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Total Quality Management (TQM) and Quality of Higher Education: A Meta-Analysis Study

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TQM is a program that provides a structure (framework) and tools for quality management which is very important for the progress of higher education. This study aims to prove and determine the effect of TQM on improving higher education quality in several countries. This study used a quantitative meta-analysis method. The aspect of TQM is the independent variable, and higher education quality is the dependent variable. The data sources were obtained based on the eligibility criteria: (1) from online database searches from 2012-2021; (2) indexed by Scopus, WoS or Google Scholar; (3) had a value of (r), (t), or (F); and (4) $N \geq 30$. This research uses the software JASP 0.8 4.0 version. The results of the analysis of 26 studies show that there was a significant effect of TQM on the quality of higher education in several countries ($z = 7.900$; $p < 0.001$; 95% CI [0.640; 1.069]). The effect of TQM on the quality of higher education was in the very strong effect category (rRE = 0.856) based on Cohen's criteria effect size. This meta-analysis study's results are reliable since there was no publication bias. So, it can be concluded that TQM has such a powerful influence and is believable. This study can strengthen the theory regarding the application of TQM in higher education because it is proven to affect the quality of higher education.

Keywords: total quality management, quality of higher education, higher education, meta-analysis, effect study

INTRODUCTION

Higher education is an organization that organizes tertiary schools, which is also one of the barometers of development progress, especially educational development (Schindler et al., 2015). The development of higher education is supported by three strategic policy pillars: (1). equitable distribution and expansion of access to education; (2) improving the quality, relevance, and competitiveness of education graduates; (3) improvement of governance, accountability, and public image of education management (Ryan, 2015). Higher education in the implementation and implementation quality must refer to the three pillars of development planning policies (Asiyai, 2013). Furthermore, higher education is at the forefront of dealing with environmental changes, where the higher education stage is the last stage of formal education that educates a person to be ready to

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become a professional in a particular field of expertise, who will later be needed in the world of work (Vykydal et al., 2020; Raza et al., 2015).

Higher education also needs to observe the impact of environmental changes and make changes so that higher education as providers of intellectual assets can compete and meet the quality demanded by society (Schindler et al., 2015). It is in line with the opinion of Al-Omoush et al. (2015), stating that higher education needs to continue to serve education, research, and community service and, at the same time, develop organizations to deal with current problems and predict the future. In carrying out these roles, a total or comprehensive, structured management system is needed. However, in reality, much higher education has gone out of business due to poor service or were still unfamiliar with implementing the higher education management system. The research results by Pavlov & Katsamakas (2020) and Joo et al. (2009) explained the causes of the failure of higher education to develop, including: (1) failing to manage finances, including lack of income; (2) stop innovating; (3) lack of anticipation in dealing with competitors.

Higher education management types greatly affect the quality of the higher education itself. However, the reality is that many universities are out of business because of poor higher education management. Several studies have stated that higher education bankruptcies due to poor management exist in various parts of the world (Bruckner, 2017; Pan, 2015; Sazonov, 2015; Hunt & Boliver, 2020; Juliano, 2019; Chandra, 2018). According to Bruckner (2017), this is because every year, the budget for management is always increased, but the achievement target is unclear because a grand design is not made.

The whole cause of the failure of higher education above is the primary focus of a managerial system called Total Quality Management. Total Quality Management (TQM) is one of the managerial patterns to respond to quality improvement. This concept offers a new approach to managing the company and integrity in management, which are the main characteristics of TQM (Zehir et al., 2012). Initially, TQM was developed in industry and business, later translated and applied to TQM and adopted by educational institutions (Jabbarzare & Shafighi, 2019). Furthermore, Kumar et al. (2016) stated that many companies have competitive advantages because they implement TQM. TQM is also recognized as a management approach to improving organizational performance and efficiency (Zehir et al., 2012; Idris, 2011). In its implementation, TQM is more dominant towards quality. It is consistent with Sadikoglu & Olcay's (2014) opinion that the application of TQM by an educational institution is also closely related to quality. In addition, TQM provides the basis for quality management and is an alternative to ensuring customer satisfaction.

Moreover, TQM provides a structure (framework) and tools for quality management so that, throughout the operation, there is a continuous effort focused on the quality area groups. The concept of quality-oriented customer satisfaction in an integrated manner along with rational quality costs should be established as one of the implementation goals of primary business and product planning and performance measurement of the marketing, engineering, production, industrial relations, and service functions of the

company (Ayu & Suryaningrum, 2019; Sadikoglu & Olcay, 2014; Kumar et al., 2016). TQM can also be interpreted as a management system that elevates quality as a business strategy and is oriented to customer satisfaction by involving all members, including leaders to staff. TQM is related to creating a quality culture so that employees and staff can satisfy consumers while being supported by an organizational structure (Idris, 2011; Behara & Gundersen, 2001). In addition, Prajogo and Sohal (2002) defined TQM as a total quality management program widely applied by companies that care about the importance of quality as a tool to achieve competitive advantage. It denotes that organizations implementing TQM seek to make continuous improvements to win the competition in the upcoming global era.

For this reason, higher education can adopt the TQM principles, in which at least four main areas must be met. First, the application of TQM is to improve administrative and operating functions or, in general, to manage higher education as a whole. Second, TQM is integrated into the curriculum. Third, TQM is used in classroom teaching. Fourth, TQM is employed to manage higher education research activities. Here, the presence of TQM has an impact on conventional management changes. Likewise, it has an impact on the management of higher education. In addition, six key issues—regarding the quality dimensions, customer-focused leadership, continuous improvement, HR management, and management based on fact—should be researched and carefully handled to implement the TQM concept in higher education (Al-Omoush et al., 2015; Cabacang, 2021; Krymets et al., 2022).

