

Role of Total Quality Management in Digital Literacy for Management Institutes of Odisha

Pritidhara Hota, Global Institute of Management, Bhubaneswar, India*

Bhagirathi Nayak, Sri Sri University, India

Sunil Mishra, Nalanda Institute of Technology, India

ABSTRACT

In every country's higher education, the management education bears special importance to shape the growth and development of the country as the managers who are the end product of the management institutes take the major responsibilities of making any organization success or failure. This paper explores the role of different stakeholders, specifically the external stakeholders, in implementing total quality management in management institutes. This study identifies the major external stakeholders of the management study and uses an empirical survey taking all the external stakeholders as the unit of the survey. For a collection of data, a total of 40 questions were asked, which come under eight major factors. The principal component methods (PCA) and ANOVA test are used for the data analysis. The result shows the positive impact of different components of TQM on external stakeholders. To ensure quality from the external stakeholder perspective, every management institute has to think about building a quality culture in the organization involving everyone.

KEYWORDS

Digital Literacy, Management, Stakeholders, TQM

1. INTRODUCTION

The quality of education prepares the building blocks of every nation. The underlying quality of education not only decides the economic benefit of the people but also the overall benefit of the society as a whole (Babbar, 1995). We cannot undermine the importance of elementary education to make the people and nation literate but higher education is the professional education that contributes towards nation-building by producing the professionals, who rule the nation and visualize taking the nation into a newer horizon. This objective can be achieved through improving and building the quality at the professional educational level. Quality improvement is a continuous and constant process therefore; the perception of all the stakeholders should be priorities (Murad & Rajesh, 2010). The achievement of Total Quality culture is the sole responsibility of its different stakeholders like principal (representative of management), administrator, faculty, support staff, students, alumni, parents, and society at large.

DOI: 10.4018/IJeC.316775

*Corresponding Author

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

External stakeholders (alumni, employers, parents) are more concerned to reach the quality goal. Here quality assurance means to achieve a planned and systematic result which is essential to build the required confidence that the end product will meet the quality requirement adequately (Borahan and Zirati, 2002). This also focuses on taking the accountability for different resources available and the efficient and effective utilization of the resources and in the way for people. Usually, the quality assurance is done by different external bodies like UGC, AICTE in the process of accreditation and involvement of everyone.

Many researchers have given their view regarding stakeholders of professional education; we can conclude that stakeholders are those persons who have an interest in providing, managing, using, and delivering the product and service, from this angle the different stakeholders of management institute can be broadly categorized into internal and external stakeholders. The internal stakeholders include the principal (representative of management), teaching and non-teaching staff, and most importantly the students. The external stakeholders include the Alumni, parents, and employers. The main objective of the study is to decide how quality is identified by different groups of external stakeholders, namely alumni, parents, and employers, to measure the effectiveness and impact of TQM implementation in professional institutes. The general principles of TQM with its major components like the quality of competencies, Student performance, knowledge of curriculum, career aspiration, social and ethical concern, transparency in the process, holistic development, and supportive environment. Also, the prime purpose of the study is to increase the quality of the professional institutes and identify the different means to achieve it.

2. LITERATURE REVIEW

It is the quality of the education system that determines the future growth and development of any nation. It helps in eradicating illiteracy which in turn leads to reduce ignorance and enhance our vision to reach different dimensions to decide the right and wrong more accurately. Management education focuses on people seeing the world in a rational way for the benefit of all. Student pursues the professional education basically the management education with the prime objective to shape their career and job prospective and also it helps to develop the character and knowledge, so professional education acts as an important driver for the social and economic growth and development of any country. The following literature tries to represent briefly the importance of diverse stakeholders of management institutions and the different perspective of the major external stakeholders.

Mulimani V.H. (2010) in his study described the present status of higher education in India and tried to provide suggestions for its improvement. A critical analysis of the status of higher education shows that it is not fulfilling the actual role and responsibilities to achieve the desired result. According to his study higher education losing its essence, mission, and motivation unless all the stakeholders like the planner, policymakers, and the people responsible for the implementation are not able to support its thrust in a constructive direction, it cannot achieve its goal in long run. Neetha, J. Eappen (2008) The research paper "Total Quality Management in Education" analyzed the basic concept and principles of quality and the major role and responsibilities the different stakeholders play in achieving quality. This paper emphasized quality as a significant determinant to differentiate between success and failure and poor and excellent. She also states that quality education is not just a choice now it is the need of the hour to inbuilt total quality culture to get the reform and change in the field of education and this change is only possible through Total quality management.

Total Quality Management helps to make the curriculum and students ready according to the requirements of the industry. Subimal Kumar Chatterjee (2011) in his study "quality crisis in college education" recognized the main cause for the poor quality of higher education is the mushrooming growth of Universities and affiliated colleges over a certain period without

sustaining the quality. Adding to this main cause the other two important causes which are very common to most professional education institutes are the lack of quality teaching and non-teaching staff and lack of quality lab and library. The different suggestions given by him can be summarized as there should be proper control over the new enrolment of students and the new establishment that should be done based on adequate infrastructure, the focus should be given for proper linkage between the industry and the institutions for training and placement and inter-college bonding need to be enhanced.

The philosophy of TQM has been adopted as a management paradigm by many organizations worldwide. If you move to the history of the quality movement then it was first introduced in the manufacturing industry after its successful implementation it was slowly introduced in the service sector to get the competitive advantages. The model of TQM focuses on building quality culture in every sphere of the organization in a continuous basis with important component as top management commitment, customer focus, supplier quality management, training and development, employee engagement, etc. (Murad & Rajesh, 2010).

Total Quality Management (TQM) is all about integrating each and everyone i.e all the patterns, procedures, processes, people in any way to produce a quality product and service to get maximum customer satisfaction (Stanciu, 2003). The prime vision of TQM is to build within the organization a. culture in which all the resources can be utilized effectively and efficiently to meet the competition in the competitive era and achieve its objective in the long run (Vinni, 2011).

3. EFFECTS FOR MANAGEMENT EDUCATION

In India, the standard of management education does not follow a usual distribution curve. Top business schools in India have a long history of providing high-quality education and strive to achieve international standards. Entrepreneurs, on the other hand, typically run schools that are primarily educational and place a greater emphasis on business objectives than academics and student development. Companies in India are spending more money on educating their management graduates, indicating a desire to improve quality. According to estimates, the company offers an average of two months' wages to new hires for the development of certain abilities that business workers need.

Because demand has consistently surpassed supply, the need to improve the standard of training programmes had not been heavily highlighted until lately. In India, recent improvements in management education are anticipated to foreshadow qualitative growth. Most business schools have been unable to fill their seats for the entire academic year. Because supply exceeds demand, business schools are forced to focus on providing high-quality education. The necessity for more engagement with industry to assure the currency of course content, as well as the organizational constraints involved with attracting high-quality teachers and students, are all challenges in management education.

