Research Journal of Psychology (RJP)

Online ISSN: 3006-7219
Print ISSN: 3006-7200
Volume 3, Number 2, 2025, Pages 590 – 600
Journal Home Page
https://ctrjournal.com/index.php/19/index

The Relationship between Total Quality Management Practices and Student Academic Achievement in Secondary Schools

Sehrish Sarfaraz[1], Hina Shaukat[2] & Dr. Iffat Basit[3]

[1]*PhD Scholar, Department of Education, ALHAAMD Islamic University, Islamabad,*
Email: msehrish02@gmail.com
[2]*Lecturer, Department of Educational Sciences, National University of Modern Languages, Islamabad,*
Email: hshoukat@numl.edu.pk
[3]*Assistant Professor, Department of Education, ALHAAMD Islamic University, Islamabad,*
Email: iffat.basit@aiu.edu.pk

ARTICLE INFO

Article History:

Received:	*April*	*26, 2025*
Revised:	*June*	*02, 2025*
Accepted:	*June*	*09, 2025*
Available Online:	*June*	*15, 2025*

Keywords:

TQM practices, Academic achievements,

Corresponding Author:
Sehrish Sarfaraz
Email:
msehrish02@gmail.com

OPEN ACCESS

ABSTRACT

This study investigated the relationship between Total Quality Management (TQM) practices and student academic achievement in secondary schools. The objectives were: (1) to examine the relationship between TQM practices and student academic achievement; (2) to explore the impact of teacher empowerment and stakeholder engagement on the effectiveness of TQM implementation; and (3) to analyze the role of technological integration in enhancing the application of TQM principles for improving teaching and learning processes. A quantitative correlational research design was used. The population included secondary school teachers and students, and a stratified random sampling technique was applied to select the sample from boys' and girls' public schools. Two self-developed instruments, the TQM Practices Questionnaire and Academic Achievement Scale, were employed. Both tools were validated by experts and demonstrated high reliability with Cronbach's alpha coefficients above 0.80. Data were analyzed using Pearson's correlation in SPSS Version 25. The findings revealed a moderate positive correlation between TQM practices and student academic achievement. Teacher empowerment and stakeholder engagement were significantly related to effective TQM implementation, while technological integration showed a strong positive association with the application of TQM principles in teaching and learning. Hence, it is recommended that schools adopt comprehensive TQM frameworks, empower teachers, actively involve stakeholders, and integrate technology to enhance educational quality. This study contributes valuable insights for policymakers and school leaders seeking to improve academic outcomes through quality management practices.

Introduction

In the contemporary educational landscape, the pursuit of excellence in secondary education has become paramount. Total Quality Management (TQM), originally conceptualized in the industrial sector, has been increasingly adopted in educational institutions to enhance quality and performance. TQM in education emphasizes continuous improvement, stakeholder involvement, and a customer-focused approach to meet and exceed the expectations of students, parents, and society at large.

The implementation of TQM practices in secondary schools aims to improve various aspects of the educational process, including teaching methodologies, administrative procedures, and student services. By fostering a culture of quality, schools strive to enhance student academic achievement, which is a critical indicator of educational success. Academic achievement not only reflects the effectiveness of instructional strategies but also influences students' future educational and career opportunities.

Several studies have explored the relationship between TQM practices and student academic performance. For instance, Ajayi and Oyeniyi (2017) conducted a study in Ogun State, Nigeria, revealing that the application of TQM principles, such as employing qualified teachers, providing adequate physical resources, and setting achievable goals, significantly contributes to improved student performance. Similarly, a study in Abu Dhabi by Alhosani and Yaakub (2021) found a significant relationship between TQM practices and secondary school performance, mediated by organizational culture.

In the context of Pakistan, the educational system faces challenges such as inadequate infrastructure, lack of trained teachers, and limited resources, which hinder the delivery of quality education. Implementing TQM practices could address these issues by promoting a systematic approach to quality improvement. A study by Suleman and Gul (2015) in the Kohat District highlighted challenges in TQM implementation, including ineffective leadership and lack of resources, suggesting the need for strategic planning and commitment to quality initiatives.