The emphasis on TQM in higher education is specifically stated in the SPMI (Internal Quality Assurance System). The quality assurance system is a means to encourage the realization of graduates who have high competence. Because TQM focuses on customer satisfaction, graduates are the primary focus of TQM in higher education. In contrast to the theory above, according to Akbar et al. (2019) and Abuamer (2021), what needs to be considered in the application of TQM are: (1) focusing on customers, both internal and external customers; (2) having a high obsession with quality; (3) using a scientific approach in decision making and problem-solving; (4) having a long-term commitment; (5) requiring teamwork; (6) improving the process continuously; (7) organizing education and training; (8) providing controlled freedom; (9) having a unity of purpose; and (10) the involvement and empowerment of employees. In this study, the aspects of TQM investigated and proven to affect the quality of higher education include (1) customer-focused; (2) total employee involvement; process centered; (3) integrated system; (4) strategy and systematic approach; (5) continuous improvement; (6) fact-based decision making; (7) communications (Pambreni et al., 2019).

Based on the above background, it can be concluded that TQM is the main managerial system in determining the quality of higher education. In order to describe the effect of TQM on the quality of higher education worldwide, a meta-analysis study is needed. This study is the first meta-analysis study to examine the universality of the effect of TQM on higher education in various countries. Therefore, this study aims to prove and determine the magnitude of the effect of TQM on the quality of higher education through a quantitative meta-analysis approach.

METHOD

Research design

This research applied a quantitative method with a meta-analysis approach. Meta-analysis is a statistical technique that combines two or more similar studies to obtain a quantitative blend of data (Mueller et al., 2018; Candra & Retnawati, 2020). Meta-analysis focuses not only on conclusions drawn from various studies but also on data, such as performing operations on variables, effect sizes, and sample sizes (Sugano & Nabua, 2020). This research focused on the data and the effect of implementing TQM on the quality of higher education in various countries.

Eligibility Criteria

The research publications reviewed in this study had several criteria, as follows: (1) publications that could be searched in the online international journal search database, such as Google Scholar, Publons, Springer, Eric, ProQuest, SAGE, ERIC, and others; (2) publications written in English; (3) publications indexed by Scopus, Web of Science, Thomson Reuters, or at least indexed by Google Scholar; (4) publications had to be related to TQM, and the quality of higher education; (5) publications had to be in the range of 2012-2021; (6) publications had a value of (r), (t), or (F), which explained the effect of TQM on aspects of higher education quality; (7) the sample in the publications studied was $N \geq 30$.

Data Encoding

Data coding was performed by coding the variables used to produce more focused information in calculating the magnitude of the effect of TQM on the quality of higher education. Therefore, the instrument in this meta-analysis was carried out with a coding category (Funa & Prudente, 2021). The coding of the data in this study was to clearly describe the publications' characteristics used, such as the year of publication, country of origin of the study, publication sample (N), correlation value (r_{xy}), t-value, F-value, and remarks, containing journal accreditation/reputation information (Harun et al., 2021). The following table compares 26 studies based on each study's N, r, t, and F values and index.

Table 1
Comparison of 26 studies based on N, r-, t-, and F-values

No.	Author	Country	N	r	t	F	Influencing variable	Remarks
1.	Houcine & Sofiane (2018)	Algeria	450	0.534			Customer-focused	Google Scholar
2.	Kelesbayev et al. (2016)	Kazakhstan	224	0.557		99.710	Customer-focused	Thomson Routers
3.	Mestrovic (2017)	Croatia	873	0.704	29.256		Customer-focused	Web of Science
4.	Chandel (2019)	India	360	0.415		74.310	Total employee involvement	Web of Science
5.	Azmy (2019)	Indonesia	100	0.665			Total employee involvement	Web of Science
6.	Byrne & MacDonagh (2017)	Ireland	200	0.047	0.669		Total employee involvement	Web of Science
7.	Bhosalei & Kamashetty (2021)	India	30	0.418	2.433		Total employee involvement	Thomson Routers
8.	Barkhuizen & Mogwere (2014)	South Africa	60	0.057			Total employee involvement	Thomson Routers
9.	Kassahun & Raman (2021)	Ethiopia	320	0.662			Total employee involvement	Google Scholar
10.	Rodrigues et al. (2021)	Portugal	5000K	0.812			Process cantered	Scopus
11.	Fathema et al. (2015)	USA	500	0.941			Integrated system	Thomson Routers
12.	Sultan & Wong (2012)	Australia	538	0.840			Integrated system	Scopus
13.	Amir & Dawood (2018)	Baghdad	65	0.350			Strategy and systematic approach	Thomson Routers
14.	Bawais et al. (2020)	Iraq	618	0.318		69.298	Strategy and systematic approach	Web of Science
15.	Nurcahyo et al. (2019)	Indonesia	30	0.978			Strategy and systematic approach	Scopus
16.	Martinez-Arguelles et al. (2013)	Spanish	300	0.831			Continual improvement	Scopus
17.	Lazic et al. (2021)	Serbia	10K	0.826			Continual improvement	Scopus
18.	Haris (2012)	Indonesia	520	0.682			Fact-based decision making	Thomson Routers
19.	Diery et al. (2020)	UK	200	0.553			Fact-based decision making	Scopus
20.	Carr et al. (2021)	USA	307	0.767			Communications	Scopus
21.	Pongton & Suntrayuth (2019)	Thailand	200K	0.697			Communications	Scopus
22.	Cabacang (2021)	Philippines	347	0.567			TQM	Scopus
23.	Alzeaideen (2019)	Jordan	2K	0.975			TQM	Scopus
24.	Almurshidee (2017)	Saudi Arabia	135	0.114	1.320		TQM	Thomson Routers
25.	Al-Salim (2018)	Iraq	52	0.766			TQM	Google Scholar
26.	Msallam et al. (2020)	Palestine	240	0.715	15.769		TQM	Google Scholar

Data Analysis

Meanwhile, data analysis in this study was carried out through the following steps: (1) analysis of the research sample's characteristics; (2) data coding; (3) conversion of t- and F- values to r-correlation values:

$$F = t^2 \quad (1)$$

$$t = \sqrt{F} \quad (2)$$

$$r = \frac{t}{\sqrt{t^2+N-2}} \quad (3)$$

(4) heterogeneity test of effect size; (5) calculating the summary effect or mean effect size; (6) creating forest plots and funnel plots; (7) hypothesis testing; (8) checking for publication bias. In addition, the data analysis used was a meta-analysis of correlation. Effect sizes can be categorized based on Cohen's effect size criteria, starting from values 0 – 1 (Cohen et al., 2020). Meanwhile, the software utilized in this research was JASP 0.8 4.0. For the effect size criteria, Cohen's criteria are presented in Table 2 below.