The relevance of managerial training in the Indian setting, the topics to be discussed, and how things are presented must all be emphasized in business schools. A complete coverage plan must be developed for each issue. Because management is a practical discipline, management training must include a component of on-the-job training. For topics like organizational strategy, market planning, business negotiations, management, business ethics, and teamwork, a mix of concepts, cases, exercises, and simulations will be required. TQM at management institutes entails the integration of many activities that contribute to world-class management education. As a result, various stakeholders must identify various key factors. In management education, there are a variety of stakeholders, such as students, professors, and administrators. Students, alumni, parents, and recruiters, faculty, employers, government, community, and administrators all have distinct expectations, and the system has varied means of interacting with them. Stakeholders' service goods are also likely to differ.

4. METHODOLOGY

TQM is an evolving concept, transforming itself into new concepts and development methods, and a set of principles, which are the foundation of an organization that is continuously improving. TQM employs the quantitative method and human means to improve the delivery of materialization services to an organization, the entire organizational process, and the extent to which consumer needs are met both now and in the future. The concepts such as leadership, respect, integrity, honesty, commitment, customer satisfaction, openness, and good ethics, clarity of vision, problem resolution, constant improvement, full participation, training and education, problem ownership, awards and acknowledgment, prevention of errors, teamwork, the instinct of motivation, coherence and good communication are the foundations of the TQM. We can find that there are many principles or concepts while reviewing the literature, sometimes with different words that explain the same idea. The need for a systematic, efficient methodology for improvements of the quality in management institutions is driven by this research document. In a Management Institute, there is no methodology for complete quality management (TQM) programmes. This study aims to develop a TQM methodology and its impact, which allows management institutions to develop comprehensive total quality management (TQM) plan efficiently. This research focuses on improving the quality of the Management Institutes of Odisha, the study of the best-quality perceived institutes, and the rankings of management institutes. There is no evidence of research into how the main contribution of this study is to plan an integral quality-enhancement initiative for management institutes as a whole.

This research is based on several TQM reference models and academic criteria from Management Institutions of Odisha. A major three-stages proposes TQM methodology and the proposed methodology guides the user to develop a TQM plan in few sequential phases. The proposed methodology guides the user to develop a TQM for initiation, evaluation, analysis, preparation, and acceptance. The application of quality concepts in education and higher education is special because it is necessary to take into account unique factors in education. The quality dimensions in Management Institutions are shaped by these factors and are the key factors in the method.

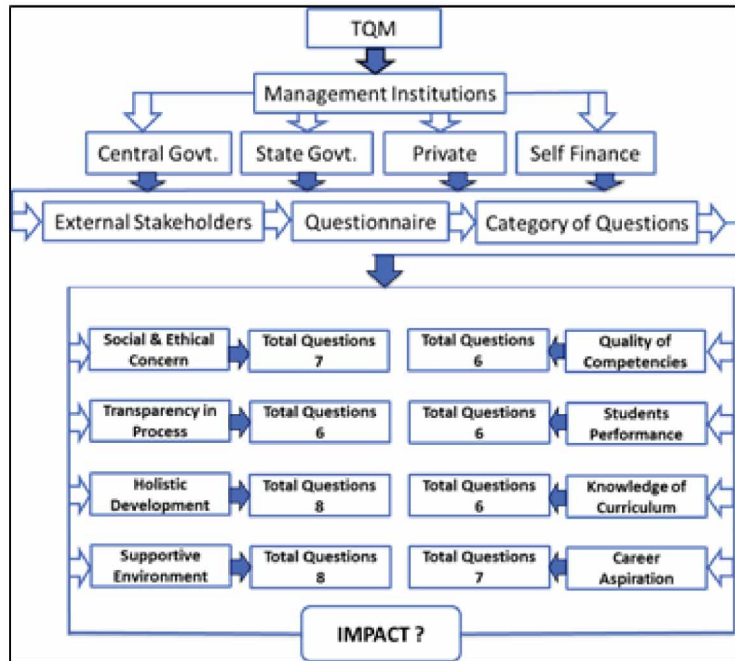
4.1 Conceptual Model

The said model was constructed for Total Quality Management (TQM). In this model, we did four steps. In the first step, the all Management Institutions of Odisha are divided into four categories, Central Government Institutions, State Government Institutions, Private Institutions, and Self Finance Institutions. In the second step, within these categories, we have separated into Internal stakeholders and external stakeholders. In the third step, we developed a questionnaire, and last but not least. In the fourth step, we did a category of questions. The above figure (1) has shown the conceptual model of Internal Stakeholders with ten categories: i) Social & Ethical Concern with a total of seven questions, ii) Transparency in Process with a total of six questions, iii) Holistic Development with a total of eight questions, iv) Supportive Environment with a total of eight questions, v) Quality of Competencies with a total of six questions, vi) Students Performance with a total of six questions, vii) Knowledge of Curriculum with a total of seven questions, viii) Career Aspiration with a total of four questions.

5. OBJECTIVES AND CONSTRUCTED HYPOTHESIS

This study presents two objectives which follow the main hypothesis of integrating all quality outcomes of said criteria, as well as there are five major key sub-hypotheses constructed for measuring the relationship between quality performance indicators and TQM implementation to better understand how TQM practices quality performance is directly related to external stakeholders. Here we have constructed all the main, and sub hypotheses.

Figure 1. Conceptual model of External Stakeholders



5.1 Main Hypothesis

H0: TQM Implementation has no significant impact on External Stakeholders.

Ha: TQM Implementation has a significant impact on External Stakeholders.

5.1.1 Sub Hypothesis

HA0: TQM Implementation has no significant impact on Social & Ethical Concerns.

HAa: TQM Implementation has a significant impact on Social & Ethical Concerns.

HB0: TQM Implementation has no significant impact on Transparency in the Process.

HBa: TQM Implementation has a significant impact on Transparency in the Process.

HC0: TQM Implementation has no significant impact on a Supportive Environment.

HCa: TQM Implementation has a significant impact on a Supportive Environment.

HD0: TQM Implementation has no significant impact on the Quality of Competencies.

HDa: TQM Implementation has a significant impact on the Quality of Competencies.

HE0: TQM Implementation has no significant impact on Students Performance.

HEa: TQM Implementation has a significant impact on Students Performance.

6. DATA ANALYSIS AND FINDINGS

We have used statistical analytic approaches to prove our hypothesis. Our external stakeholder survey collected primary data and consisted of 8 major questions as well as additional questions for each group. External stakeholders from Odisha's public and private management institutions conducted the survey. Variance analysis (ANOVA) is a statistical procedure that divides data structures and suspected random variables into two components and examines cumulative variation. Random variables have

a little statistical impact on data collecting, but systematic factors do. First, a PCA of all relevant components is performed, followed by an ANOVA Hypothesis Test.

