A TQM Implementation in Higher Education Institutions: A Review

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ABSTRACT

The implementation of overall quality management is being applied to every educational institution, including TVET MARA, to enhance the quality of educational services. In this situation, management tasks must be carried out in each educational establishment. Implementing TQM in TVET MARA to increase the overall quality of education and achieve a high level of academic achievement is the subject of this article. Every educational institution should strive to improve its quality and ability to compete with others. This is done for educational institutions to continue to earn the general public's trust and other stakeholders in their work. Therefore, it must be continuously improved, both physically and non-physically, to maintain this level of performance to create a high-quality educational institution with a high level of quality assurance. When implementing TQM in the field of education, there are several important factors to consider, including continuous quality improvement; determining quality standards; cultural change; changes in the organisation; and maintaining relationships with other agencies and customers, as well as evaluating the system if anything is not working as it should.

Keywords:
M, Higher Education, Continuous Quality
Improvement

1. Introduction

As a higher education institution, students' development or graduation with an appropriate skill set is essential to the industry's skills level. However, graduates must also compromise between the unique requirements of the sectors related to their experiences and skills. This challenge seems daunting to Technical and Vocational Education and Training Majlis Amanah Rakyat (TVET MARA) institutions. TVET MARA institution's main objective is to help students with the technological and practical skills needed to improve their incomes to compete in today's ever-changing environment. One of TVET's critical success factors (CSFs) is to ensure that the programmes offered to meet the industry's needs and demands, both in terms of technical and soft skills, especially when jobs become limited due to Coronavirus Disease 2019 (COVID-19) epidemic. Therefore, the quality of the education in TVET MARA should be maintained and constantly improve to ensure the graduates meet the industry's needs and demands.

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Education is critical in developing knowledge, tolerance, trust, belief, and rules for choosing the correct path at the appropriate moment. Education also has a crucial part in the development and manifestation of individuals, both physically and spiritually, to contribute to the development of a nation and a government [1]. A foundation of experience, excellence, and knowledge are built via education across various fields, including social and economic sciences [2]. To fully realise this potential, it is vital to establish a high-quality educational system. School is critical in transforming youngsters from zero to potential successful adults. Due to school education, pupils can acquire the fundamental skills necessary to pursue higher education at colleges and universities, as higher education is dependent on school education. Only a high-quality education can prepare pupils to tackle the global market's difficulties.

Malaysia's higher education system has grown significantly since the University of Malaya (UM) was established in 1949 as part of the Federation of Malaya. In response to changes in the global and local market, Malaysia has consistently improved and reinforced its higher education system. One of these initiatives is the National Council of Higher Education Act 1996 (NCHEA), which started the process of creating one national governing body to steer higher education growth; the Universities and University Colleges Act 1971 (UUCA), which catalysed the corporatisation of public universities; and the Private Higher Education Institutions Act 1996, which allowed Malaysia to witness the development of private institutions [3].

Pelan Strategik Pengajian Tinggi Negara, or National Higher Education Strategic Plan (PSPTN), enables Malaysian higher education to meet Malaysian society's knowledge and skills to ensure long-term economic growth while setting up Malaysia worldwide educational centre. This National Education Philosophy held that educational institutions should strive for balance by implementing utilitarian learning while simultaneously prioritising human development [3].

Nonetheless, higher education must continue to evolve, both in response to the global trends and anticipation of future challenges. Here are some specific, typical examples of transformations that have been created by disruptive technology and new paradigms, like MOOCs or Massive Open Online Courses. Another way to say this is that in 2013, the merging of the MoE and MoHE produced an organisation of the scope, scale, and reach to advance Malaysia's higher education goals further. In other words, this merger will allow the various tactics to be seamlessly linked to create pathways for students from early on in their lives until they are ready to retire [3]. Even though Malaysia have their own National Higher Education Strategic Plan, but by time to time it still needs continuous quality improvement.

Therefore, this situation prompted the Technical and Vocational Education and Training Majlis Amanah Rakyat (TVET MARA) to identify factors that can further improve the effectiveness and quality of TVET MARA education.