Table 2
Cohen's effect size criteria

Value	Criteria
< 0 + / -.1	Weak effect
< 0 + / -.3	Modest effect
< 0 + / -.5	Moderate effect
< 0 + / -.8	Strong effect
≥ + / -.8	Very strong effect

FINDINGS

Based on the 26 research publications with specific criteria analyzed, various r-, t- and F-values were obtained for each study. After the t- and F-values were converted to R-values, the values were tested for heterogeneity. Meanwhile, the heterogeneity test results are shown in Table 3 below.

Table 3
Heterogeneity test

	Q	df	p
Omnibus test of Model Coefficients	62.405	1	< .001
Test of Residual Heterogeneity	5498.833	25	< .001

Note. *P*-values are approximate.

Note. The model was estimated using the restricted ML method.

Table 4
Residual heterogeneity estimates

		95% Confidence Interval	
	Estimate	Lower	Upper
τ^2	0.298	0.182	0.589
τ	0.546	0.427	0.768
I^2 (%)	99.766	99.617	99.881
H^2	426.685	260.771	841.775

The value of degrees of freedom (df) indicates the number of studies analyzed (N-1). The analysis results showed that the 26 effect sizes of the analyzed studies were heterogeneous. The heterogeneous state was concluded based on the p-value < 0.001*;* Q = 62.405; τ^2 or $\tau > 0$; I^2 (%) = 99.766, close to 100%. Furthermore, these heterogeneous data indicate that there may be potential to investigate other moderating variables influencing the relationship between TQM and higher education quality. Meanwhile, the analysis results of the summary effect or mean effect size are displayed in Table 5 below.

Table 5
Summary effect or mean effect size

					95% Confidence Interval	
	Estimate	Standard Error	z	p	Lower	Upper
intercept	0.856	0.108	7.900	< .001	0.644	1.069

Note. Wald test.

The analysis results with random effects revealed that the p-value < 0.01, meaning a significant TQM effect on the quality of higher education. Meanwhile, the estimated standard error size states the magnitude of TQM's effect on the quality of higher education, which was 0.856 [0.644; 1.069]. The estimated standard error value could be grouped into a strong effect category based on Cohen's criteria effect size. Furthermore, the analysis results of meta-analytical studies could be summarized in presenting the Forest Plot chart. The following is a chart of the forest plots of the 26 analyzed studies.