6.1 Main Hypothesis (H0, and Ha)

6.1.1 Principal Components Analysis (PCA) of External Stakeholders

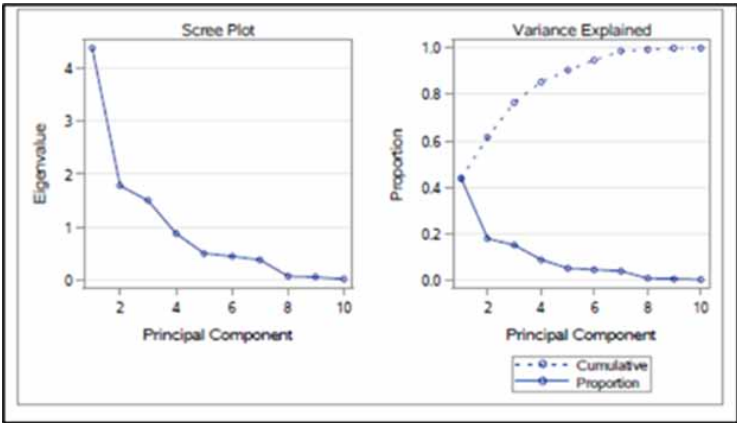
As per the Principal Component Analysis in Table 1, the factors are “Alumni: Quality Performance Indicator (ALM_QPI)”, “Alumni: Quality on Organisational Performance (ALM_QOP)”, “Parents: Social & Ethical Concern (PAR_SEC)”, “Parents Transparency in Process (PAR_TIP)”, “Parents: Holistic Development (PAR_HD)”, “Supportive Environment (PAR_SE)”, “Employer: Quality of Competencies (EMP_QOC)”, “Employer: Students Performance (EMP_SP)”, “Employer: Career Aspiration (EMP_CA)”, “Employer: Knowledge of Curriculum (EMP_KOC)”.

After Principal Components Analysis (PCA) we got all factor’s mean values or weights are quite good and the following Scree Plot (Figure 2) also shown quite good. So we can consider all factors for our further ANOVA test to finding the Impact of External Stakeholders and the hypothesis has been demonstrated.

Table 1. Principal Components Analysis of External Stakeholders

| Simple Statistics | | |
|-------------------|-------|-------|
| Variables | Mean | StD |
| ALM_QPI | 3.852 | 3.807 |
| ALM_QOP | 3.807 | 0.599 |
| PAR_SEC | 4.063 | 0.527 |
| PAR_TIP | 3.954 | 0.652 |
| PAR_HD | 4.073 | 0.504 |
| PAR_SE | 3.877 | 0.561 |
| EMP_QOC | 3.623 | 0.772 |
| EMP_SP | 3.923 | 0.731 |
| EMP_CA | 3.959 | 0.711 |
| EMP_KOC | 3.731 | 0.747 |

Figure 2. Scree Plot of External Stakeholder



6.1.2 ANOVA TEST

As per ANOVA Table 2, the “F” value is 9.91, which is quite decent, and the “P” value is <0.0001, which is less than 0.05 of significance. The fit statistics (Figure 3) showing the Mean Square Error (MSE) is 0.4205, R-Square is 0.0409, and Adjusted R-Square is 0.0368 these values are also pretty good and acceptable. The box plot (Figure 4) also shows the “F” value is 9.91, and the “P” value is <0.0001, which is significant. So, we can demonstrate our hypothesis. Therefore, the null hypothesis H0: “TQM Implementation has no significant impact on External Stakeholders” is rejected, whereas the alternative hypothesis Ha: “TQM Implementation has a significant impact on External Stakeholders”

Table 2. ANOVA table of External Stakeholders

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|----------------|-------------|----------------|--------|
| Model | 9 | 37.4978868 | 4.1664319 | 9.91 | <.0001 |
| Error | 2090 | 878.8589614 | 0.4205067 | | |
| Corrected Total | 2099 | 916.3568683 | | | |
| R-Square | | Coeff Var | Root MSE | RESPONSES Mean | |
| 0.040 | | 16.68460 | 0.648465 | 3.886607 | |

Figure 3. Fit Statistics of External Stake Holder

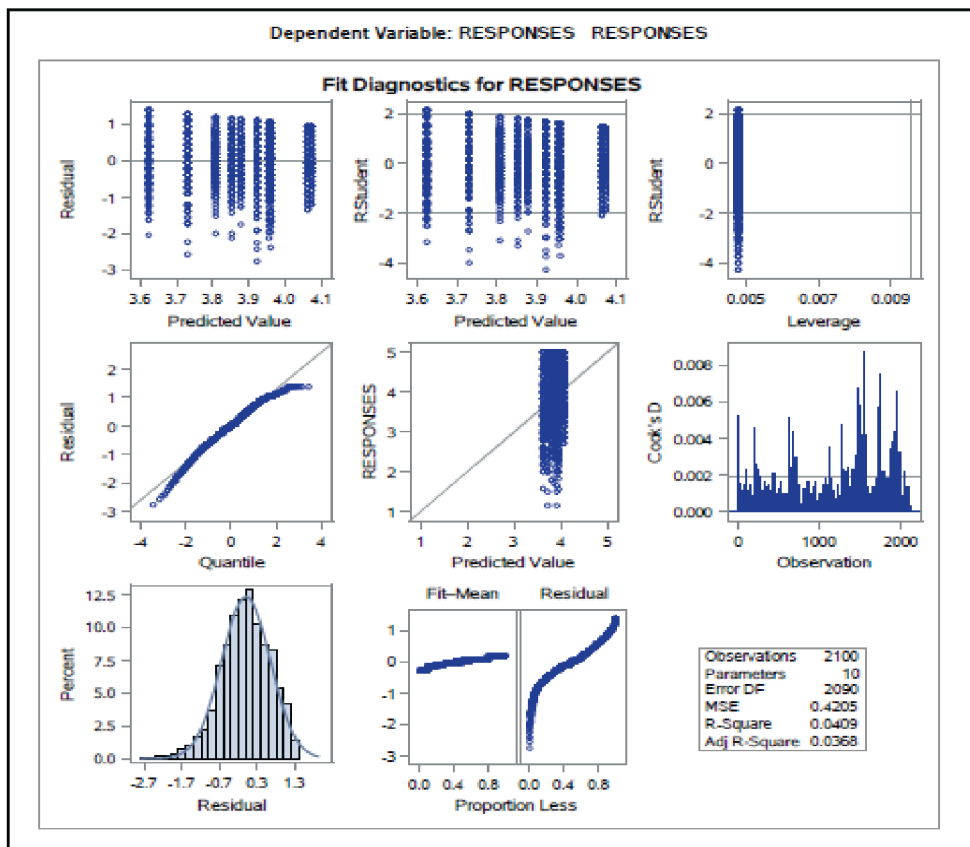
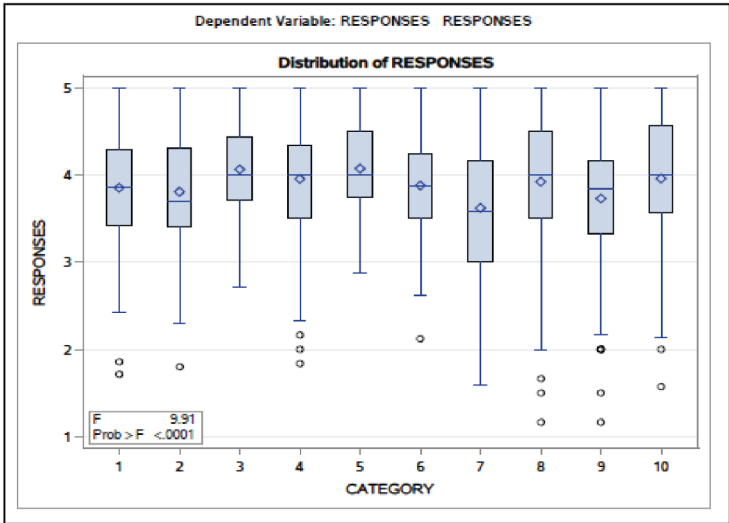


