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## The Impact of Integrated Quality Management Implementation on SDGs- Based Stakeholders Satisfaction

**Muhammad Fakhri Naufal, Siti Nurul Khotimah** (Islamic Education Management, SyekhNurjati Cirebon State Islamic University, Cirebon, Indonesia) Corresponding Author's Email: [mfakhrinaufal@mail.syekhnurjati.ac.id](mailto:mfakhrinaufal@mail.syekhnurjati.ac.id) [sitinurul@mail.syekhnurjati.ac.id](mailto:sitinurul@mail.syekhnurjati.ac.id)

### Abstract

This study aims to analyze the effect of implementing total quality management on stakeholder satisfaction based on sustainable development goals in educational institutions. The approach used is a mixed method with a sequential explanatory design, which combines quantitative analysis through structural equation modeling based on partial least squares and qualitative analysis through semi-structured interviews. Quantitative data were obtained from questionnaires distributed to education stakeholders, while qualitative data were used to strengthen and explain statistical findings. The results show that the implementation of total quality management has a positive and significant effect on stakeholder satisfaction. In addition, qualitative findings indicate that quality-oriented leadership plays an important role in encouraging organizational engagement and continuous improvement. The practical implications of this study emphasize that leaders of educational institutions need to integrate quality management principles systematically and sustainably to improve the quality of educational services and meet stakeholder expectations within the framework of sustainable educational development.

**Keywords:** Total quality management, stakeholder satisfaction, educational leadership, education quality, Sustainable Development Goals, SDG 4: Quality Education, SEM-PLS

|                               |                               |                                |                                 |
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### Introduction

Higher education institutions are facing increasing pressure to improve the quality of educational services in response to global competition, stakeholder expectations, and the demands of sustainable development. The transformation of the education system toward accountability, competitiveness, and relevance has driven the need for a systematic quality management approach. Contemporary studies show that quality management in higher

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education is no longer limited to administrative compliance, but has evolved into a strategic mechanism to enhance institutional performance and stakeholder satisfaction (Mu'alimin, 2025).

In the context of education, the implementation of Total Quality Management (TQM) has emerged as one of the main approaches to improving educational quality. TQM emphasizes continuous improvement, stakeholder focus, and the involvement of all organizational elements as the main drivers of institutional excellence. Recent research shows that TQM contributes significantly to improving educational quality, educator professionalism, and institutional effectiveness when implemented systematically (Permana et al., 2021). In addition, TQM principles align with global quality standards through strengthening stakeholder engagement, data-driven decision-making, and continuous improvement processes, making them highly relevant to modern education systems.

However, the implementation of TQM in educational institutions is still uneven. One of the main challenges lies in organizational readiness and leadership capacity to drive quality transformation. Leadership plays a strategic role in shaping organizational culture, mobilizing stakeholders, and ensuring the sustainability of quality improvement programs. Empirical findings indicate that leadership commitment and participatory approaches are key determinants of successful TQM implementation, particularly in fostering collaboration and innovation within educational environments (Rosidin et al., 2025). Without effective leadership, quality management initiatives tend to be procedural and provide limited transformational impact on institutional performance.

The integration of sustainability principles in education further adds complexity to quality management. The global Sustainable Development Goals agenda initiated by the United Nations, particularly SDG 4: Quality Education, emphasizes the importance of inclusive, equitable, and quality education while promoting lifelong learning. Recent research shows that the success of SDG implementation in education depends not only on pedagogical innovation but also requires strong institutional governance and quality management systems to support continuous improvement and stakeholder engagement (Melindawati et al., 2025). This indicates that quality management and sustainability are two interrelated dimensions that must be integrated simultaneously.

## **Methods**

This study uses a mixed methods approach, combining quantitative and qualitative approaches to obtain a more comprehensive understanding of the relationship between the implementation of total quality management and stakeholder satisfaction based on the SDGs. This approach was chosen because it is able to integrate the strengths of statistical analysis

with contextual interpretation of the phenomena studied (Clark & Plano Clark, 2022).