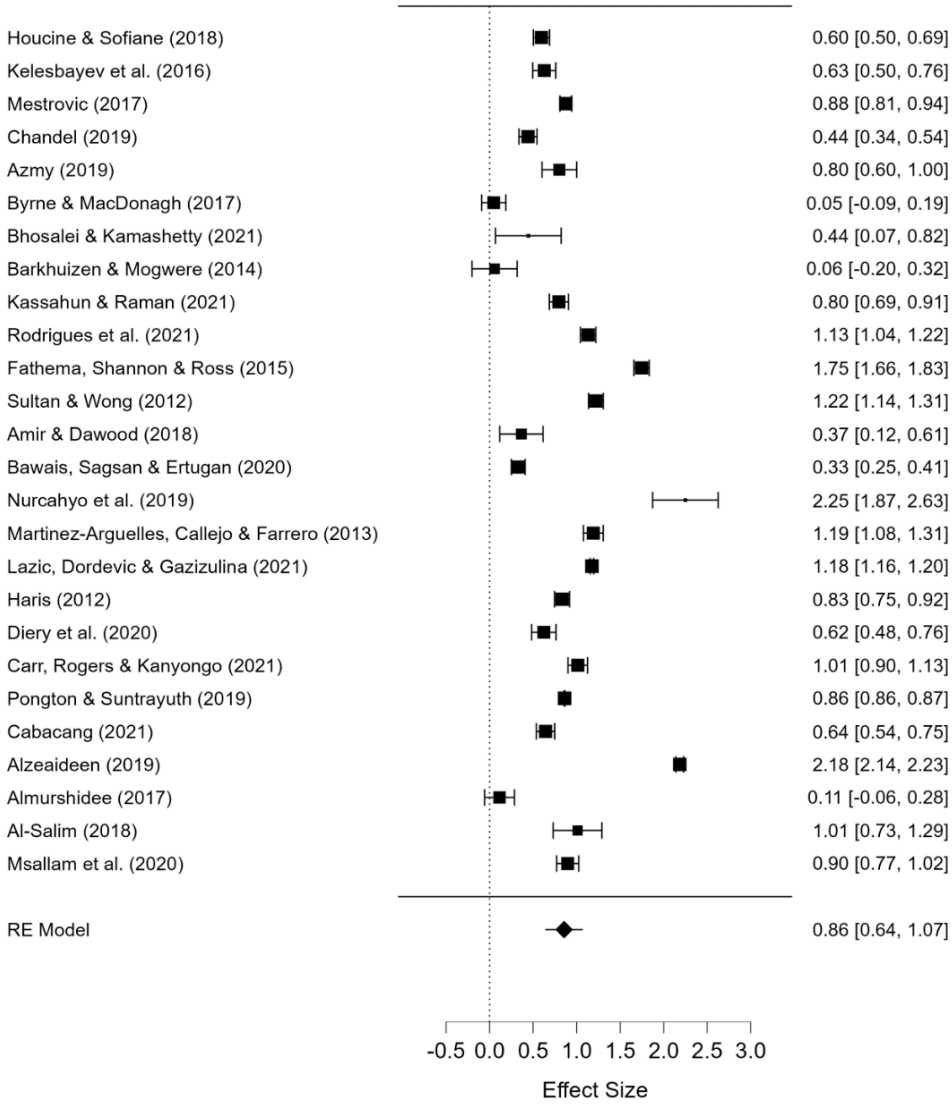

Figure 1
Forest plot meta-analysis

Forest plots generally contain information on the names of the analyzed studies, the effect size value of each study, and the lower and upper limits of the confidence interval. The black plots indicate the magnitude of the effect size. The more the plot is to the right, the greater the effect size value. The larger the plots, the more significant or highly significant. In addition, the RE model with a plot shape in the form of diamonds shows

the summary effect size value of the analyzed studies. In this study, the RE model value was the same as the estimated standard error value, 0.86. Thus, it can be concluded that the forest plot is a summary of the analysis carried out.

Moreover, a good meta-analysis study does not have publication bias in its analysis. To investigate publication bias, data analysis using the Funnel Plot, Egger Test, and Fail-Safe N methods is required. Below, the plotted line represents the value of the summary effect size. The middle line that divides the plotted line is the value that divides the summary effect size obtained. The plot is said to be symmetrical if the distribution of plots showing the effect size values on the right and left of the hemisphere is the same. The following is a funnel plot graph in this meta-analysis study.

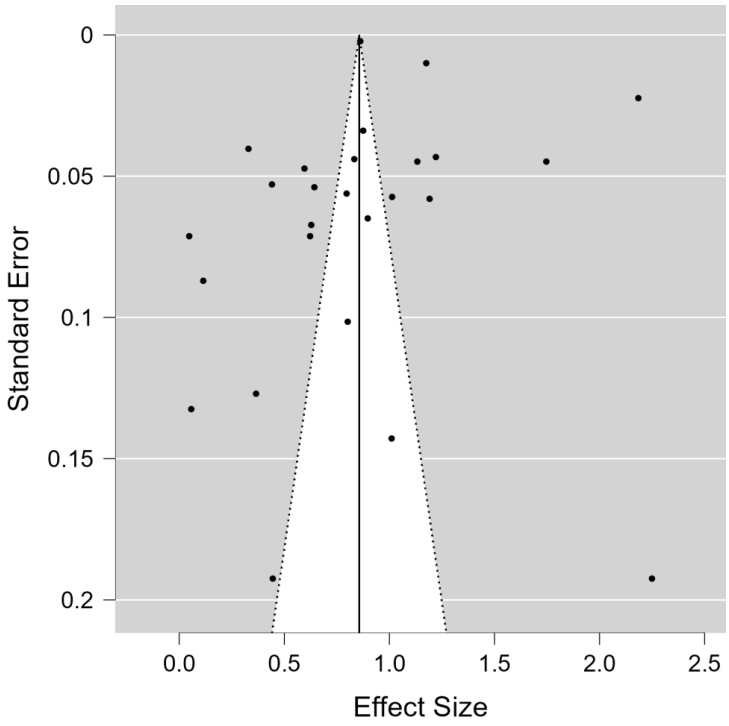

Figure 2
Funnel plot after trim-fill diagnosis

The Funnel Plot analysis results in Figure 2 depict an irregular distribution of plots so that the researchers had difficulty concluding the plot's symmetry. Thus, carrying out the Egger Test and Fail-Safe N was necessary. The Egger test results are shown in Table 6.

Table 6
Regression test for funnel plot asymmetry (Egger's Test)

	z	p
sei	0.499	0.618

The Egger test results in Table 6 show that the p-value was > 0.05, indicating that the Funnel Plot was symmetrical even though the distribution of the plots was not very regular. Thus, it can be concluded that there was no publication bias problem in this meta-analysis study. Publication bias can also be analyzed by looking at the Fail-Safe N value. The following are the Fail-Safe N test results in this meta-analysis study.

Table 7
Fail-Safe N Test

Fail-Safe N	Target Significance	Observed Significance
297458.000	0.050	< .001

The analysis results of the Fail-Safe N value of the 26 analyzed studies were 297458. This value indicates 297458 studies with publication bias problems or not methodologically well done. Possibly, the 297458 studies were either unreported or unpublished. Meanwhile, the value of Safe N was greater than the value of 5K + 10 = 5(26) + 10 = 140. Thus, the Fail-Safe N test concludes no publication bias problem in this meta-analysis study. In general, based on the publication bias test carried out, the meta-analysis study results can be scientifically justified.

DISCUSSION

Based on the heterogeneity test, the analysis results showed that the 26 effect sizes of the analyzed studies were heterogeneous. The heterogeneous state was concluded based on the p-value < 0.001*;* Q = 62.405; τ^2 or $\tau > 0$; I^2 (%) = 99.766, close to 100%. If the results of the heterogeneity test are proven to be heterogeneous, the fact is that the estimated research standard being analyzed means a significant difference so that the pooled/summary ES can be interpreted. This heterogeneity test also indicates that this research can be carried on to effect size analysis. It is in line with the opinion of Mueller et al. (2012), which states that meta-analysis research requires knowing the size of heterogeneity first before deciding to draw conclusions based on the fixed-effect model. Juandi et al. (2022) also stated that the research domain analyzed in the meta-analysis should be viewed as heterogeneous. Furthermore, these heterogeneous data indicate that there may be potential to investigate other moderating variables influencing the relationship between TQM and higher education quality.