Figure 4. Box Plot of External Stake Holder



is accepted. It is indicated that there is a significant impact, and it also means that there is a sign of the impact of External Stakeholders in the TQM implementation in Management Institutions.

6.2 Sub Hypothesis (HA0, HAa)

As per ANOVA Table 3, the “F” value is 2.35, which is quite OK, and the “P” value is 0.0290, which is less than 0.05 of significance. The fit statistics (Figure 5) showing the Mean Square Error (MSE) is 0.686, R-Square is 0.0341, and Adjusted R-Square is 0.0302 these values are also pretty good and acceptable. The box plot (Figure 6) also shows the “F” value is 2.35, and the “P” value is 0.0290, which is significant. So, we can demonstrate our hypothesis. Therefore, the null hypothesis HA0: “TQM Implementation has no significant impact on Social & Ethical Concern.” is rejected, whereas the alternative hypothesis HAa: “TQM Implementation has a significant impact on Social & Ethical Concern” is accepted. It is indicated that there is a significant impact, and it also means that there is a sign of the impact of Social & Ethical Concerns in the TQM implementation in Management Institutions.

6.3 Sub Hypothesis (HB0, HBa)

As per ANOVA Table 4, the “F” value is 2.78, which is quite OK, and the “P” value is 0.0165, which is less than 0.05 of significance. The fit statistics (Figure 7) showing the Mean Square Error (MSE)

Table 3. ANOVA table of Social and Ethical Concern

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|----------------|-------------|------------|--------|
| Model | 6 | 13.699320 | 2.283 | 2.35 | 0.0290 |
| Error | 1463 | 1421.228571 | 0.971 | | |
| Corrected Total | 1469 | 1434.927891 | | | |
| R-Square | | Coeff Var | Root MSE | Score Mean | |
| 0.009547 | | 25.40081 | 0.985621 | 3.880272 | |

Figure 5. Fit Statistics of Social and ethical Concern

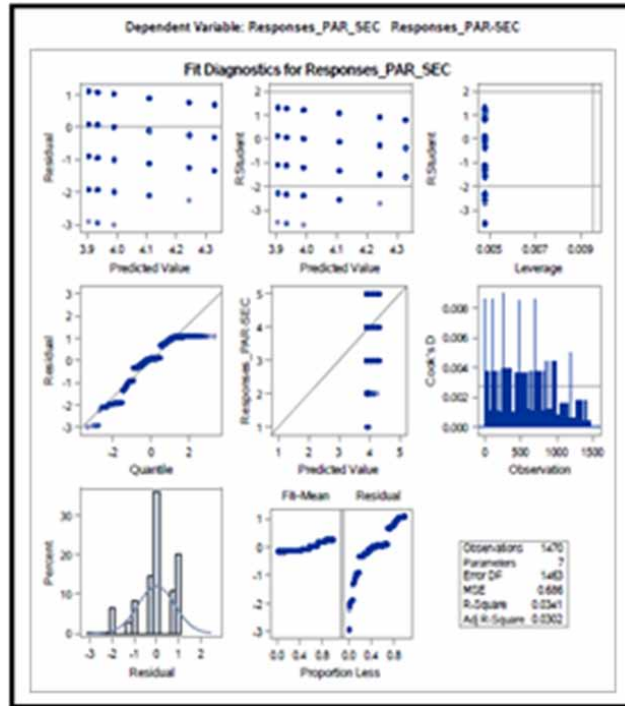
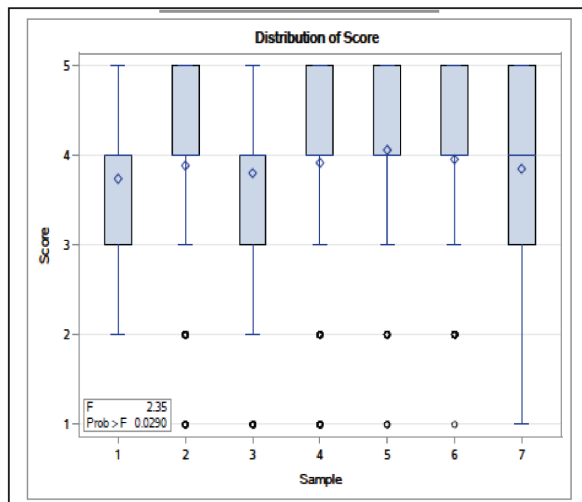