According to Scheerens [4], the efficiency of a school is determined by its capacity to perform its roles effectively and provide pupils with high-quality services. The effectiveness of the vocational high school system is contingent upon society's willingness to be focused, devoted, and committed to determining the nation's future. Education quality is critical in establishing and addressing management issues in vocational schools [5]. When these graduates from specialised vocational schools enter the workforce, they will positively affect their families, towns, countries, and nations. Vocational education must evolve to keep pace with changes like employment, technology, and labour guidelines. Therefore, the vocational institution's curriculum must be geared toward the demands of the workplace.

TQM is a process for efficiently and effectively improving the quality of vocational institutions. This TQM philosophy continuously increases an organisation's performance to promote pleasure and excellence [6]. The TQM technique can significantly improve institutional quality and be used in

schools that value student potential [7]. TQM is the most effective method for enhancing educational quality and performance. The strategy's general objectives include the satisfaction of various shareholders, including parents, students, and society [2].

According to Mulyani, *et al.,* [8], the school efficacy can also be evaluated using the school governance (SG) system. According to the 2018-2019 National Exam results, vocational high schools in Indonesia are experiencing difficulties with the efficiency of school management. The mathematics grade results are categorised as low, with the lowest score being 35.26 and the highest score being 46.7. According to the findings, vocational high schools must increase the efficiency they handle their educational programs. This discrepancy demonstrates poor management in choosing the most appropriate method for running the institution. It will be possible to resume to increase the quality of the education provided by schools if the SG principle is implemented as a critical value within school management practices. SG emerges as a result of an 1q to increase quality to reach a high level of performance from the school's administrative governance.

Adopting the TQMin education benefits students and educators by increasing morale, increasing performance, providing high-quality essential services to customers (parents and students), and providing direction for institutions [9]. Nevertheless, because TQM was initially being established for manufacturing enterprises, there is considerable controversy around its applicability in educational settings. Furthermore, because the developing world has a different notion than education, Pratasavitskaya and Stensaker [10] asserted that not all organisation theories could be applied universally. As of this, institutions must emphasise the need of implementing Total Quality Management (TQM) components to enhance the procedure of educational institutes. It is also vital to focus on the significant obstacles that schools confront while adopting Total Quality Management in Education so as to institutions may take suitable steps proactively when using TQM in Education.

2. Literature Review
2.1 TQM in general

TQM is viewed as a current management attitude based on various contemporary ideas and procedures that improve the educational system's continual performance. TQM is a process that everyone must undergo and which extends throughout the company. Also, to meet their clients' requirements and targets. TQM aids in partnering to produce goods and services. TQM is what has propelled the company's revenue and customer perceptions. TQM utilises quantitative and human-resource approaches to enhance materials and facility inputs, inter-and intra-organisational practices and customer needs. TQM is a continual pursuit for quality by establishing the proper skills and behaviours in people to eliminate faults and fulfil customer needs all the time. TQM is an activity that each association member must complete. According to Oakland [11], "TQM is a method to increase the business's effectiveness and adaptability as a whole". It's a means of bringing the whole business together and involving everyone at each stage at the workplace.

Sayed [12] examined a point of view on quality in education: the hunt for no faults to critically assess some significant parts of the current thesis on the quality of education. Dahlgaard, *et al.,* [13] established five critical TQM rules using a novel organisation pyramid dubbed the TQM pyramid. Essential factors that are examined are leadership, customer and employee attention, continuous improvement, everyone's participation, and a fact-based approach. Stukalina [14] and Zabadi [15] researched the use of quality management techniques in education for controlling the learner-centred educational ecosystem. They believe that higher education plays a critical role in nations' economic and cultural rehabilitation and growth. Chizmar [16] has placed a premium on effective teaching management and learning. Teaching and learning models with a TQM foundation introduce

new ideas for teaching strategies that allow for enhanced learning and its contribution to product quality, student orientation, teamwork, and the willingness to keep getting better.

TQM's evolution can be summarised in four stages [13]:(1) Inspection or quality inspection, (2) QC - Quality control, (3) QA - Quality assurance, and (4) TQM.

Quality control originated at Ford Motor Company in 1910, where inspectors were put in place to keep products of high quality. Using the approach proposed by Shewhart and Dodge-Roming, statistical process control is implemented alongside sampling the product to be inspected. Process variation, in this day and age, is generally broken down into two types: random variation and assigned variation. This procedure for quality assurance was implemented in the 1950s in order to increase the client's confidence in the product by assuring that it matches their expectations. TQM came to the U.S. in the 1980s, which means TQM is inherent in all aspects of the firm and used comprehensively. Deming, Juran, and Crosby have made significant contributions to the TQM's continuing evolution since then.