Moreover, the role of school culture in mediating the relationship between TQM practices and student performance has been emphasized in recent research. Parveen et al. (2024) found that a positive school culture enhances the effectiveness of TQM practices, leading to better student outcomes. This underscores the importance of fostering an environment that supports continuous improvement and stakeholder engagement.

Given the significance of TQM in enhancing educational quality and student achievement, this study aims to investigate the relationship between TQM practices and student academic performance in secondary schools. By identifying effective TQM strategies and understanding their impact, educational stakeholders can develop informed policies and practices to improve the quality of education.

In addition to fostering improved academic outcomes, the integration of Total Quality Management (TQM) in secondary schools promotes a data-driven culture where decision-making is based on measurable outcomes and continuous feedback. Central to TQM is the emphasis on quality planning, control, and improvement, all of which require the collection and analysis of performance indicators such as student test scores, graduation rates, and teacher performance evaluations (Deming, 1986). When schools adopt these practices systematically, they are better equipped to identify areas needing improvement and implement strategic interventions. This

proactive approach not only aligns with educational accountability standards but also strengthens the school's ability to sustain high academic performance over time. In many high-performing school systems, TQM principles are embedded into teacher training, curriculum design, and leadership practices, resulting in improved coherence and alignment of educational goals (Oakland, 2014).

Furthermore, the role of leadership is pivotal in the successful implementation of TQM in educational settings. School leaders who prioritize quality and empower staff are more likely to create a shared vision for continuous improvement, thereby fostering a sense of ownership and commitment among teachers and administrators (Kanji & Tambi, 1999). Leadership practices rooted in TQM also facilitate open communication, collaborative problem-solving, and ongoing professional development, which are essential for cultivating a learning-oriented organizational culture. These factors have a direct bearing on student motivation, engagement, and academic achievement. As education systems worldwide continue to face increasing pressure to deliver measurable results, integrating TQM provides a structured framework through which schools can navigate change, enhance their educational delivery, and ultimately improve student learning outcomes.

Objectives of the Study

Following were the objectives of the study;

- To examine the relationship between Total Quality Management (TQM) practices and student academic achievement in secondary schools.
- To explore the impact of teacher empowerment and stakeholder engagement on the effectiveness of TQM implementation in educational institutions.
- To analyze the role of technological integration in enhancing the application of TQM principles for improving teaching and learning processes.

Hypotheses of the Study

H1: There is a significant relationship between Total Quality Management (TQM) practices and student academic achievement in secondary schools.

H2: Teacher empowerment and stakeholder engagement have a significant positive impact on the effectiveness of TQM implementation in educational institutions.

H3: Technological integration significantly enhances the effectiveness of TQM principles in improving teaching and learning processes.

Significance of the Study

This study holds considerable significance for educational policymakers, school administrators, and teachers by providing empirical insights into how Total Quality Management (TQM) practices can enhance academic achievement in secondary schools. By examining the relationship between TQM principles—such as leadership, continuous improvement, and stakeholder involvement—and student outcomes, the study contributes to the growing body of knowledge on school effectiveness and quality assurance in education. It highlights how a structured quality management approach can lead to more efficient educational processes and improved academic performance.

Furthermore, the study underscores the importance of teacher empowerment and technological integration as key enablers of successful TQM implementation. Understanding the role of empowered educators and digital tools in sustaining continuous improvement efforts can inform targeted interventions, capacity-building programs, and infrastructure development in schools. The findings are particularly relevant for developing countries where educational systems face challenges related to resource constraints and organizational inefficiencies. Ultimately, this research supports the development of contextually relevant strategies for implementing TQM to achieve excellence in education.

Literature Review

Introduction to Total Quality Management (TQM) in Education

Total Quality Management (TQM) originated in the manufacturing sector as a systematic approach to continuous improvement, focusing on customer satisfaction, process optimization, and employee involvement. In the educational context, TQM has been adapted to enhance institutional effectiveness, improve teaching and learning processes, and foster a culture of continuous improvement (Deming, 1986). The application of TQM in schools involves aligning educational objectives with quality standards, engaging stakeholders, and utilizing data-driven decision-making to enhance student outcomes.

Core Principles of TQM in Educational Settings

The implementation of TQM in education revolves around several core principles:

Leadership Commitment: Effective leadership is crucial in establishing a vision for quality, setting clear goals, and fostering an environment conducive to continuous improvement (Kanji & Tambi, 1999).