Figure 6. Box Plot of Social and Ethical Concerns

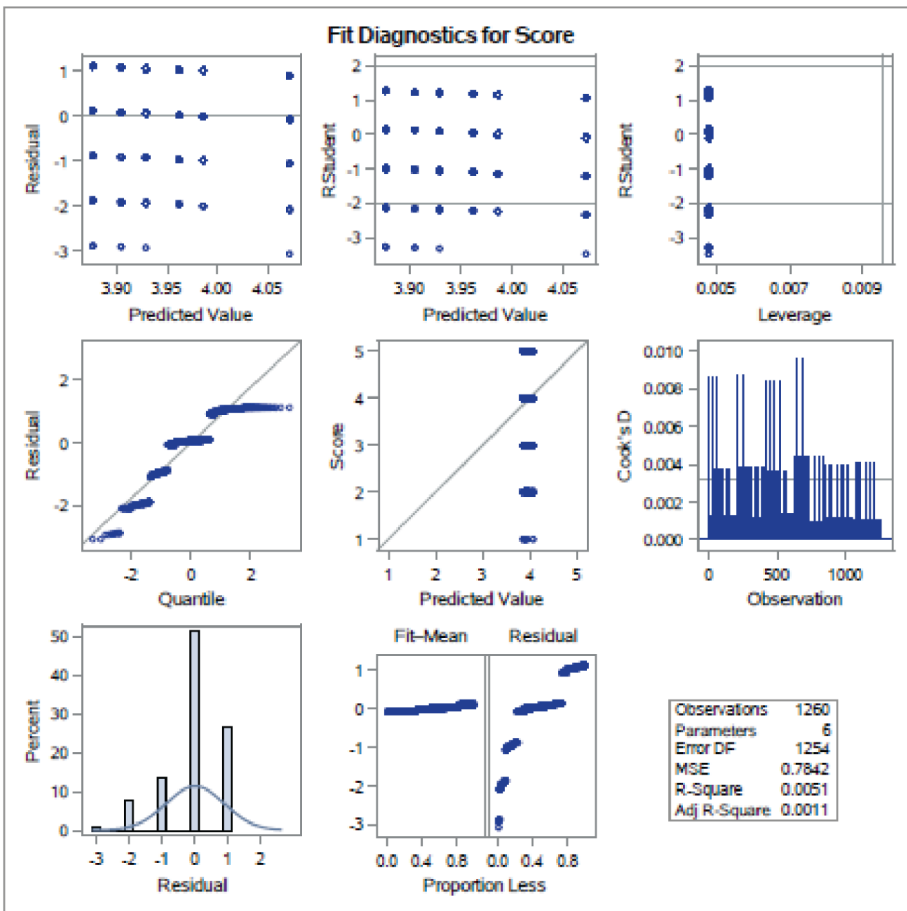


is 0.7248, R-Square is 0.0051, and the Adjusted R-Square is 0.0011 these values are also pretty good and acceptable. The box plot (Figure 8) also shows the “F” value is 2.78, and the “P” value is 0.0165, which is significant. So, we can demonstrate our hypothesis. Therefore, the null hypothesis H2D0: “TQM Implementation has no significant impact on Transparency in Process.” is rejected, whereas the alternative hypothesis H2Da: “TQM Implementation has a significant impact on Transparency in

Table 4. ANOVA table of Transparency in Process

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|----------------|-------------|------------|--------|
| Model | 5 | 13.587302 | 2.717460 | 2.78 | 0.0165 |
| Error | 1254 | 1224.361905 | 0.976365 | | |
| Corrected Total | 1259 | 1237.949206 | | | |
| R-Square | | Coeff Var | Root MSE | Score Mean | |
| 0.010976 | | 25.65995 | 0.988112 | 3.850794 | |

Figure 7. Fit Statistics of Transparency in Process



Process” is accepted. It is indicated that there is a significant impact, and it also means that there is a sign of the impact of Transparency in Process in the TQM implementation in Management Institutions.

6.4 Sub Hypothesis (HC0, HCa)

As per ANOVA Table 5, the “F” value is 0.74, which is too less, and the “P” value is 0.6406, which is greater than 0.05 of significance. So, it is not significant. The fit statistics (Figure 9) showing the

Figure 8. Box Plot of Transparency in Process

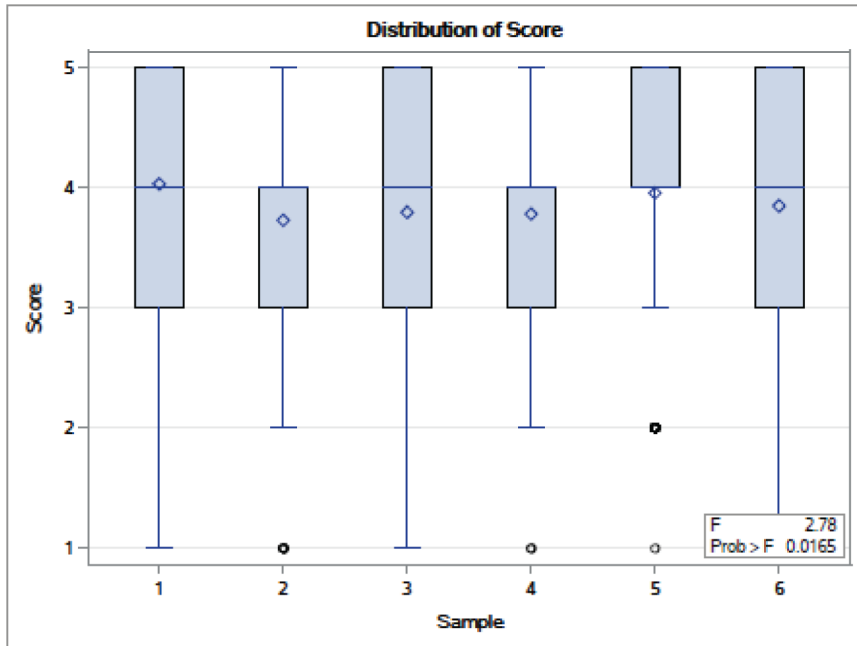


Table 5. ANOVA table of Supportive Environment

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|----------------|-------------|------------|--------|
| Model | 7 | 4.529612 | 0.647087 | 0.74 | 0.6406 |
| Error | 1671 | 1467.180930 | 0.878026 | | |
| Corrected Total | 1678 | 1471.710542 | | | |
| R-Square | | Coeff Var | Root MSE | Score Mean | |
| 0.003078 | | 23.64403 | 0.937030 | 3.963073 | |

Mean Square Error (MSE) is 0.878, R-Square is 0.0031, and the Adjusted R-Square is -0.001 this value also not acceptable. The box plot (Figure 10) also shows the “F” value is 0.74, and the “P” value is 0.6406, which is not significant. So, we can demonstrate our hypothesis. Therefore, the null hypothesis H_0 : “TQM Implementation has no significant impact on Supportive Environment.” is accepted, whereas the alternative hypothesis H_a : “TQM Implementation has a significant impact on Supportive Environment” is rejected. It is indicated that there is no significant impact, and it also means that there is a sign of the Supportive Environment is not that much impact on the TQM implementation in Management Institutions.

