictor and Mediator Effect

Model	Unstandardized Coefficients		t-test	p-value
	B	Std. Error		
(Constant)	-0.32	0.16	-1.98	0.04
TQM	0.40	0.01	23.48	0.00
Job satisfaction	0.19	0.04	4.16	0.00

Table 17 shows the test results using the Sobel, Aroian, and Goodman tests. These three tests were performed to determine the existence

or presence of a mediator effect on both dependent and independent variables.

Table 17

Sobel, Aroian and Goodman Test for Mediating Effect

Test		Coefficients	Std. Error
Independent Variable	Mediating Variable	0.22 (a)	0.01 (Sa)
Mediating Variable	Dependent Variable	0.19 (b)	0.04 (Sb)
		Test Statistic	**Sig.**
Sobel Test		4.64	0.00
Aroian Test		4.63	0.00
Goodman Test		4.64	0.00

By putting the values in Sobel equation,

$$\textbf{z-value} = a*b/SQ; \text{ RT } (b^2*s_a^2 + a^2*s_b^2)$$

$$\textbf{z-value} = 0.78*0.16/SQ; \text{ RT } (0.16)^2*(0.017)^2 + (0.78)^2*(0.048)^2$$

The values of the Sobel test including standard error and p-value, are presented in Table 18. The p-value of the Sobel test was found to be 0.00, indicating a significant impact of the mediator variable in the relationship between TQM and school performance. Therefore, hypothesis H7, as stated at the beginning of this study is accepted.

Table 18

Sobel Test p-Value

Sobel Test Statistic	Standard Error	p-value
4.64	0.01	0.00

DISCUSSION

The findings of this study highlighted the correlation between high levels of school performance and robust implementation of TQM, school climate, and job satisfaction. According to Ismail (2014) and Mahmood et al. (2020) effective quality management, a positive school atmosphere, and job satisfaction contribute to improved student achievement. This supports the notion that implementing TQM

practices positively impacts job satisfaction, school performance, and the overall school climate. Effective schools can enhance their performance by implementing TQM principles, fostering a positive school atmosphere, and prioritizing job satisfaction among staff. Therefore, this study is anticipated to contribute significantly to the body of information for creating high-quality education and effective institutions.

Considering these findings, school administrators can more clearly and unambiguously advance this quality culture. As a result, the Ministry of Education should be able to offer a comprehensive module on the concept and use of TQM in schools. Future scholars in the field of educational management can utilise the study as a source of data and guide (Aboudahr & Mohamad, 2020; Mashagba, 2014). Future research proposals submitted to educational institutions or funding agencies can further supplement the data gathered from earlier studies.

Meanwhile, principals can exercise their leadership skills by emphasising the value of TQM techniques in schools and developing a collaborative, supportive, and successful school climate (Dutta & Sahney, 2016; Ismail et al., 2020). Additionally, regarding comprehensive quality management, central management should provide principals, administrators, and teachers with training to update and upgrade their abilities to improve the quality and performance of schools.

School citizens will be motivated to achieve excellence if all TQM functions previously discussed are put into practice (Goldberg, 2002). Specific situational factors mediate the links between school climate, TQM, and academic success. Successful schools have a passion for personal growth and interpersonal trust. School atmosphere impacts productivity and student accomplishment, therefore, it is vital to highlight the measures teachers and principals take. Many researchers have noted the unpredictability of the Pakistani educational system (Jabeen et al., 2023; Mughal, 2020; Rehman & Malik, 2023). Unfortunately, they do not consider cultural variations and extracurricular factors like the backgrounds of the students, teachers, and principals that could impact the standard of instruction in Pakistani schools.

By using TQM, education quality can be improved. Literature from the past has shown that leaders must possess the requisite competencies

to manage their organizations well and improve performance (Jabbar et al., 2020; Mahmood et al., 2021; Marshall et al., 2004). Leaders in educational institutions often do not directly affect their students' academic performance. However, they influence the school's culture to foster effectiveness. Thus, leaders must create a stimulating and friendly school environment. Even if the analysis showed low levels of TQM, they nonetheless contribute to the effectiveness of schools to some extent. The construction of the school performance model was based on the strong correlations between TQM practices, school climate and academic success.