Customer Focus: In education, students and parents are considered primary customers. Meeting their needs and expectations is central to TQM practices (Oakland, 2014).

Continuous Improvement: Schools adopting TQM engage in ongoing evaluation and refinement of processes to enhance educational delivery and student performance (Deming, 1986).

Employee Involvement: Teachers and staff are encouraged to participate in decision-making processes, contributing to a collaborative culture that supports quality enhancement (Kanji & Tambi, 1999).

Process Management: Emphasis is placed on understanding and optimizing educational processes to achieve desired outcomes efficiently (Oakland, 2014).

TQM Practices and Student Academic Achievement

Empirical studies have explored the relationship between TQM practices and student academic achievement in secondary schools. Ajayi and Oyeniyi (2017) found that the application of TQM principles, such as employing qualified teachers, providing adequate physical resources, and setting achievable goals, significantly contributes to improved student performance. Similarly, Alhosani and Yaakub (2021) identified a significant relationship between TQM practices and secondary school performance, mediated by organizational culture.

In the context of Pakistan, Suleman and Gul (2015) highlighted challenges in TQM implementation, including ineffective leadership and lack of resources, suggesting the need for strategic planning and commitment to quality initiatives. Parveen et al. (2024) emphasized the role of school culture in mediating the relationship between TQM practices and student performance, indicating that a positive school culture enhances the effectiveness of TQM practices.

Impact of TQM on School Climate and Organizational Culture

The integration of TQM practices in schools has been associated with improvements in school climate and organizational culture. Ismail (2014) conducted a study in Malaysian secondary schools, revealing that high-performance schools exhibited higher levels of TQM practices and a more positive school climate compared to average and low-performance schools. The study identified significant differences in TQM practices and school climate across different categories of schools, emphasizing the influence of TQM on the overall educational environment.ERIC

Challenges in Implementing TQM in Secondary Schools

Despite the potential benefits, implementing TQM in secondary schools presents several challenges:

Resource Constraints: Limited financial and human resources can hinder the adoption of TQM practices (Suleman & Gul, 2015).

Resistance to Change: Teachers and administrators may resist changes associated with TQM due to uncertainty or lack of understanding (Gumus, 2020).

Lack of Training: Insufficient training and professional development opportunities can impede the effective implementation of TQM principles (Oakland, 2014).

Cultural Factors: Organizational culture may not always align with the collaborative and continuous improvement ethos of TQM, affecting its efficacy (Parveen et al., 2024).

Strategies for Effective TQM Implementation

To overcome these challenges, schools can adopt the following strategies:

Leadership Development: Investing in leadership training to equip school leaders with the skills necessary to drive TQM initiatives (Kanji & Tambi, 1999).

Stakeholder Engagement: Involving teachers, students, parents, and the community in the quality improvement process to foster ownership and commitment (Deming, 1986).

Professional Development: Providing ongoing training for teachers and staff to build capacity for implementing TQM practices (Oakland, 2014).

Continuous Monitoring and Evaluation: Establishing systems for regular assessment of processes and outcomes to inform decision-making and drive improvements (Deming, 1986).

Role of Teacher Empowerment in TQM Effectiveness

Teacher empowerment plays a critical role in the successful implementation of Total Quality Management in educational institutions. Empowered teachers, who are granted autonomy, involved in decision-making, and provided with opportunities for professional development, are

more likely to engage actively in quality improvement initiatives (Short & Greer, 2002). When teachers feel valued and capable of contributing meaningfully to institutional goals, their motivation increases, which in turn enhances the quality of teaching and student learning outcomes. Studies suggest that teacher empowerment contributes to a collaborative culture aligned with TQM principles, fostering innovation and accountability at the classroom level (Rinehart & Short, 1994).

Technological Integration and TQM in Modern Classrooms

The integration of technology into classroom practices has become a significant component of TQM in contemporary educational settings. Digital tools support data collection, facilitate real-time feedback, and enable personalized learning, aligning with TQM's emphasis on process optimization and customer satisfaction (Al-Hosaini & Sofian, 2015). Technology also aids in monitoring instructional effectiveness and student progress, providing stakeholders with actionable insights. As schools increasingly adopt digital learning platforms, aligning technological integration with TQM principles is essential for sustaining quality improvements and adapting to evolving educational needs (Ali & Ahmad, 2020).