6.5 Sub Hypothesis (H_{D0} , H_{Da})

As per ANOVA Table 6, the “F” value is 2.78, which is quite OK, and the “P” value is 0.0165, which is less than 0.05 of significance. The fit statistics (Figure 11) showing the Mean Square Error (MSE) is 0.9764, R-Square is 0.0011, and Adjusted R-Square is 0.007 these values are also pretty good and acceptable. The box plot (Figure 12) also shows the “F” value is 2.78, and the “P” value is 0.0165, which is significant. So, we can demonstrate our hypothesis. Therefore, the null

Figure 9. Fit Statistics of supportive Environment

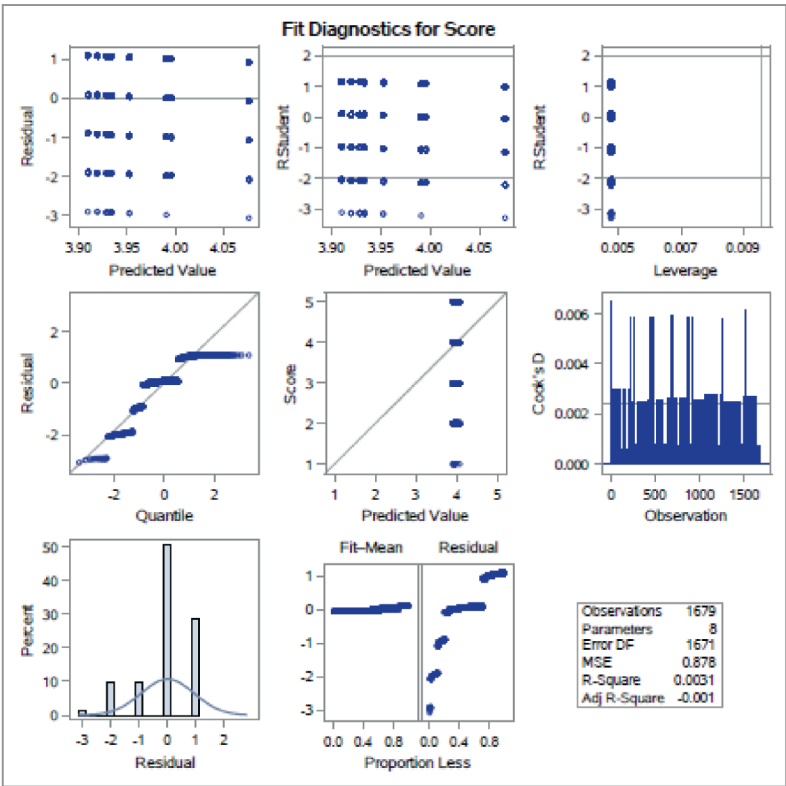


Figure 10. Box Plot of Supportive Environment

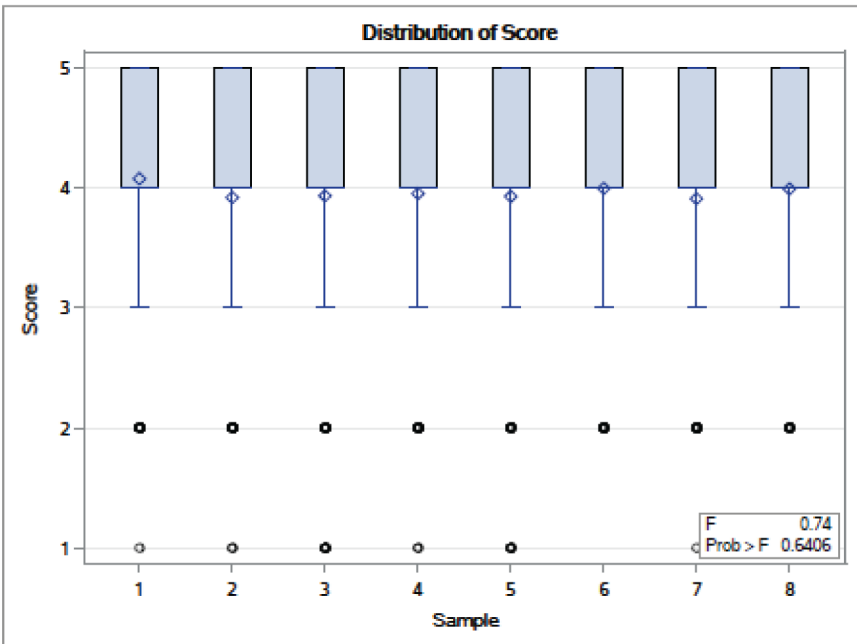
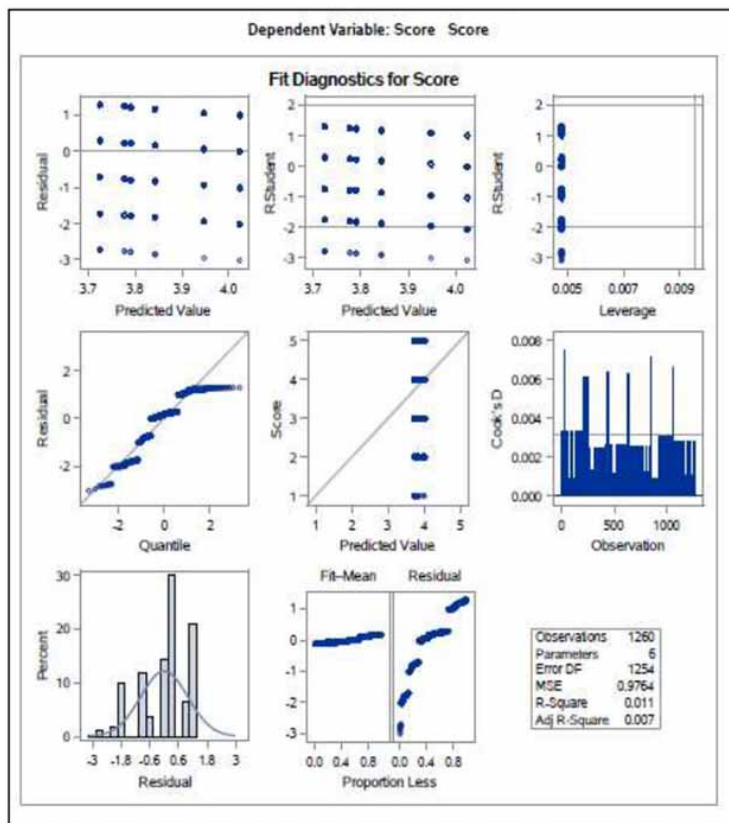


Table 6. ANOVA table of Quality of Competencies

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|------------------|-----------------|-------------------|--------|
| Model | 5 | 13.587302 | 2.717460 | 2.78 | 0.0165 |
| Error | 1254 | 1224.361905 | 0.976365 | | |
| Corrected Total | 1259 | 1237.949206 | | | |
| R-Square | | Coeff Var | Root MSE | Score Mean | |
| 0.010976 | | 25.65995 | 0.988112 | 3.850794 | |

Figure 11. Fit Statistics of Quality of Competencies



hypothesis H2G0: “TQM Implementation has no significant impact on Quality of Competencies.” is rejected, whereas the alternative hypothesis H2Ga: “TQM Implementation has a significant impact on Quality of Competencies” is accepted. It is indicated that there is a significant impact, and it also means that there is a sign of the impact of Quality of Competencies in the TQM implementation in Management Institutions.