Align with that, top management should establishing a clear communication lines between management and staff for fostering a productive and harmonious work environment in order to make schools more effective in Pakistan. Some strategies that can be applied due to TQM practices are open-door policy where employees feel comfortable approaching management with concerns, suggestions, or questions; regular meetings between management and staff to discuss goals, updates, and any issues that may arise; and provide training on effective communication skills for both managers and staff to ensure everyone understands how to communicate effectively. By implementing these strategies, top management can establish a clear communication lines between management and staff, leading to improved morale, productivity, and overall success within the organization.

CONCLUSION

This study represents a significant advancement in school performance with TQM techniques, school climate, and job satisfaction in Pakistani secondary schools with high and low performance. The literature reviewed, including studies on educational policy, teacher training and infrastructure development, highlights the need for increased investment in educational opportunities and resources to enhance the efficiency of Pakistan's educational system. Improving Pakistan's education system from within, particularly for top management and school administrators, involves targeted strategies to enhance leadership, governance, and capacity-building.

Some specific areas of focus is to implement leadership development programs tailored for top management and school administrators,

which cover areas such as strategic planning, financial management, human resource development, and effective decision-making. In another area is to provide training on educational leadership principles and practices, including instructional leadership, curriculum development, assessment and evaluation, and fostering a positive school culture conducive to learning and growth. By focusing on these areas, Pakistan can empower its top management and school administrators with the knowledge, skills, and resources they need to lead effectively and drive positive change within the education system.

Empirical evidence from surveys, interviews and observational studies has consistently shown that Pakistan exhibits low levels of TQM, school atmosphere, and job satisfaction. Comparatively, TQM levels may vary between boys' and girls' schools, public and private schools, primary and secondary schools, single-sex and co-ed schools, provincial and federal schools. TQM levels can also be impacted by cultural differences, stakeholder backgrounds, political climates, peace, and outside regulations that impact student achievement (Anil & Satish, 2016; Yusuf, 2023). The primary causes include lack of knowledge, limited resources, lack of leadership abilities, and training that is not TQM-related. Teachers who are elevated to leadership positions without sufficient leadership training lack the motivation to improve their pupils' academic achievement since they are more preoccupied with managerial duties (Faiz, 2010; Lam et al., 2008).

The sole resource required to promote a pleasant school climate is top management commitment (the principal). The study's results also showed that the principals successfully raised school performance by enhancing the school environment (Omar & Ismail, 2021). Improving the school climate fosters a culture of collaboration among teachers, facilitates meaningful student interactions, empowers teachers to make informed decisions, and optimizes the allocation of school resources (Kwong & Davis, 2015). The factors mentioned assist leaders define the school's mission resulting in a healthy school environment and effective management of educational initiatives. The school climate allows the teachers to share knowledge and workload, acquire and provide feedback, evaluate their progress, focus on students' outcomes, focus on organizational priorities, integrate the process and evaluation of the organization, and be involved in co-curricular activities and home-school relationships (Zysberg & Schwabsky, 2020). In a nutshell, school climate supports staff development through sharing

knowledge, creates a good reputation for the school, and produces better students in curricular and co-curricular activities.