The literature indicates a positive relationship between Total Quality Management practices and student academic achievement in secondary schools. While challenges exist in implementing TQM, strategic approaches focusing on leadership, stakeholder engagement, and continuous improvement can enhance educational quality and student outcomes. Further research is needed to explore context-specific factors influencing TQM efficacy and to develop tailored implementation frameworks for diverse educational settings.

Research Methodology

Research Design

The study employed a correlational and quantitative research design to examine the relationship between Total Quality Management (TQM) practices and student academic achievement in secondary schools. This design was suitable for identifying and measuring the strength and direction of associations between variables without manipulating them.

Population

The population of the study consisted of 26,334 secondary school students, including 10,083 male and 16,251 female students enrolled in secondary schools of District and Tehsil Rawalpindi. This population represented a diverse group of learners in secondary education, forming the basis for generalizing the findings related to flipped classroom pedagogy, student engagement, and academic performance.

Sample and Sampling Technique

A sample of 350 students was selected from the total population using a random sampling technique to ensure each student had an equal chance of being chosen. To maintain gender representation, the sample included 45% male students (158) and 55% female students (192), proportionate to the population distribution. This method ensured unbiased selection and adequate representation of both genders.

Research Tool

The data were gathered using a self-developed questionnaire that focused on main variables of the study. The questionnaire was structured to align with the objectives of the study and designed to capture relevant responses from the target population effectively.

Research Tool Validity

To ensure content validity, the questionnaire was reviewed by a panel of academic experts and specialists in education. Their feedback was incorporated to refine and improve the clarity, relevance, and comprehensiveness of the items. This expert validation process ensured that the tool accurately measured the intended constructs.

Research Tool Reliability

The reliability of the research tool was tested using Cronbach's Alpha method. The reliability coefficient obtained was 0.83, indicating a high level of internal consistency among the questionnaire items. This value confirms that the instrument was dependable and suitable for the study.

Data Collection Procedure

The data collection process involved distributing the finalized questionnaire to the selected sample of students. Respondents were given adequate time to complete the instrument independently. After completion, the questionnaires were systematically collected, ensuring a smooth and organized data gathering process.

Data Analysis

The data were analyzed using statistical methods, with the coefficient of correlation applied to identify the strength and direction of the relationships among variables of the study. Additionally, mediation analysis was employed to determine the predictive role of variables.

Table 1: Gender Distribution of the Sample

Gender	Frequency (f)	Percentage (%)
Male	158	45.1%
Female	192	54.9%
Total	350	100%

Table 1 shows the gender distribution of the sample consisting of 350 secondary school students. Out of the total, 158 students (45.1%) were male, and 192 students (54.9%) were female. The gender ratio was maintained based on proportional representation in the population to ensure balanced and meaningful analysis.

Table 2: Age Distribution of the Sample

Age Group	Frequency (f)	Percentage (%)
13–14 years	92	26.3%
15–16 years	178	50.9%
17–18 years	80	22.8%
Total	350	100%

Table 2 presents the age distribution of the sample. The majority of students (178 or 50.9%) were in the 15–16 years age group, which is typical for secondary education. Students aged 13–14 years accounted for 26.3% of the sample, while those aged 17–18 years made up 22.8%, representing students at various stages of secondary schooling.

Table 3: Relationship Between TQM Practices and Student Academic Achievement

	TQM Practices	**Academic Achievement**
TQM Practices	1	.482**
Academic Achievement	.482**	1

N = 300

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

There was a statistically significant moderate positive correlation between Total Quality Management (TQM) practices and student academic achievement, $r = .482$, $p < .01$, suggesting that better implementation of TQM is associated with improved academic outcomes.

Table 4: Relationship Between Teacher Empowerment, Stakeholder Engagement, and TQM Implementation Effectiveness

	Teacher Empowerment	**Stakeholder Engagement**	**TQM Implementation Effectiveness**
Teacher Empowerment	1	.397**	.514**
Stakeholder Engagement	.397**	1	.476**
TQM Implementation Effectiveness	.514**	.476**	1

N = 300

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

Teacher empowerment and stakeholder engagement both showed significant positive correlations with TQM implementation effectiveness, $r = .514$ and $r = .476$ respectively ($p < .01$), indicating their crucial roles in facilitating successful TQM practices.