Incorporating process improvement and responsiveness to customer needs into an organisation's efforts to maximise customer satisfaction is part of a TQM strategy [17].

All of the elements must work all together as a group in order to guarantee the efficiency of the theory of implementation in the workplace. Individuals in the organisation are influenced by and are in turn affected by other members of the organisation's many parts, activities, and individuals [18]. TQM as an idea for modern effectiveness was reviewed. The different roles in the domain of quality management have driven it to the current levels of effectiveness achieved [19].

According to Fitriani [20], the implementation of TQM may be separated into three stages: (1) the preparation stage, (2) the planning stage, and (3) the implementation stage. Those three stages should be carried out successfully, with management's dedication and employee participation and other factors like training and interaction, among others [21].

Table 1
The expansion of TQM [22]

| 1910s Quality Inspection	The first step in ensuring product quality is to do basic cataloguing of the product and determine the source of the problem.
1920s (QC) Quality Control	During this phase, the procedure is regulated by applying data analysis and statistical control approaches, and quality planning increases.
1950s (QA) Quality Assurance	This is when quality planning and audits are carried out and the application of quality risk assessment techniques such as FMEA.
1980s (TQM) TQM	Managing quality thoroughly began with employee involvement, management commitment, a focus on the client, and a nonstop improvement society to enhance the quality of goods and services.
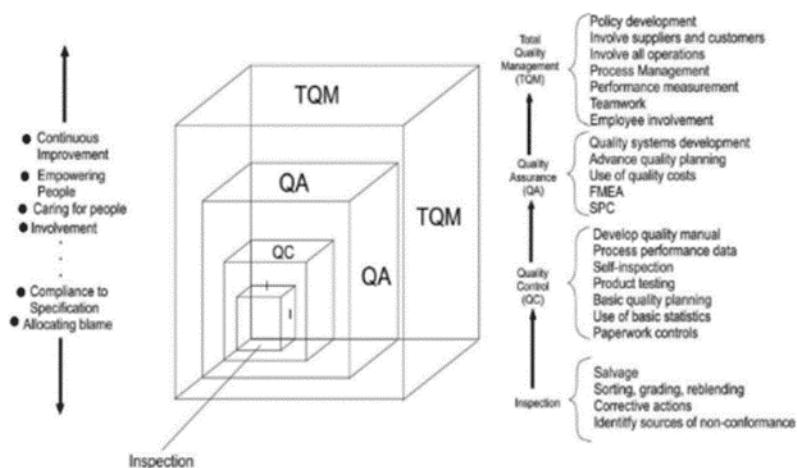
Fig. 1. TQM's evolution can be summarised in four stages.

TQM must be thought of as a long-term process with a vision that is constantly looking to the future. Consequently, organisations must accomplish short-term objectives and prepare for their future presence in the future [23].

When it comes to school principals, the application of TQM methods is deemed extremely good, indicating that the principal can foster a culture of quality in the entire parts of school processes. TQM is a component of excellence because it can meet with stakeholders, fulfil the specific demands of end-users, and meet the needs of partners of the organisation [24]. A good leader is willing to help students achieve better academic results in school. The school's leadership plays an essential role in guiding and motivating society to attain the institution's overall goal [25]. In order for an institution to increase the quality of its performance, TQM has an impact on their leadership [26]. Even though TQM has been in use in front of educational backgrounds for many years, it has been recognised by most institutions executives as a novel method to improve educational management of the performance [27]. Moreover, according to Phan, *et al.,* [28], TQM is a method of managing the company as a whole to maximise the efficiency of the organisation, its flexibility, and its competitiveness.

2.2 Implementation of TQM in Education

As far back as the 1990s, studies on TQM in education started in the US and the UK. Sallis [29] stated, "Most of the groundbreaking work on TQM was conducted in the United States and by other educational institutions in the United Kingdom. The US projects began considerably earlier than those in the United Kingdom, but both nations experienced a rise in interest beginning in 1990". Thus, the educational sector's research interest in TQM eventually spread to other regions of the world.