Figure 2

Excellent School Model

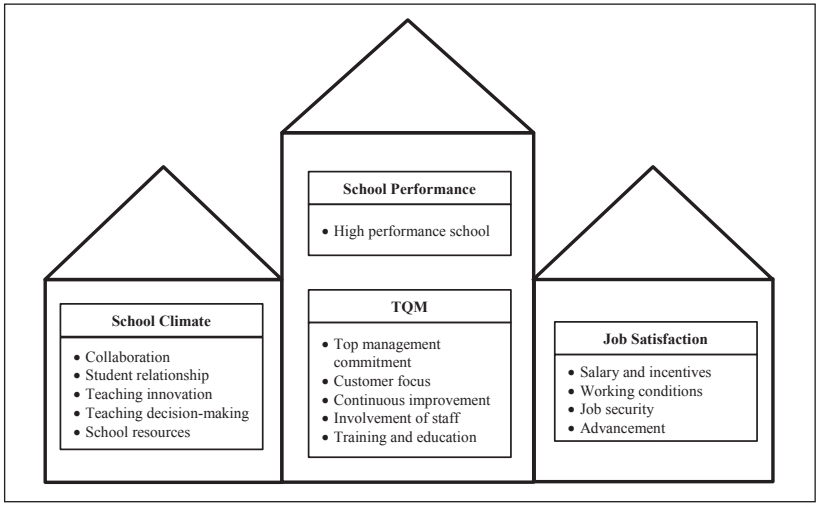


Figure 2 shows that the newly developed model for this investigation was created to fit the data gathered. The model clarified the significant positive relationships between TQM practices, school climate, job satisfaction, and school performance, highlighting the interconnectedness of these factors. This model outlined how three TQM dimensions predicted school climate and how four TQM aspects contributed more to job satisfaction and academic achievement. For developing countries like Pakistan, this concept can be used to improve the educational system. As a result, this model contributes significantly to the literature, particularly for Pakistan.

However, this study was limited to high-performing and underperforming schools in Bahawalpur. For this reason, it is recommended that a more comprehensive study be conducted in Pakistan to ensure better generalizability. This study was also limited to quantitative research, future studies could employ both, quantitative and qualitative research. Additionally, future analysis could examine the influence of faculty leadership quality as this issue will impact TQM in faculties.

ACKNOWLEDGEMENT

This research did not receive any specific grant from any funding agency in the public, commercial, or non-profit sectors. The authors report no potential conflict of interest.

REFERENCES

Aboudahr, S. M. F. M., & Mohamad, M. (2020). The mediating influence of organizational climate on the relationship between strategic leadership and quality management practice in Egypt Public University. *PalArch's Journal of Archaeology of Egypt/ Egyptology, 17*(4), 3195-3208

Ahire, S. L., Waller, M. A., & Golhar, D. Y. (1999). Quality management in TQM versus non-TQM firms: An empirical investigation. *International Journal of Quality & Reliability Management*, *13*(8), 8–27. https://doi.org/10.1108/02656719610128466

Ahire, S. L., Golhar, D. Y., & Waller, M. A. (1996). Development and validation of TQM implementation constructs. *Decision Sciences*, *27*(1), 23–56. https://doi.org/10.1111/j.1540-5915.1996.tb00842.x

Ahmed, S., Baloch, M. A., & Karim, H. (2023). Influence of teacher factors on quality education in government primary schools in the Naseerabad Division, Balochistan, Pakistan. *Annals of Human and Social Sciences, 4*(2), 626-637. https://doi.org/10.35484/ahss.2023(4-II)57

Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: What makes students' perception different? *Open Review of Educational Research*, *3*(1), 52–67. https://doi.org/10.1080/23265507.2016.1155167

Akdere, M. (2009). A multi-level examination of quality-focused human resource practices and firm performance: Evidence from the US healthcare industry. *The International Journal of Human Resource Management*, *20*(9), 1945–1964. https://doi.org/10.1080/09585190903142399

Anderson, M., & Sohal, A. S. (1999). A study of the relationship between quality management practices and performance in small businesses. *International Journal of Quality & Reliability Management, 9*, 859-877.

Anil, A. P., & Satish, K. P. (2016). Investigating the relationship between TQM practices and firm's performance: A conceptual

framework for Indian organizations. *Procedia Technology*, *24*, 554–561. https://doi.org/10.1016/j.protcy.2016.05.103

Asif, I., Fakhra, A., Tahir, F., & Shabbir, A. (2016). Relationship between teachers' job satisfaction and students' academic performance. *Eurasian Journal of Educational Research, 65*, 335-344 http://dx.doi.org/10.14689/ejer.2016.65.19

Awan, A. G., & Zia, A. (2015). Comparative analysis of public and private educational institutions: A case study of District Vehari-Pakistan. *Journal of Education and Practice*, *6*(16), 122–131.