The research design used is a sequential explanatory design, in which quantitative data collection and analysis are conducted first, followed by qualitative data to explain the results obtained. In the quantitative stage, this study uses Structural Equation Modeling (SEM) based on Partial Least Squares (PLS), which is considered effective in analyzing relationships between latent constructs and suitable for studies with relatively small sample sizes (Hair et al., 2021).

Participants in this study are stakeholders of educational institutions, including students, teachers, educational staff, and parents/guardians. The selection of participants is based on their role as direct recipients of educational services, so they have relevant experience in assessing the implementation of quality management and the level of satisfaction perceived. The sampling technique used is purposive sampling, which involves selecting respondents based on specific criteria aligned with the research objectives (Etikan, 2016).

These criteria include direct involvement in the educational process, a minimum of one year of experience in the relevant institution, and willingness to participate in the study. The sample size is adjusted to the requirements of SEM-PLS analysis, ranging from 30 to 100 respondents, considering the number of indicators in the research model (Hair et al., 2021).

The data collection instruments in this study consist of questionnaires and interviews. The questionnaire is used to collect quantitative data using a 1–5 Likert scale, designed to measure variables of total quality management implementation and stakeholder satisfaction based on the SDGs. The development of the instrument refers to the principles of total quality management that emphasize continuous improvement and customer focus (Melindawati et al., 2025).

The data analysis procedure is carried out in two stages, namely quantitative and qualitative analysis. Quantitative data are analyzed using SEM-PLS with stages including convergent validity testing (outer loading and Average Variance Extracted/AVE), reliability testing (Composite Reliability and Cronbach's Alpha), and structural model testing through R-square values and path coefficients to test research hypotheses. Meanwhile, qualitative data are analyzed using thematic analysis techniques through processes of data reduction, categorization, and interpretation to identify relevant patterns and meanings. The results from both approaches are then integrated to produce a more comprehensive understanding of the relationship between total quality management implementation, leadership, and stakeholder satisfaction within the framework of sustainable education (Braun & Clarke, 2006).

#### **A. Measurement Model Results (Outer Model)**

**Table 1.** Validity Test Results (Outer Loadings )

| <i>Variabel</i>                                             | <i>KodeIndi</i> | <i>Outher</i>  | <i>HTMT</i> | <i>AVE</i> | <i>Description</i> |
|-------------------------------------------------------------|-----------------|----------------|-------------|------------|--------------------|
|                                                             | <i>kator</i>    | <i>Loading</i> |             |            |                    |
| <b>Implementation of Integrated Quality Management (X1)</b> | X.1             | 0,815          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.2             | 0,808          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.3             | 0,785          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.4             | 0,762          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.5             | 0,573          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.6             | 0,747          | 0,787       | 0,523      | <b>VALID</b>       |
|                                                             | X.7             | 0,508          | 0,787       | 0,523      | <b>VALID</b>       |
| <b>SDGs-Based Stakeholder Satisfaction (X2)</b>             | Y.1             | 0,688          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.2             | 0,847          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.3             | 0,789          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.4             | 0,800          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.5             | 0,736          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.6             | 0,738          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.7             | 0,847          | 0,787       | 0,613      | <b>VALID</b>       |
|                                                             | Y.8             | 0,806          | 0,787       | 0,613      | <b>VALID</b>       |

Based on the results of the convergent validity test in the table above, all indicators in the variables Total Quality Management Implementation (X1) and SDGs-Based Stakeholder Satisfaction (X2) are declared valid. This is indicated by the outer loading values, which are mostly above the minimum threshold of 0.70, although there is one indicator, namely X.7, with a value of 0.508 that is still acceptable because it is above the minimum tolerance threshold of 0.50 in exploratory analysis (Hair et al., 2021). In the Total Quality Management Implementation variable, the highest outer loading value is found in indicator X.1 at 0.815, indicating that this indicator is the strongest representation in explaining the construct. Meanwhile, the lowest value is found in indicator X.7 at 0.508, but it still meets the validity requirements. As for the SDGs-Based Stakeholder Satisfaction variable, the outer loading values range from 0.688 to 0.847, with indicators Y.2 and Y.7 having the highest contribution at 0.847. This shows the consistency of the indicators in representing the measured construct. values range from 0.688 to 0.847, with indicators Y.2 and Y.7 having the highest contribution at 0.847. This shows the consistency of the indicators in representing the