The spike in concern in TQM in learning was motivated by the assumption that quality education is critical for success in the worldwide educational competition. The main concept of TQM applied to education management in the same way that it does to other industrial sectors [30]. According to Feigenbaum [31], the quality of education is influenced by how all stakeholders' think, act, and make judgments about quality. Sallis [29] approved this approach, stating that 'entire in TQM requires that the whole thing and everyone in the group participate in the operation of continuous improvement'. Lewis and Smith [32] noted, although evaluation and accreditation in the academic world and other institutions have historically concentrated on outputs and inputs, a TQM method integrates processes, outputs, and inputs. Scholars attempted to adapt TQM ideas used in industry to the Higher Education division, gently improving them to fit in education settings [33].

Thus, the TQM approach to education encompasses obtaining high quality and all facets of the educational process, including organisation, management, interpersonal relationships, and human resources and material. Article by Pratasavitskaya and Stensaker [10] mention that education is not just about more than quality and greatness; it is also about the excellence of both students', instructors', systems', and stakeholders' active participation and interactions. Adopting the TQM element in education benefits students and educators by increasing morale, increasing performance, providing high-quality services for students and parents, and sets standards for institutions [9, 34].

Nevertheless, there is a considerable dispute surrounding the applicability of TQM in education, given this idea was initially designed for industrial firms. According to Pratasavitskaya [10] and Stensaker [10], not all managing theories are applicable. This is because the industrial world has a unique notion than the educational environment. As a result, schools must emphasise the critical nature of incorporating TQM principles into their operations to improve educational institutions' processes. Additionally, it is vital to address the significant issues associated with applying TQM in education so that institutions can take proactive efforts toward TQM implementation.

Therefore, according to Kanji and Tambi [35], Sahney, *et al.,* [36], Prajogo and Sohal [37], implementing TQM procedures enhances both service and market quality in a variety of enterprises. Additionally, several systematic evaluations of the literature, such as Kigozi, *et al.,* [38], have been done to compare how higher institutions adapted quality models from the company. Manatos, *et al.,* [39] undertook another comprehensive analysis of the literature intending to analyse how quality management concepts have been implemented into the management systems of higher institutions. Prior researchers' reviews concentrated on quality management models, particularly in higher institutions.

In the field of education, TQM contributes to increased customer satisfaction, both internally and externally. Customers within the organisation, such as principals, instructors, personnel, and institutional administrators. Meanwhile, external problems such as the community, the government, and the industrial world are being prosecuted. In other words, a quality institution or educational institution can deliver complete customer satisfaction to both internal and external clients for the services provided.

Various aspects are used as the foundation for implementing TQM in educational institutions. Education professionals must be held accountable for their job in a proactive manner. A logical problem-solving method that can identify and address the underlying reasons must be developed by the team members involved. So that a suitable system can be established in educational institutions, schools must be able to serve as pilot organisations and measure what is working well and what is not. According to Mulyasa [40], there are four primary reasons for the application of TQM in institutions, which are as follows:

First, educators must take personal responsibility for their obligations and responsibilities, as educators are the most crucial component in school improvement. It is the responsibility of educators to maintain control over the problem-solving process, which impacts the learning environment in schools.

Second, education involves a problem-solving approach that is sensitive to students' needs and is centred on identifying and solving the root causes of the difficulties they encounter. All of the roots of educational challenges are systemic, which means that they stem from the heart of the problem in the school community and have implications for the learning and teaching activities that happen in the school. This is true for all types of educational issues.

Third, the school organisation should serve as a model for all organisations regarding how they learn and organise themselves.

Fourth, by incorporating TQM into educational institutions, the general public will understand why the current educational system is failing.

Quality in higher education is examined in terms of numerous attributes such as employee happiness, managing teaching, leadership and knowledge performances, hiring procedures, service quality and improvement in learning and teaching, and infrastructure. Zhang [41] conducted a university study on developing a TQM model; meanwhile, Kanji [35] conducted a study in Malaysia on TQM and higher education.

TQM procedures are sometimes known as critical success factors to increase the capabilities of enterprises or organisations [42]. Numerous studies have been undertaken to ascertain TQM procedures in various organisations, including health care, business, industry, and education [43]. A review of prior research undertaken by diverse researchers is provided to facilitate TQM practices in educational institutions. Kigozi, *et al.*, [38] recognised top management responsibility, strategic planning, organisational quality, teamwork, employee involvement, design management, quality training, and process management as the primary TQM procedures used in higher institutions in the United Kingdom the United States.