Based on the analysis results of the 26 studies through this meta-analysis, it was found that TQM had a significant effect on the quality of higher education, as indicated by a p-value < 0.01. It is supported by the theory, suggesting that TQM aims to improve quality and identify the best quality measures according to customer expectations regarding service, product, and customer experience. It will also increase the company's competitive advantage in customers' eyes compared to competitors (Rasheed, 2016; Topalovic, 2015; Nilsoon et al., 2001). Alghamdi (2018) also argued that the virtue of

TQM in improving organizational quality is by streamlining processes, improving proactive work systems, and handling deviations to achieve productivity and process efficiency by identifying and eliminating problems in work processes and systems. Therefore, it is very likely that the application of TQM can improve the quality of higher education.

Meanwhile, the effect size analysis showed that TQM's effect on the quality of higher education was very strong ($r_{RE} = 0.856$). It is reinforced by the theory put forward by Al-Qahtani et al. (2015) that TQM is a system that tends to produce a series of continuous positive changes. TQM is also called quality management, which works best to improve the organization's performance, continuously improving processes and preventing errors (Nilsson et al., 2001; Shahid et al., 2014).

Furthermore, some advantages of applying TQM based on expert theories include (1) saving costs, (2) increasing customer satisfaction, (3) reducing deviations or errors, (4) increasing employee morale, (5) being able to compete, (6) developing a communication system, and (7) progress that is always reviewed regularly (Abuamer, 2021; Asiyai, 2013; Cabacang, 2021; Krymets et al., 2022). *First,* TQM aims to improve quality and identify the best quality measures according to customer expectations concerning services, promotions, curriculum, quality of lectures, and others. It undeniably will also increase the competitive advantage of higher education in customers' eyes compared to competitors (Schindler et al., 2015; Abuamer, 2021). *Second,* the short-term effect is fewer customer complaints because the college has better service than competitors. Meanwhile, the long-term effect is an increase in service users or students due to increased previous customer satisfaction (Abuamer, 2021; Asiyai, 2013). *Third,* TQM strongly emphasizes improving quality rather than checking quality in a process. It has the effect of not only reducing the time required to correct errors but also maximizing the work of the team of quality assurance personnel (Vykydal et al., 2020; Ryan, 2015).

Fourth, the continued and proven success of TQM, particularly due to employee participation in such success, can lead to a marked increase in employee morale. It, in turn, reduces employee turnover and hence reduces the costs of hiring and training new employees (Cabacang, 2021; Krymets, 2022). *Fifth,* TQM is very helpful in understanding competition and developing effective strategies for dealing with competition. Due to the intense competition, the survival of many higher educations has become a vital matter. TQM helps in understanding the customer and education market. It provides an opportunity for higher education to meet the competition by using TQM techniques (Vykydal et al., 2020; Ryan, 2015; Krymets, 2022). *Sixth,* incorrect and inadequate communication systems and inappropriate procedures are obstacles to the development of higher education. Communication barriers result in misunderstandings, poor service quality, duplication of effort, and low morale. Here, TQM techniques bind staff from various sections, departments, and management levels to establish effective communication and interaction (Asiyai, 2013; Cabacang, 2021; Krymets, 2022). *Lastly,* TQM helps to review the processes needed to develop continuous improvement strategies. The concept of TQM seeking quality improvement must be carried out continuously to meet dynamic challenges (Shahid et al., 2014; Ryan, 2015).

Furthermore, based on the Funnel Plot, Egger Test, and Fail-Safe N analysis, there was no publication bias, indicating that the meta-analysis study is reliable. Publication bias is a type of bias that occurs in published academic research (Candra & Retnawati, 2020). Usually, it occurs when the experiment results or research study influence whether to publish or distribute a study (Nair, 2019; Joober et al., 2012). Publication bias can also occur in the stages of reference search, sample selection, data analysis, interpretation of analysis results, and publication of research results (Murad et al., 2018; Sugano & Nabua, 2020).

In addition, Ropovik et al. (2021) explained that publication bias is sometimes caused because researchers tend to overestimate the effect sizes they find. Song (2013) and Juandi et al. (2022) also asserted that publication bias is the tendency of researchers to publish experimental findings with positive results while not publishing other findings when the results are negative or inconclusive. The effect of publication bias is that published studies can be misleading. When information different from published research is unknown, one can draw conclusions using only information from published research (Andrews & Kasy, 2019; Linyu & Lifeng, 2019). Therefore, this study carried out three tests to avoid information inconsistency if only one test was performed.

CONCLUSION

From the research results and discussion above, it can be concluded that TQM strongly affects the quality of higher education in several countries. Moreover, it can be shown from the effect size of the 26 publications proven to be heterogeneous, having an effect size value that could be categorized as a very strong effect. This study concludes from several recent studies and comes from various country backgrounds regarding the effects of TQM on the quality of higher education so that this research can be said to be comprehensive and become a benchmark for applying TQM in the world of universities. Furthermore, this meta-analysis study's results are reliable since there was no publication bias. Thus, it can be concluded that this study can strengthen the theory regarding applying TQM in higher education because it is proven to affect the quality of higher education.

There are several recommendations for further research. *First*, the heterogeneity test indicates a possibility of moderator variables affecting the relationship between TQM and the quality of higher education. Therefore, further researchers can combine various possible variables used as moderator variables. *Second*, publication bias in this research was proven to be non-existent, so it shows that the publications under review really described the actual situation. In this study, the research publication characteristics revealed the same sample, namely the higher education side, i.e., staff, lecturers, and students, from various scientific fields. Related to this, future research can take almost the same theme but is expected to concentrate more on the sample of research publications studied, such as at the elementary school, junior high school, senior high school, or non-formal education level. *Third*, higher education can implement TQM to improve the quality of their education.