6.6 Sub Hypothesis (HD0, HDa)

As per ANOVA Table 7, the “F” value is 2.71, which is quite OK, and the “P” value is 0.0191, which is less than 0.05 of significance. The fit statistics (Figure 13) showing

Figure 12. Box Plot of Quality of Competencies

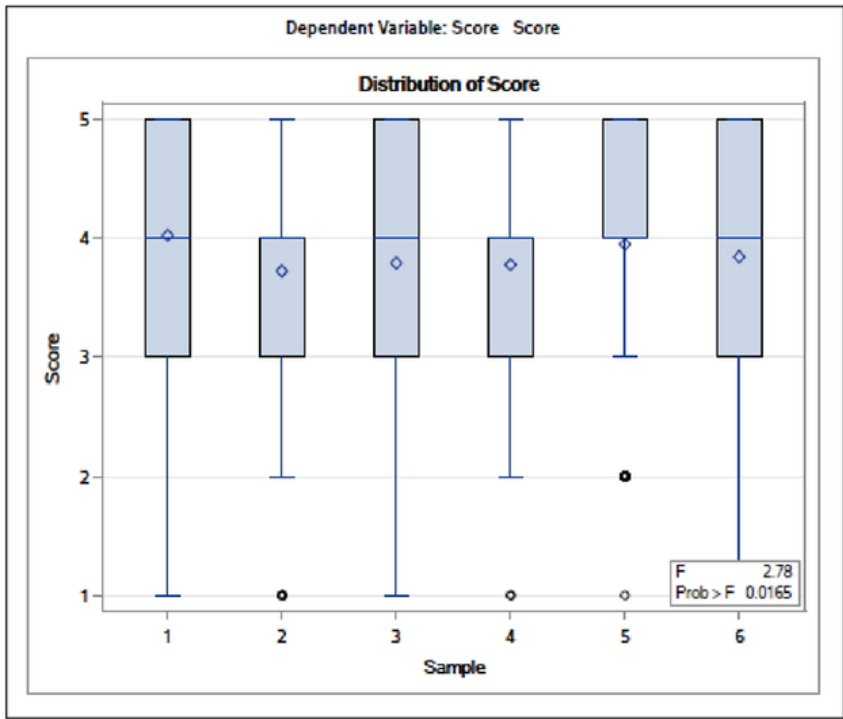


Table 7. ANOVA table of Students Performance

| Source | DF | Sum of Squares | Mean Square | F Value | Pr>F |
|-----------------|------|----------------|-------------|------------|--------|
| Model | 5 | 12.127778 | 2.425556 | 2.71 | 0.0191 |
| Error | 1254 | 1121.119048 | 0.894034 | | |
| Corrected Total | 1259 | 1133.246825 | | | |
| R-Square | | Coeff Var | Root MSE | Score Mean | |
| 0.010702 | | 23.86086 | 0.945534 | 3.962698 | |

the Mean Square Error (MSE) is 0.894, R-Square is 0.0107, and the Adjusted R-Square is 0.0068 these values are also pretty good and acceptable. The box plot (Figure 14) also shows the “F” value is 2.71, and the “P” value is 0.0191, which is significant. So, we can demonstrate our hypothesis. Therefore, the null hypothesis H2H0: “TQM Implementation has no significant impact on Students Performance.” is rejected, whereas the alternative hypothesis H2Ha: “TQM Implementation has a significant impact on Students Performance” is accepted. It is indicated that there is a significant impact, and it also means that there is a sign of the impact of Students Performance in the TQM implementation in Management Institutions.

Figure 13. Fit Statistics of Students Performance

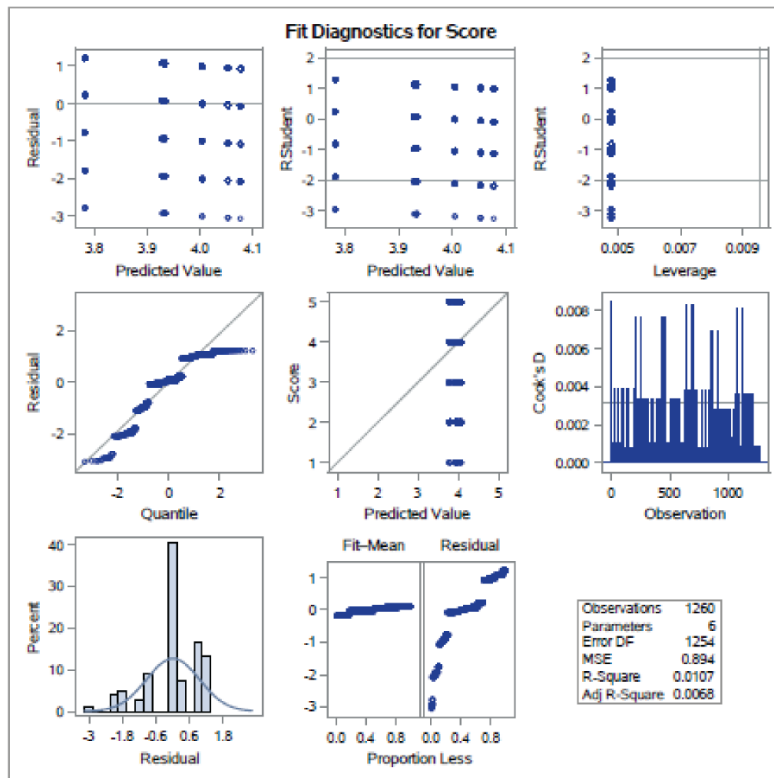
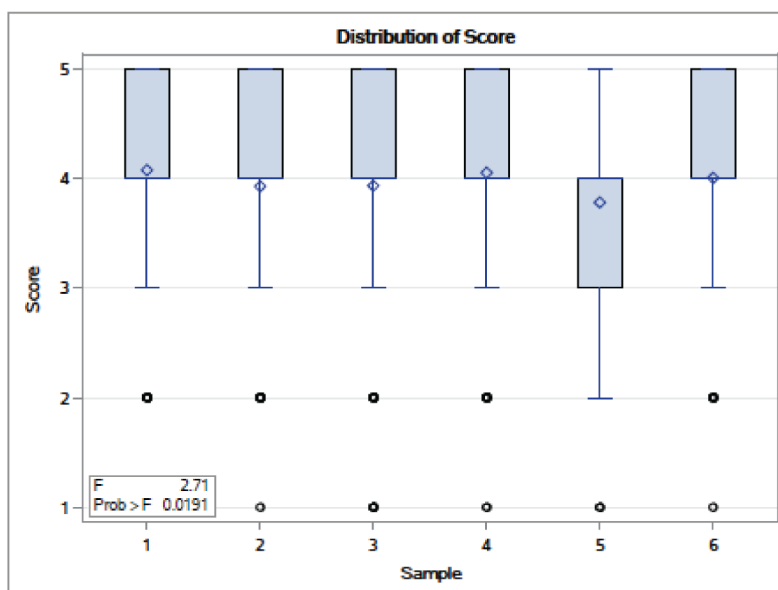