Awang, Z., Hui, L. S., & Zainuddin, N. F. S. (2018). *Pendekatan mudah SEM: Structural equation modelling*. MPWS Rich Resources Sdn Bhd.

Brown, S. P., & Lam, S. K. (2008). A meta-analysis of relationships linking employee satisfaction to customer responses. *Journal of Retailing*, *84*(3), 243–255. https://doi.org/10.1016/j.jretai.2008.06.001

Carlopio, J., & Gardner, D. (1996). Employee affective reactions to organizational quality efforts. *International Journal of Quality Science*, *1*(3), 39–49.

Cass, M. H., Siu, O. L., Faragher, E. B., & Cooper, C. L. (2003). A meta-analysis of the relationship between job satisfaction and employee health in Hong Kong. *Stress and Health*, *19*(2), 79–95. https://doi.org/10.1002/smi.959

Chanpagain, Y. (2021). School student academic performance in Nepal: An analysis using the School Education Exam (SEE) results. *International Journal on Studies in Education, 3*(1), 22-36.

Chin. (1988). The partial least squares approach for structural equation modeling. - PsycNET. https://psycnet.apa.org/record/1998-07269-010

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Dale, B. G. (2003). Managing Quality (4th ed.). Hoboken, NJ: Blackwell Publishing

Das, A., Paul, H., & Swierczek, F. W. (2008). Developing and validating total quality management (TQM) constructs in the context of Thailand's manufacturing industry. *Benchmarking: An International Journal*, *15*(1), 52–72. https://doi.org/10.1108/14635770810854344

Dinham, S., & Scott, C. (2000). Moving into the third, outer domain of teacher satisfaction. *Journal of Educational Administration*, *38*(4), 379–396. https://doi.org/10.1108/09578230010373633

Dutta, V., & Sahney, S. (2016). School leadership and its impact on student achievement. *International Journal of Educational Management*, *30*(6), 941–958. https://doi.org/10.1108/IJEM-12-2014-0170

Edward, S. (1996). *Total quality management in education - 3rd, Page i by Edward Sallis. | Online Research Library: Questia*. https://www.questia.com/read/108731685/total-quality-management-in-education

Faiz, A. (2010). *The impact of TQM factors on employees' job satisfaction*. http://etd.uum.edu.my/2244/

Farooq, M. S. (2018). Millennium development goals (MDGS) and quality education situation in Pakistan at primary level. *International Online Journal of Primary Education, 7*(1), 1-23.

Gálvez, I. E., Cruz, F. J. F., & Díaz, M. J. F. (2016). Evaluation of the impact of quality management systems on school climate. *International Journal of Educational Management*, *30*(4), 474–492. https://doi.org/10.1108/IJEM-01-2015-0010

Goldberg, J. S. (2002). Quality management in education: Building excellence and equity in student performance. *Qmj*, *9*(4), 8–22.

Hair, J. J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Essex: Pearson Education Limited.

Hoy, W. K., Sabo, D. J., Barnes, K. M., Hannum, J. W., & Hoffman, J. D. (1998). *Quality middle schools: Open and healthy*. Corwin Press.

Hoy, W. K., Smith, P. A., Sweetland, S. R., & Bliss, J. R. (2002). The development of the organizational climate index for high schools: Its measure and relationship to faculty trust. *The High School Journal*, *86*(2), 38–49. https://doi.org/10.1353/hsj.2002.0023

Ismail, S. N. (2014). Total quality management (TQM) practices and school climate amongst high, average and low performance secondary schools, *11*, 41–58.

Ismail, S. N., Muhammad, S., Omar, M. N., & Raman, A. (2020). The great challenge of Malaysian school leaders' instructional leadership: Can it affect teachers' functional competency across 21st century education? *Universal Journal of Educational Research, 8*(6), 2436-2443.

Jabbar, M. N., Mahmood, W., & Qambar, G. (2020). Mediating role of organizational commitment and work environment on the relationship between transformational leadership and job satisfaction. *Talent Development and Excellence, 12*(2),3974-3988.

Jabeen, M., Ali, Z., & Ahmad, Z. (2023). Factor effecting on quality teaching at public sector schools in Karachi Pakistan, *Journal of Educational Research & Social Sciences Review, 3*(1), 92-98.