Table 5: Relationship Between Technological Integration and TQM Application in Teaching and Learning

	Technological Integration	**TQM in Teaching and Learning**
Technological Integration	1	.532**
TQM in Teaching and Learning	.532**	1

N = 300

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

There was a strong and statistically significant positive correlation between technological integration and the application of TQM principles in teaching and learning, $r = .532$, $p < .01$. This suggests that incorporating technology supports the effective implementation of TQM in educational settings.

Findings of the Study

Objective 1:

To examine the relationship between Total Quality Management (TQM) practices and student academic achievement in secondary schools.

1. The study found a statistically significant moderate positive correlation ($r = .482$, $p < .01$) between TQM practices and student academic achievement. This indicates that schools with higher levels of TQM implementation—such as continuous improvement, quality leadership, and process management—tended to have students with better academic performance. These results suggest that the principles of TQM positively contribute to enhancing students' educational outcomes in secondary schools.

Objective 2: To explore the impact of teacher empowerment and stakeholder engagement on the effectiveness of TQM implementation in educational institutions.

2. The results revealed significant positive correlations between teacher empowerment and TQM implementation effectiveness ($r = .514$, $p < .01$), and between stakeholder engagement and TQM implementation effectiveness ($r = .476$, $p < .01$). These findings demonstrate that when teachers are empowered through participative decision-making and professional development, and when stakeholders such as parents and community members are actively involved, the implementation of TQM becomes more effective. This highlights the importance of inclusive leadership and collaboration in driving quality improvement in schools.

Objective 3: To analyze the role of technological integration in enhancing the application of TQM principles for improving teaching and learning processes.

3. A strong positive correlation ($r = .532$, $p < .01$) was found between technological integration and the application of TQM principles in teaching and learning. This implies that the use of modern educational technologies, such as digital learning platforms, data management systems, and communication tools, significantly supports the implementation of quality management practices. The integration of technology thus plays a pivotal role in strengthening teaching effectiveness and improving the overall learning environment.

Discussion

The first finding of the study revealed a significant moderate positive relationship between Total Quality Management (TQM) practices and student academic achievement. This outcome suggests that when educational institutions implement structured quality management practices such as strategic planning, performance monitoring, and continuous improvement, it results in enhanced academic performance among students. This finding is supported by Sallis (2014), who emphasized that the successful application of TQM principles in educational settings leads to improved student outcomes due to the focus on quality delivery of education. Additionally, Ali and Shastri (2010) found that institutions implementing TQM frameworks showed measurable improvements in both academic achievement and institutional performance. These findings collectively affirm the conclusion that TQM positively influences the quality of educational delivery and student success.

The second major finding established that teacher empowerment and stakeholder engagement were both significantly related to the effective implementation of TQM practices in secondary schools.

This aligns with the work of Harris and Muijs (2004), who identified teacher leadership and participation as critical components in school improvement efforts. Empowered teachers are more likely to innovate, collaborate, and uphold standards aligned with TQM principles. Furthermore, Ng (2015) highlighted that stakeholder engagement, especially from parents and community members, plays a vital role in the formulation and successful execution of school policies, which directly influences the quality of implementation. These results support the idea that inclusive governance and collaborative decision-making enhance the effectiveness of quality management initiatives in schools.

The third finding showed a strong positive correlation between technological integration and the application of TQM principles in teaching and learning processes. This suggests that schools that incorporate digital tools and technological innovations tend to implement TQM practices more effectively, resulting in better instructional delivery and classroom engagement. Al-Sharif and Al-Harbi (2020) demonstrated that technological tools enhance transparency, accessibility, and efficiency in applying quality standards in education. Similarly, Sabella, Kashou, and Omran (2014) noted that information and communication technology supports the continuous monitoring and evaluation of quality indicators, a central component of TQM. Therefore, integrating technology is not just a support mechanism but a strategic driver for successful quality implementation in schools.

Recommendations

1. A significant moderate positive relationship was found between TQM practices and student academic achievement. This suggests that effective implementation of quality management practices contributes to better student performance. Hence, it is recommended that secondary schools adopt comprehensive TQM frameworks focusing on leadership commitment, continuous improvement, and performance monitoring to enhance students' academic outcomes.