REFERENCES

Abuamer, F. F. R. (2021). The Role of Total Quality Management in Higher Education Institutions in Kuwait. *Indian Journal of Economics and Business, 20*(3), 635-658.

Akbar, M. A., Ali, M. H., & Alam, S. S. (2019). Total Quality Management System in an Education Environment: The Case of a Private University in Bahrain. *Journal of Reviews on Global Economics, 8,* 717-729.

Alghamdi, F. (2018). Total Quality Management and Organizational Performance: A Possible Role of Organizational Culture. *International Journal of Business Administration, 9*(4), 186-200. http://doi.org/10.5430/ijba.v9n4p186

Almurshidee, K. A. (2017). The Implementation of TQM in Higher Education Institutions in Saudi Arabia: Marketing Prospective. *Global Journal of Management and Business Research: A Administration and Management, 17*(1), 1-9.

Al-Salim, A. A. A. (2018). Total Quality Management Its Impact on the Performance of Educational Institutions. *International Journal of Scientific and Research Publications, 8*(8), 239-248. http://dx.doi.org/10.29322/IJSRP.8.8.2018.p8029

Al-Omoush, M. M., Alrahahleh, A. H., & Alabaddi, Z. A. (2015). Total Quality Management in Higher Education. *Information and Knowledge Management, 5*(12), 49-59.

Al-Qahtani, N. D., Alshehri, S. S., & Aziz, A. A. (2015). The Impact of Total Quality Management on organizational performance. *European Journal of Business and Management, 7*(36), 119-127.

Alzeaideen, K. (2019). The Effect of Total Quality Management on University Performance in Jordan. *International Journal of Financial Research, 10*(6), 283-293. https://doi.org/10.5430/ijfr.v10n6p283

Amir, D. N. A., & Dawood, F. S. (2018). Lead of the Quality of University Education According to Strategic Planning: An Exploratory Research for a Sample of Faculties of the University of Baghdad. *International Journal of Management Sciences and Business Research, 7*(8), 87-95.

Andrews, I., & Kasy, M. (2019). Identification of and Correction for Publication Bias. *American Economic Review, 109*(8), 2766–2794. https://doi.org/10.1257/aer.20180310

Asiyai, R. I. (2013). Challenges of Quality in Higher Education in Nigeria in the 21st Century. *International Journal of Educational Planning & Administration, 3*(2), 159-172.

Ayu, I., & Suryaningrum, D. H. (2019). The Effect of Total Quality Management on Managerial Performance: (Study at PT Kereta Api Indonesia – Persero DAOP VIII Surabaya). *Sustainable Business Accounting and Management Review, 1*(2), 72-81.

Azmy, A. (2019). Employee Engagement Factors in A Higher Education Institution. *Binus Business Review, 10*(3), 187-200. https://doi.org/10.21512/bbr.v10i3.5857

Barkhuizen, N., Mogwere, P., & Schutte, N. (2014). Talent Management, Work Engagement and Service Quality Orientation of Support Staff in a Higher Education Institution. *Mediterranean Journal of Social Sciences, 5*(4), 69-78. https://doi.org/10.5901/mjss.2014.v5n4p69

Bawais, J. H. T., Sangsan, M., & Ertugan, A. (2020). The Impact of Service Quality on Student and Academic Staff Satisfaction within Higher Education Institutions: A Case Study of Sulaimani City in Northern Iraq. *Revista Argentina de Clínica Psicológica, 19*(5), 440-452. https://doi.org/10.24205/03276716.2020.1042

Behara, R. S., & Gundersen, D. E. (2001). Analysis of quality management practices in services. *International Journal of Quality & Reliability Management, 18*(6), 584-603.

Bhosalei, S., & Kamashetty, S. B. (2021). A Study On Effect Of Employee Engagement On Employee Performance Of Faculties In Select University In Vijayapur, Karnataka. *International Journal of Creative Research Thoughts, 9*(1), 182-188.

Bruckner, M.A. (2017). Bankrupting Higher Education. *Howard Law Research Paper, 16*(5), 1-38. http://dx.doi.org/10.2139/ssrn.2738580

Byrne, O., MacDonagh, J. (2017). What's love got to do with it? Employee engagement amongst higher education workers. *Irish Journal of Management, 36*(3), 189-2015. https://doi.org/10.1515/ijm-2017-0019

Cabacang, G. S. (2021). Quality is Never an Accident: A Survey on the Total Quality-Management Practices amongst Selected Higher Education Institutions in the Philippines. *International Journal of Learning, Teaching and Educational Research, 20*(10), 1-12. https://doi.org/10.26803/ijlter.20.10.2

Candra, & Retnawati, H. (2020). A Meta-Analysis of Constructivism Learning Implementation towards the Learning Outcomes on Civic Education Lesson. *International Journal of Instruction, 13*(2), 835-846. https://doi.org/10.29333/iji.2020.13256a

Carr, J. M., Rogers, K. S., & Kanyongo, G. (2021). Improving student and faculty communication: the impact of texting and electronic feedback on building relationships and the perception of care. *Association for Learning Technology, 29*(2463), 1-14.

Chandel, P. (2019). Assessing the Association of Employee Engagement with affective Organizational Commitment in Higher Education Institutions. *Research Review International Journal of Multidisciplinary, 4*(2), 907-913.

Chandra, T., Ng, M., Chandra, S., & Priyono. (2018). The Effect of Service Quality on Student Satisfaction and Student Loyalty: An Empirical Study. *Journal of Social Studies Education Research, 9*(3), 109-131.