Jain, A., & Gupta, S. (2011). Significance of quality certification towards business excellence: Case of Indian software industry. *International Journal of Innovation, Management and Technology*, *2*(3), 204–209.

Johnson, B., Stevens, J. J., & Zvoch, K. (2007). Teachers' perceptions of school climate. *Educational and Psychological Measurement*, *67*(5), 833–844. https://doi.org/10.1177/0013164406299102

Karageorgos, C., Kriemadis, A., Travlos, A., & Kokaridas, D. (2021). Planning and implementing total quality management in education: The case of Cyprus. *International Journal of Educational Management, and Innovation, 2*(1), 1-12. https://doi: 10.12928/ijemi.v2i1.2627

Karia, N., & Hasmi Abu Hassan Asaari, M. (2006). The effects of total quality management practices on employees' work-related attitudes. *The TQM Magazine*, *18*(1), 30–43. https://doi.org/10.1108/09544780610637677

Khurniawan, A. W., Sailah, I., Muljono, P., Indriyanto, B., & Maarif, M. S. (2021). The collaborative strategy of total quality management and school governance to improve effectiveness of vocational school-based enterprise. *Journal of Educational and Social Research, 11*(2), 10-21.

Khurram Hashmi. (2011). Introduction and implementation of total quality management (TQM). Retrieved from https://www.isixsigma.com/methodology/total-quality-management-tqm/introduction-and-implementation-total-quality-management-tqm/

Krejcie & Morgan (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30,* 607-610.

Kumar, M. R., & Sankaran, S. (2007). Indian culture and the culture for TQM: A comparison. *The TQM Magazine*, *19*(2), 176–188. https://doi.org/10.1108/09544780710730014

Kwong, D., & Davis, J. R. (2015). School climate for academic success: A multilevel analysis of school climate and student outcomes. *Journal of Research in Education, 25*(2), 68-81.

Lam, M. Y., Poon, G. K. K., & Chin, K. S. (2008). An organizational learning model for vocational education in the context of TQM culture. *International Journal of Quality & Reliability Management*, *25*(3), 238–255. https://doi.org/10.1108/02656710810854269

Lester, P. E. (1987). Development and factor analysis of the Teacher Job Satisfaction Questionnaire (TJSQ). *Educational and Psychological Measurement, 47*(1), 223–233. https://doi.org/10.1177/0013164487471031

Mahmood, W., Ismail, S. N., Hafiz, D., Khan, M. A., Muslim, M., & Zalli, M. (2021). Implementation of total quality management practices in preschool education during the pandemic situation of COVID-19 in Pakistan. *Jahan-E-Tahqeeq*, *4*(3), 55–62.

Mahmood, W., Ismail, S. N., & Mdzalli, M. M. (2022). Leadership in quality in management (TQM) based on principles of common and Islamic perspective on the concept model of continuing development. *Harf-O-Sukhan*, *6*(1), 208–217.

Mahmood, W., Ismail, S. N., & Omar Fauzee, M. S. (2020). The effects of total quality management and school climate on academic performance of students in Pakistan. *Indonesian Journal of Education Methods Development*, *9*. https://doi.org/10.21070/ijemd.v8i0.552

Mahmood, W., Ismail, S. N., & Omar Fauzee, M. S. (2021). Impact of leadership style and school climate on staff performance in the school. *Harf-O-Sukhan*, *5*(3), 30–45. https://harf-o-sukhan.com/index.php/Harf-o-sukhan/article/view/79

Marshall, J. C., Pritchard, R. J., & Gunderson, B. H. (2004). Cultural norming in schools in healthy? and unhealthy districts. *Leadership and Policy in Schools*, *3*(2), 85–109. https://doi.org/10.1076/lpos.3.2.85.27845

Mashagba. (2014). The impact of total quality management (TQM) on the efficiency of academic performance empirical study the higher education sector. *The University of Jordan*, *3*(4), 358–364.