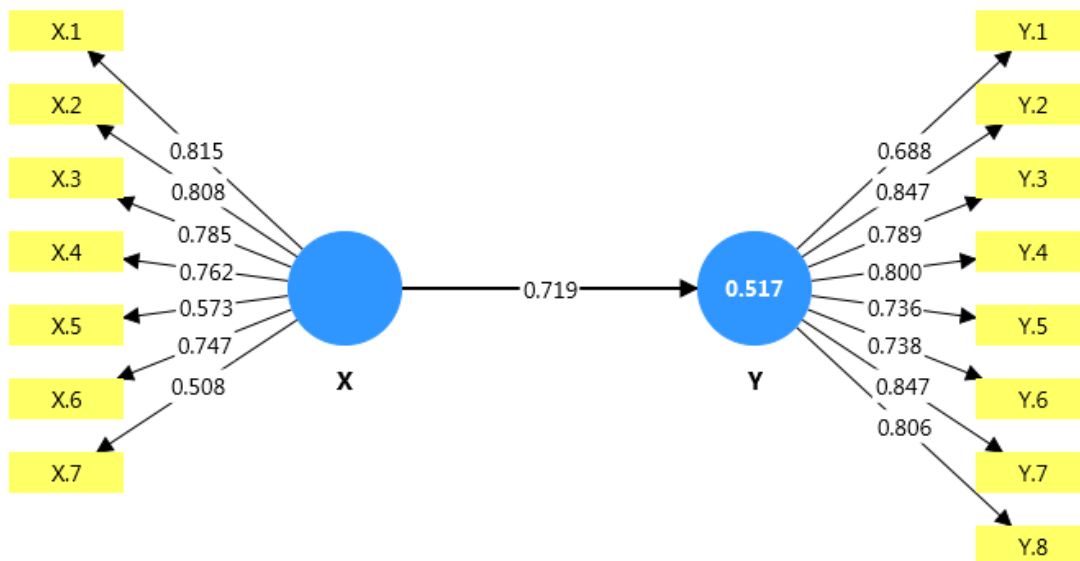
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measured construct.

In addition, the Average Variance Extracted (AVE) value for the Total Quality Management Implementation variable is 0.523, while for the SDGs-Based Stakeholder Satisfaction variable it is 0.613. Both values exceed the minimum threshold of 0.50, so it can be concluded that the constructs have good convergent validity and are able to explain more than 50% of the variance of their indicators. The HTMT value of 0.787 also indicates that the constructs in this study have adequate discriminant validity, as it is still below the threshold of 0.90. Therefore, all indicators in this study are suitable for further analysis.

### B. Results of Structural Model Testing (Inner Model)

Based on the structural model diagram above, it can be seen that this study consists of two latent constructs, namely the Implementation of Total Quality Management (X) as the independent variable and SDGs-Based Stakeholder Satisfaction (Y) as the dependent variable. The Implementation of Total Quality Management variable is measured through seven indicators (X.1–X.7), while the SDGs-Based Stakeholder Satisfaction variable is measured through eight indicators (Y.1–Y.8). The outer loading values for each indicator show the level of contribution of the indicators in reflecting the latent construct. In the Integrated Quality Management Implementation variable, the outer loading values range from 0.508 to 0.815, indicating that most indicators have a good ability to explain the research construct.



Meanwhile, in the SDGs-Based Stakeholder Satisfaction variable, the outer loading values range from 0.688 to 0.847, which indicates that all indicators have a strong relationship with the measured variable.