Figure 14. Box Plot of Students Performance



7. CONCLUSION

TQM is a relatively new concept in organizational theory as a management theory that has the potential to raise management theory to a new degree of comprehension. TQM is widely used in the business world as a management and planning tool. For educational institutions, this key management paradigm, which improves the quality of all operations of an organization, is a long process. The requirement for a TQM in education universities and institutions is critical since they must continually meet the standards of accrediting authorities and stakeholders for improving quality.

To assess quality in Odisha's management institutions, ten different quality characteristics have been selected, and answers from external stakeholders have been recorded on a 5-point Likert scale (poor to excellent). Based on a designed questionnaire on eight criteria with 54 accessible questions, primary data was collected from external stakeholders of all management institutes in Odisha. The results were analyzed using the key research elements Principal Components Analysis (PCA) and the ANOVA test. As a result, we can see that TQM implementation has a considerable impact on external stakeholders in management institutions in several scenarios, except a supportive environment.

External stakeholders believe that top-level dedication and leadership in Odisha's selected management institutes are not very encouraging. The results also suggest that the primary issues that management organizations confront on internal stakeholders are a lack of staff engagement, employee knowledge and dedication, inadequate structure, and a lack of resources. TQM should be continued by management institutes with all of their factors to improve efficiency. It should raise staff involvement, engagement, and understanding of TQM, improve the Institute's structure, and give solutions for addressing the hurdles that obstruct successful TQM implementation.

REFERENCES

- Ali, M., & Shastri, R. K. (2010). Implementation of Total Quality Management in Higher Education. *Asian Journal of Business Management*, 2(1), 9–16.
- Ashari, I. M., & Mohamed, Z. (2012). Sustaining TQM: A Synthesis of The Literature and a Proposed Research Framework. *International Journal of Applied Strategic Management*, 2(2).
- Babbar. (1995). Applying total quality management to educational instruction: A case study from a US public university. *International Journal of Public Sector Management*, 8(7), 35-55.
- Brun, A. (2011). Critical success factors of Six Sigma implementations in Italian companies. *International Journal of Production Economics*, 131(1), 158–164. doi:10.1016/j.ijpe.2010.05.008
- Chang, C. C., Chiu, C. M., & Chen, C. A. (2010). The Effect of TQM Practices on Employee Satisfaction and Loyalty in Government. *Journal of Total Quality Management*, 21(12), 1299–1314. doi:10.1080/14783363.2010.530796
- Hickman, L., & Akdere, M. (2017). Stakeholder Theory: Implications for Total Quality Management in Higher Education, *International conference on lean six sigma for higher education*, 105-109
- Hota, P., Nayak, B., Mishra, S. K., & Sarangi, P. (2021). Management Techniques and Methods of Total Quality Management Implementation in Management Institutions of Odisha. *International Journal of Computer Applications in Technology*, 239–246.
- Hota, P., Nayak, B., & Sarangi, P. (2020). Integration of total quality management principles to enhance quality education in management institutions of Odisha. *Materials Today: Proceedings*. 10.1016/j.matpr.2020.10.129
- In'airat, M. H., & Amer Hani Al-Kassem, A. H. (2014). Total Quality Management in Higher Education: A Review. *International Journal of Human Resource Studies*, 4(3), 294–307.
- Koilakuntla, M., & Vishal, S. P., Modgil, & Ekkuluri, P. (2012). A Research study on Estimation of TQM 'Factors Ratings' through Analytical Hierarchy Process. *Procedia Economics and Finance*, 3, 55–61.
- Kosgei, J. M. (2014). Challenges Facing the Implementation of Total Quality Management in Secondary Schools: A Case of Eldoret East District, Kenya. *Global Journal of Human Resource Management*, 3, 12–18.
- Murad, A., & Rajesh, K. S. (2010). Implementation of Total Quality Management in Higher Education. *Asian Journal of Business Management*, 2(1), 9–16.
- Neeta, J. E. (2008). Total Quality Management in Education. *Rajagiri Management Journal*, 4(1), 154–171.
- Srikanthan, G., & Dalrymple, J. (2003). Developing alternative perspectives for quality in higher education. *International Journal of Educational Management*, 17(3), 126–136.
- Wani, I. A., & Mehraj, H. K. (2014). Total quality management in education: An analysis. *International Journal of Humanities and Social Science Invention*, (6), 71–78.

Pritidhara Hota is currently working as Asst. Professor in Global Institute of Management, Bhubaneswar. In a career spanning more than 12 Years, she has served leading B-Schools like GIFT, SSMC. Her Area of expertise includes HRD, Employment legislation, Performance Management, Statistics and decision Science, Business Research, consumer Behaviour. She has presented and published different research papers in various reputed international/ national conference and journals. Currently Pursuing her research on “Total quality management implementation and its impact in education in management institutions: a study in Odisha” under Sri Sri University.

Bhagirathi Nayak is an oriented professional with an experience of two decades from IIT Kharagpur in the areas of Computer Science and Engineering, Bioinformatics, Business Management, Database Designer and Developer, Teaching, Academic Administration and Pedagogical Activities. Presently associated with Sri Sri University, Cuttack as Professor, Director of National Partnership, and Chairman of Intellectual Property Rights (IPR) Committee. He has published more than 50 articles in reputed international journals, published 28 Patents in the area of Computer Science, and also written 5 books in reputed international publishers, especially Willy, Tailor and fences groups etc. Six PhD scholars are awarded under his supervision. Prof. Nayak won the prestigious award Dr. A. P. J. Abdul Kalam Professional Excellence Award in Data Science. He was also honoured with the best professor of Data Science in Odisha and many more awards. His area of interest is Business Analytics, Big Data, Data Mining, and Machine Learning.

Sunil Mishra is currently working as Associate Professor in Nalanda Institute of Technology. He has more than two decades of teaching experience. He has completed his M.Tech in Computer Science from F.M University, Balasore, Orissa and currently Continuing his research on “The implementation of ERP in Technical institutions of Odisha and its Impact on Human Resources” at Dr. APJ Abdul Kalam University, Indore. He has presented and published research articles in SCOPUS and UGC care listed journals. His arear of interest is IOT, Cloud Computing, DBMS.