2. Teacher empowerment and stakeholder engagement were both significantly associated with the effective implementation of TQM. Their involvement positively influenced how well quality management practices were applied in schools. Hence, it is recommended that school administrators foster collaborative environments by empowering teachers through shared decision-making and involving parents and community members in school improvement initiatives.

3. Technological integration showed a strong positive correlation with the successful application of TQM principles in teaching and learning. Schools that effectively used technology were more successful in implementing quality management strategies. Hence, it is recommended that educational institutions invest in up-to-date technological resources and provide training for staff to integrate these tools effectively in support of TQM practices and improved instructional delivery.

References

1. Ajayi, K. O., & Oyeniyi, O. L. (2017). Impact of total quality management on students' academic performance in public secondary schools in Ogun State. *IFE PsychologIA*, 25(1), 1–10.

2. Al-Hosaini, F. F., & Sofian, S. (2015). *A review of balanced scorecard framework in higher education institutions (HEIs)*. International Review of Management and Marketing, 5(1), 26–35.
3. Alhosani, K. S., & Yaakub, K. B. (2021). The relationship between total quality management practices and secondary school performance with mediating effect of organizational culture in Abu Dhabi: A structural equation modeling approach. *European Journal of Multidisciplinary Studies*, 6(2), 1–10.
4. Ali, A., & Ahmad, I. (2020). *Adoption of technology in secondary education: A quality management perspective*. Journal of Educational Technology Systems, 49(2), 259–275. https://doi.org/10.1177/0047239520934010
5. Ali, S., & Shastri, R. K. (2010). Implementation of Total Quality Management in higher education. *Asian Journal of Business Management*, 2(1), 9–16.
6. Al-Sharif, A. A., & Al-Harbi, M. A. (2020). The role of technology in the implementation of Total Quality Management in education. *International Journal of Educational Management*, 34(2), 365–380. https://doi.org/10.1108/IJEM-07-2019-0253
7. Deming, W. E. (1986). *Out of the crisis*. MIT Center for Advanced Educational Services.
8. Gumus, F. N. (2020). Total quality management in schools. *Educational Research and Reviews*, 15(9), 540–547.
9. Harris, A., & Muijs, D. (2004). *Improving schools through teacher leadership*. McGraw-Hill Education.
10. Ismail, S. N. (2014). Total quality management (TQM) practices and school climate amongst high, average and low performance secondary schools. *Malaysian Journal of Learning and Instruction*, 11, 41–58.ERIC
11. Kanji, G. K., & Tambi, A. M. B. A. (1999). Total quality management in UK higher education institutions. *Total Quality Management*, 10(1), 129–153.
12. Ng, P. T. (2015). The stakeholder model of school governance: A case study of schools in Singapore. *Educational Management Administration & Leadership*, 43(2), 287–302. https://doi.org/10.1177/1741143213513188
13. Oakland, J. S. (2014). *Total quality management and operational excellence: Text with cases* (4th ed.). Routledge.
14. Parveen, K., Phuc, T. Q. B., Alghamdi, A. A., Kumar, T., Aslam, S., Shafiq, M., & Saleem, A. (2024). The contribution of quality management practices to student performance: Mediated by school culture. *Heliyon*, 10(15), e34892.
15. Rinehart, J. S., & Short, P. M. (1994). *Job satisfaction and empowerment among teacher leaders, reading recovery teachers, and regular classroom teachers*. Education, 114(4), 570–580.
16. Sabella, A. R., Kashou, R., & Omran, O. (2014). Quality management practices and their relationship to organizational performance. *International Journal of Operations & Production Management*, 34(12), 1487–1505. https://doi.org/10.1108/IJOPM-04-2013-0210
17. Sallis, E. (2014). *Total Quality Management in Education* (3rd ed.). Routledge.
18. Short, P. M., & Greer, J. T. (2002). *Leadership in empowered schools: Themes from innovative efforts*. Merrill/Prentice Hall.
19. Suleman, Q., & Gul, R. (2015). Challenges to successful total quality management implementation in public secondary schools: A case study of Kohat District, Pakistan. *Journal of Education and Practice*, 6(15), 123–128.