**Figure 2.** Structural Model Estimation Results ( PLS Algorithm )

Furthermore, the path coefficient between the Integrated Quality Management

Implementation variable and SDGs-Based Stakeholder Satisfaction is 0.719. This value shows a fairly strong positive relationship, meaning that the better the implementation of integrated quality management in educational institutions, the higher the level of stakeholder satisfaction aligned with the principles of the Sustainable Development Goals (SDGs). In addition, the R-square ( $R^2$ ) value of 0.517 for the Stakeholder Satisfaction variable indicates that 51.7% of the variation in stakeholder satisfaction can be explained by the implementation of integrated quality management, while the remaining 48.3% is influenced by other factors outside the research model.

### C. Research Hypothesis Testing Results

**Table 3.** Research hypothesis Testing Results

| <i>Hypothesis</i> | <i>Path coefficients</i>                                                                                                                                             | <i>T-Statistics</i> | <i>P-Value</i> | <i>Verdict</i>          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|-------------------------|
| H1                | The implementation of integrated quality management has a positive and significant effect on stakeholder satisfaction based on the SDGs in educational institutions. | 3,968               | 0,000          | <b><i>Supported</i></b> |

Based on the results of hypothesis testing, a T-statistics value of 3.968 was obtained, which is greater than the critical value of 1.96, indicating that the relationship between the variable of Total Quality Management Implementation and SDGs-Based Stakeholder Satisfaction is statistically significant. In addition, the P-value of 0.000, which is smaller than the significance level of 0.05, further strengthens that the observed effect is not due to chance, but has real statistical meaning. Thus, hypothesis H1, which states that the implementation of total quality management has a positive and significant effect on SDGs-based stakeholder satisfaction in educational institutions, is declared accepted (supported).

### Discussion

#### **The Implementation of Total Quality Management Has a Positive and Significant Effect on Stakeholder Satisfaction Based on SDGs in Educational Institutions**

The research results show that the implementation of integrated quality management has a positive and significant effect on stakeholder satisfaction based on the SDGs in educational institutions. This is evidenced by a path coefficient value of 0.719, which indicates a positive relationship in the strong category. In addition, the T-statistics value of 3.968 is greater than 1.96, and the P-value of 0.000 is smaller than 0.05, so the research hypothesis is accepted.

These findings indicate that the more optimal the implementation of integrated quality

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management in educational institutions, the higher the level of stakeholder satisfaction oriented toward the principles of the Sustainable Development Goals (SDGs). Theoretically, these research results are in line with the concept of Total Quality Management (TQM), which emphasizes continuous improvement, the involvement of all elements of the organization, a focus on customers or stakeholders, and consistent improvement of service quality. In the context of education, stakeholders include students, teachers, education staff, parents, the community, and the government as users of educational services. When educational institutions are able to systematically implement a quality culture, educational services become more effective, responsive, and aligned with stakeholder needs. These research findings also reinforce stakeholder theory, which states that organizational success is strongly influenced by an institution's ability to meet the needs and expectations of its stakeholders. Research (Garvare& Johansson, 2010) explains that stakeholder-based management is closely related to organizational sustainability and the achievement of sustainable development goals. The study emphasizes that a stakeholder-oriented quality approach can support institutional sustainability through increased user satisfaction. In addition, these results are relevant to research (Shams, 2017), which explains that the implementation of stakeholder-based TQM in educational institutions can strengthen the quality of educational services and increase stakeholder satisfaction. The study emphasizes that a good relationship between educational institutions and stakeholders is an important factor in the successful implementation of educational quality. These findings are also supported by research (Sonia, 2021), which states that the implementation of Total Quality Management in education contributes to increasing customer or stakeholder satisfaction. TQM is seen as capable of building a quality culture, improving service quality, and strengthening stakeholder loyalty to educational institutions. Furthermore, research (Pan et al., 2022) also shows that a stakeholder-centered approach in education can improve the quality of higher education management and support the sustainability of the education system. The study emphasizes that stakeholder satisfaction is an important indicator in evaluating the quality of modern education. From the SDGs perspective, particularly Goal 4, namely Quality Education, the implementation of integrated quality management is one of the key strategies in creating quality, inclusive, and sustainable education. Proper quality implementation does not only focus on academic outcomes but also on service quality, management transparency, stakeholder participation, and the sustainability of the education system. Therefore, these findings indicate