Cohen, R. D., Woseth, D. M., Thisted, R. A., & Hanauer, S. B. (2000). A meta-analysis and overview of the literature on treatment options for left-sided ulcerative colitis and ulcerative proctitis. *Am J Gastroenterol, 95*(5), 1263-1276. https://doi.org/10.1111/j.1572-0241.2000.01940.x

Diery, A., Vogel, F., Knogler, M., & Seidel, T. (2020). Evidence-Based Practice in Higher Education: Teacher Educators' Attitudes, Challenges, and Uses. *Frontiers in Education, 5*(62), 1-13. https://doi.org/10.3389/feduc.2020.00062

Fathema, N., Shannon, D., & Ross, M. (2015). Expanding The Technology Acceptance Model (TAM) to Examine Faculty Use of Learning Management Systems (LMSs) In Higher Education Institutions. *Merlot Journal of Online Learning and Teaching, 11*(2), 210-223.

Funa, A. A., & Prudente, M. S. (2021). Effectiveness of problem-based learning on secondary students' achievement in science: A meta-analysis. *International Journal of Instruction, 14*(4), 69-84. https://doi.org/10.29333/iji.2021.1445a

Haris, I. (2012). Determinant Factors of Decision Making Process in Higher Education Institution (A Case of State University of Gorontalo, Indonesia). *Global Journal Of Management and Business Research, 12*(18), 33-42.

Harun, Kartowagiran, B., & Manaf, A. (2021). Student Attitude and Mathematics Learning Success: A Meta-Analysis. *International Journal of Instruction, 14*(4), 209-222. https://doi.org/10.29333/iji.2021.14413a

Houcine, B., & Sofiane, M. (2018). Higher Education Quality Management: Evidence From Adrar University. *Asian Journal of Economic Modelling, 6*(1), 83-89. https://doi.org/10.18488/journal.8.2018.61.83.89

Hunt, S. A., & Boliver, V. (2020). Private providers and market exit in UK higher education. *Higher Education, 81*, 385-401. https://doi.org/10.1007/s10734-020-00546-x

Idris, F. (2011). Total Quality Management (TQM) and Sustainable Company Performances: Examining The Relationship in Malaysian Firms. *International Journal of Business and Society, 12*(1), 31-52.

Jabbarzare, E., & Shafighi, N. (2019). Total Quality Management Practices and Organizational Performance. *Open Science Journal of Statistics and Application, 6*(1), 6-12.

Joo, S., Durband, D. B., & Grable, J. (2009). The Academic Impact of Financial Stress on College Students. *Journal of College Student Retention: Research, Theory and Practice, 10*(3), 287-305. https://doi.org/10.2190/CS.10.3.c

Joober, R., Schmitz, N., Annable, L., & Boksa, P. (2012). Publication bias: What are the challenges and can they be overcome?. *Journal Psychiatry Neurosci, 37*(3), 149-152. https://doi.org/10.1503/jpn.120065

Juandi, D., Kusumah, Y. S., & Tamur, M. (2022). A Meta-Analysis of the Last Two Decades of Realistic Mathematics Education Approaches. *International Journal of Instruction, 15*(1), 381-400. https://doi.org/10.29333/iji.2022.15122a

Juliano, J. (2019). Student Loan Bankruptcy and the Meaning of Educational Benefit. *American Bankruptcy Law Journal, 277*, 93-109.

Kassahun, Z. W., & Raman, M. S. (2021). Antecedents of Employees Work Engagement: A Study on an Ethiopian Universities in Case of Amhara Regional State. *Geintec: Gestao, Inoveceo e Tecologies, 11*(4), 4426-4440.

Kelesbayev, D., Kalykulov, K., Yertayev, Y., Turlybekova, A., & Kamalov, A. (2016). A Case Study for using the Quality Function Deployment Method as a Quality Improvement Tool in the Universities. *International Review of Management and Marketing, 6*(3), 569-576.

Krymets, L. V., Saienko, O. H., Bilyakovska, O. O., Zakharov, O. Y., & Ivanova, D. H. (2022). Quality management in higher education: Developing the methodology on the basis of total quality management. *Review of Education, 10*(1), 22-33. https://doi.org/10.1002/rev3.3322

Kumar, V., Singh, J., Kumar, D., & Antil, M. (2016). Total Quality Management. *National Journal of Advanced Research, 2*(3), 5-8.

Lazic, Z., Dordevic, A., Gazizulina, A. (2021). Improvement of Quality of Higher Education Institutions as a Basis for Improvement of Quality of Life. *Sustainability, 13*(4149), 1-27. https://doi.org/10.3390/su13084149

Linyu, S., & Lifeng, L. (2019). The trim-and-fill method for publication bias: practical guidelines and recommendations based on a large database of meta-analyses. *Research Article: Observational Study, 98*(23), 15-35. http://doi.org/10.1097/MD.0000000000015987

Martinez-Arguelles, M. J., Callejo, M. B., & Farrero, J. M. C. (2013). Dimensions of Perceived Service Quality in Higher Education Virtual Learning Environments. *Universities and Knowledge Society Journal, 10*(1), 268-285. http://dx.doi.org/10.7238/rusc.v10i1.1411

Mestrovic, D. (2017). Service Quality, Students' Satisfaction and Behavioural Intentions in STEM and IC Higher Education Institutions. *Interdisciplinary Description of Complex Systems, 15*(1), 66-77. https://doi.org/10.7906/indecs.15.1.5

Msallam, A. A., Hila, A. A., Naser, S. S. A., Al-Shobaki, M. J. (2020). The Reality of Achieving the Requirements of Total Quality Management in University Colleges. *International Journal of Academic Management Science Research, 4*(8), 67-90.