Masino, S. (2016). What works to improve the quality of student learning in developing countries? *International Journal of Educational Development*, *48*, 53–65. https://doi.org/10.1016/J.IJEDUDEV.2015.11.012

Miyagawa, M., & Yoshida, K. (2010). TQM practices of Japanese-owned manufacturers in the USA and China. *International Journal of Quality & Reliability Management*, *27*(7), 736–755. https://doi.org/10.1108/02656711011062363

Mughal, A.W. (2020). Secondary school students who drop out of school in rural Pakistan: The perspectives of fathers. *Educational Research, 62*(2), 199-215. https://doi.org/10.1080/00131881.2020.1755604

Nazim, F., Batool, U., & Riaz, M. A. (2023). Comparison of perceptions of the students and teachers concerning causes of

dropout of students at secondary level. *VFAST Transactions on Education and Social Sciences, 11*(2), 13-19.

Ngware, M. W., Wamukuru, D. K., & Odebero, S. O. (2006). Total quality management in secondary schools in Kenya: Extent of practice. *Quality Assurance in Education*, *14*(4), 339–362. https://doi.org/10.1108/09684880610703947

Omar, M. N., & Ismail, S. N. (2021). Empowering teacher self-efficacy on ICT: How does technology leadership play a role? *Malaysian Online Journal of Educational Management, 9*(13), 1-22.

Pallant, J. (2007). SPSS survival manual a step-by-step guide to data analysis using SPSS for Windows (3rd ed.). McGraw Hill Open University Press.

Parveen, K., & Tran, P. Q. B. (2020). Practical problems plaguing low quality education and steps needed for investment in public schools of Pakistan. *Journal of Social Sciences Advancement, 1*(1), 1-7.

Prabhu, V., Appleby, A., Yarrow, D., & Mitchell, E. (2000). The impact of ISO 9000 and TQM on best practice/ performance. *The TQM Magazine*, *12*(2), 84–92. https://doi.org/10.1108/09544780010318334

Prajogo, D. I. (2005). The comparative analysis of TQM practices and quality performance between manufacturing and service firms. *International Journal of Service Industry Management*, *16*(3), 217–228. https://doi.org/10.1108/09564230510601378

Prajogo, D. I., & Cooper, B. K. (2010). The effect of people-related TQM practices on job satisfaction: A hierarchical model. *Production Planning & Control*, *21*(1), 26–35. https://doi.org/10.1080/09537280903239383

Rehman, S. U., & Malik, M. A. (2023). Causes of dropouts in government secondary schools of Punjab (Pakistan). *Bulletin of Education and Research, 45*(1), 73-93.

Sadikoglu, E., & Olcay, H. (2014). The effects of total quality management practices on performance and the reasons of and the barriers to TQM practices in Turkey. *Advances in Decision Sciences*, *2014*, 1–17. https://doi.org/10.1155/2014/537605

Schroeder, R. G., Linderman, K., & Zhang, D. (2005). Evolution of quality: First fifty issues of production and operations management. *Production and Operations Management*, *14*(4), 468–481. https://doi.org/10.1111/j.1937-5956.2005.tb00234.x

Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach* (5th ed.). Wiley.

Shah, D., Haider, G., & Taj, T. (2019). Causes of dropout rate at primary level in Pakistan. *International Journal of Curriculum and Instruction, 11*(2), 38-74.

Siddique, M., Tatlah, I. A., Ali, M. S., Awan, T. H., & Nadeem, H. A. (2021). Effect of total quality management on students' performance in Chemistry at secondary level in Pakistan. *Multicultural Education, 7*(11), 592-602.

Yusuf, F. A. (2023). Total quality management (TQM) and quality of higher education: A meta-analysis study. *International Journal of Instruction, 16*(2), 161-178.

Zhang, Z., Waszink, A., & Wijngaard, J. (2000). An instrument for measuring TQM implementation for Chinese manufacturing companies. *International Journal of Quality & Reliability Management*, *17*(7), 730–755. https://doi.org/10.1108/02656710010315247

Zysberg, L., & Schwabsky, N. (2020). School climate, academic self-efficacy, and student achievement. *An International Journal of Experimental Educational Psychology, 41*(4), 1-16.