## **Conclusion**

Based on the research results, it can be concluded that the implementation of total quality

management has a positive and significant effect on SDGs-based stakeholder satisfaction in educational institutions. The analysis results show a path coefficient value of 0.719, indicating a strong positive relationship between the two variables. In addition, the T-statistics value of 3.968 and the P-value of 0.000 indicate that the effect is statistically significant. Thus, the research hypothesis stating that the implementation of total quality management has a positive and significant effect on SDGs-based stakeholder satisfaction is accepted. This study shows that the application of total quality management principles, such as continuous improvement, stakeholder focus, involvement of all organizational elements, and improvement of the quality of educational services, can increase stakeholder satisfaction within the educational institution environment. Good quality implementation also contributes to supporting the achievement of the Sustainable Development Goals (SDGs), particularly in the goal of quality education (Quality Education). The better the quality system implemented, the higher the level of trust, satisfaction, and support from stakeholders toward the educational institution.

In addition to providing theoretical contributions to the development of educational management studies, this research also offers practical implications for educational institutions to pay greater attention to strengthening a culture of quality and stakeholder involvement in every educational management process. Continuous improvement in the quality of educational services becomes one of the important strategies in creating adaptive, competitive, and sustainability-oriented educational institutions. For future research, it is recommended to expand the scope of study across various types and levels of educational institutions so that the findings can have broader generalizability. Future studies may also include other variables that potentially influence stakeholder satisfaction, such as leadership, organizational culture, quality of human resources, digital transformation in education, and the effectiveness of educational services. In addition, the use of a mixed methods approach is also recommended so that research not only obtains quantitative data but is also able to explore experiences, perceptions, and the dynamics of quality management implementation more deeply.

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**Name** : MUHAMMAD FAKHRI NAUFAL

**Student ID Number** :2381090086

**Affiliate** : UNIVERSITAS ISLAM NEGERI SIBER SYEKH NURJATI  
CIREBON

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[Cirebon, November 11, 2026] Author

**(Muhammad FakhriNaufal)**

## **Biografi Penulis**

**Muhammad Fakhri Naufal** adalah seorang mahasiswa program Manajemen Pendidikan Islam Fakultas Ilmu Tarbiyah dan Keguruan, Universitas Islam Negeri (UIN) Syekh Nurjati Cirebon, Jawa barat, indonesia. Minat akademiknya mencakup topik, (manajemen keuangan, manajemen konflik, manajemen kurikulum, manajemen perencanaan).

**Alamat:** Graha Citalang, Rt/Rw. 026/006, Kel/Desa. Citalang, Kec/Kab. Purwakarta, 41111

Email: [mfakhrinaufal@mail.syekhnurjati.ac.id](mailto:mfakhrinaufal@mail.syekhnurjati.ac.id)

**Siti Nurul Khotimah** adalah seorang mahasiswa program Manajemen Pendidikan Islam Fakultas Ilmu Tarbiyah dan Keguruan, Universitas Islam Negeri (UIN) Syekh Nurjati Cirebon, Jawa barat, indonesia. Minat akademiknya mencakup topik, (manajemen keuangan, manajemen konflik, manajemen kurikulum, manajemen perencanaan).

**Alamat:** Desa Buntet, Rt/Rw. 05/01. Kec. Astanajapura, Kab. Cirebon, 45181

Email: [sitinurul@mail.syekhnurjati.ac.id](mailto:sitinurul@mail.syekhnurjati.ac.id)