Mueller, M., D'Addario, M., Egger, M., Cevallos, M., Dekkers, O., Mugglin, C., & Scott, P. (2018). Methods to systematically review and meta-analysis observational studies: A systematic scoping review of recommendations. *BMC Medical Research Methodology, 18*(44), 1-18. https://doi.org/10.1186/s12874-018-0495-9

Murad, M. H., Chu, H., Lin, L., & Wang, Z. (2018). The effect of publication bias magnitude and direction on the certainty in evidence. *BMJ Evidence-Based Medicine, 23*(3), 1-19. http://dx.doi.org/10.1136/bmjebm-2018-110891

Nair, A. S. (2019). Publication bias - Importance of studies with negative results!. *Indian Journal of Anaesthesia, 63*(6), 505-507. https://doi.org/10.4103/ija.IJA_142_19

Nilsson, L., Johnson, M. D., & Gustafsson, A. (2001). The impact of quality practices on customer satisfaction and business results: Product versus service organizations. *Journal of Quality Management, 6*(1), 5-27. http://doi.org/10.1016/S1084-8568(01)00026-8

Nurcahyo, R., Apriliani, F., Muslim, E., & Wibowo, A. D. (2019). The Analysis of the Implementation of 5-S Principles Integrated With ISO 9001 Requirements at Higher Education Level. *SAGE Open, 61*(11), 1-10. https://doi.org/10.1177/2158244019870773

Pambreni, Y., Khatibi, A., Azam, S. M. F., & Tham, J. (2019). The influence of total quality management toward organization performance. *Management Science Letters, 9*, 1397-1406. https://doi.org/10.5267/j.msl.2019.5.011

Pan, G. (2015). Bankruptcy of Higher Education. *Socio-Biological Implications of Confucianism, 4*(25), 183-184. https://doi.org/10.1007/978-3-662-44575-4_25

Pavlov, O. V., & Katsamakas, E. (2020). Will colleges survive the storm of declining enrollments? A computational model. *PLOS ONE, 15*(8), 1-12. https://doi.org/10.1371/journal.pone.0236872

Pongton, P., & Suntranyuth, S. (2019). Communication Satisfaction, Employee Engagement, Job Satisfaction, and Job Performance in Higher Education Institutions. *ABAC Journal, 39*(3), 90-110.

Prajogo, D., & Sohal, A. S. (2002). The relationship between TQM practices, quality performance, and innovation performance: An empirical examination. *International Journal of Quality & Reliability Management, 20*(8), 901-918. https://doi.org/10.1108/02656710310493625

Rasheed, F. A. K. (2016). Impact of Total Quality Management on Customer Satisfaction. *International Journal of Management and Commerce Innovations, 4*(2), 702-709.

Raza, M. A., Bilal, M., Rasheed, M. R., Chandio, B. A., Ahmad, N., & Sawand, F. A. (2015). Quality Assessment in Higher Education. *International Letters of Social and Humanistic Sciences, 50*, 162-171. https://doi.org/10.18052/www.scipress.com/ILSHS.50.162

Rodrigues, A. L., Cerdeira, L., Patrocinio, T., Cabrito, B., & Mucharreira, P. (2021). Input and Output Indicators of Higher Education Institutions for Quality of Life in Portugal. *International Journal of Higher Education, 10*(2), 298-308. https://doi.org/10.5430/ijhe.v10n2p299

Ropovik, I., Adamkovi, M., & Greger, D. (2021). Neglect of publication bias compromises meta-analyses of educational research. *PLOS ONE, 16*(6), 25-45. https://doi.org/10.1371/journal.pone.0252415

Ryan, T. (2015). Quality Assurance in Higher Education: A Review of Literature. *Higher Learning Research Communications, 5*(4), 1-12. http://dx.doi.org/10.18870/hlrc.v5i4.257

Sadikoglu, E., & Oclay, H. (2014). The Effects of Total Quality Management Practices on Performance and the Reasons of and the Barriers to TQM Practices in Turkey. *Hindawi Publishing Corporation Advances in Decision Sciences, 1*(1), 1-18. http://dx.doi.org/10.1155/2014/537605

Sazonov, S. P., Kharlamova, E., Chekhovskaya, I. A., & Polyanskaya, E. A. (2015). Evaluating Financial Sustainability of Higher Education Institutions. Asian Social Science, 11(20), 1-10. https://doi.org/10.5539/ass.v11n20p34

Schindler, L., Puls-Elvidge, S., Welzant, H., & Crawford. (2015). Definitions of Quality in Higher Education: A Synthesis of the Literature. *Higher Learning Research Communications, 5*(3), 3-13. http://dx.doi.org/10.18870/hlrc.v5i3.244

Shahid, M., Faisal, Q., & Aftab. (2014). Relationship between TQM dimensions and organizational performance. *Pakistan Journal of Commerce and Social Sciences, 8*(3), 662-679.

Song, F., Hooper, L., & Loke, Y. K. (2013). Publication bias: What is it? How do we measure it? How do we avoid it?. *Open Access Journal of Clinical Trials, 5*(1), 51-81. http://doi.org/10.2147/OAJCT.S34419

Sugano, S. G. C., & Nabua, E. B. (2020). Meta-Analysis on the Effects of Teaching Methods on Academic Performance in Chemistry. *International Journal of Instruction, 13*(2), 881-894. https://doi.org/10.29333/iji.2020.13259a

Sultan, P., & Wong, H. Y. (2012). Service quality in a higher education context: An integrated model. *Asia Pacific Journal of Marketing and Logistics, 24*(5), 755-784. https://doi.org/10.1108/13555851211278196

Topalovic, S. (2015). The implementation of total quality management in order to improve production performance and enhancing the level of customer satisfaction. *Procedia Technology, 19,* 1016-1022. https://doi.org/10.1016/j.protcy.2015.02.145

Vykydal, D., Folta, M., & Nenadal, J. (2020). A Study of Quality Assessment in Higher Education within the Context of Sustainable Development: A Case Study from Czech Republic. *Sustainability, 12*(4769), 1-22. https://doi.org/10.3390/su12114769

Zehir, C., Ertoseun, O. G., Zehir, S., & Muceldilli, B. (2012). Total Quality Management Practices' Effects on Quality Performance and Innovative Performance. *Procedia: Social and Behavioral Sciences, 41,* 273-280. https://doi.org/10.1016/j.sbspro.2012.04.031