A further study on the effects of TQM procedures was done by Manatos, *et al.*, [39]. It involved the use of Elsevier's Scopus databases, which incorporated 58 research articles from them. The following TQM practices were identified during their review: leadership, customer focus, continuous improvement, supplier relationships and factual approach, and all of these TQM practices were founded on TQM in higher institutions. Ngware, *et al.*, [44] researched secondary schools in Kenya, intending to determine how secondary schools implemented various parts of overall quality management. According to their research, strategic planning, leadership, and also HR development are the three most prevalent TQM strategies in Kenya's secondary schools.

Additionally, they observed that while most headteachers use leadership to inspire their teachers, they used strategic planning to get high quality. Töremen, *et al.*, [45] studied primary schools in Turkey to determine the degree of TQM procedures used in primary schools based on teachers' views by using a survey-based explanatory scanning model on 420 teachers as a sample. The research highlighted the resulting TQM practices: school management, principle clarity, school life quality, school involvement, change management, and adoption of TQM ideology.

TQM practices at secondary schools in Zambia were found to include continuous improvement, teamwork, management commitment, and training, as was seen in the research of Nawelwa, *et al.*, [46] on TQM practices in Zambian secondary schools. A statistical investigation done in higher institutions in Jordan revealed that leadership and investor focus was among the leading TQM practices for students and stakeholders.

According to a quantitative study done by Mohammed, *et al.*, [47] in Saudi Arabia, identifying the most common TQM practices in higher education in that country includes focusing on customers, exercising leadership, meeting product design standards, implementing a strategic quality planning process, enabling people participation, making use of facts in management, and always seeking improvement. Mohammed, *et al.*, [47] conducted a study at Saudi Arabian higher education institutions to give another perspective. Based on their investigation, they believe a TQM practice model, such as physical evidence quality, education quality programs, staff and faculty quality, student quality, curriculum quality, regulation quality, and administration, is typically used in higher education institutions.

It was discovered from the literature analysis that two studies, those done by Manatos, *et al.*, [39] and Kigozi Kigozi, *et al.*, [38], were systematic reviews: These are studies conducted by authors: Töremen, *et al.*, [45] studied undergraduate university students; Ngware, *et al.*, [44] did systematic reviews in universities; Nawelwa, *et al.*, [46] also looked university students, as did Alsuhaimi [48]

and Mohammed, *et al*., [47]; the remaining research, mentioned above, were empirical investigations. In addition, literature review research showed that main methods used in educational institutions are leadership, top management commitment, staff involvement, continuous improvement, strategic planning and customer focus.

2.3 Significance of TQM in Education

Customer satisfaction is the goal of educational institutions to achieve and keep them. Stakeholders determine consumer satisfaction in TQM, which means that all current management must strive to meet the customer needs. Referring to Koslowski [49], TQM is a management strategy that adapts to modifications to maintain or increase productivity and quality, both internal and external. TQM entails a continuing effort to improve the organisation's overall quality and customer happiness, with success defined by management responsibility [50].

TQM education leads to high-quality outcomes and influences every facet of education, including organisational, managerial, interpersonal, human resources, and material factors. The application of TQM in all institutions or industries, including the education sector, helps to ensure that customer demands and expectations are met to the greatest extent possible. Teachers, students, and stakeholders all benefit from TQM in education since it helps them understand their respective duties and provides them with a positive customer service experience. It can be said that TQM lined the path for the development of student-centred insights [51]. Furthermore, according to Shweta Batra, *et al*., [52], TQM directly impacts an individual's improvement, resulting in greater levels of dedication and team spirit in businesses under management. It indirectly helps educators take a more active role in providing high-quality educational opportunities [9].

TQM is commonly used in education across the world since it has been demonstrated that incorporating TQM into the teaching process can increase student performance and the overall quality of the classroom experience for both students and educators [53]. TQM plays a significant role in the educational system since it allows for continuous process improvement in every company step. School stakeholders appreciate the challenges they are facing and gain the ability to correct these issues at once as a result of applying TQM principles [54]. In addition, TQM may aid teachers in fostering excellence in teaching and providing the opportunity to learn about teaching practices that focus on teaching skills like managing, securing, and improving the quality of instruction. An experiment showed that implementing TQM increases students' priorities, expectations, experiences, and challenges while concurrently using feedback to improve teaching and learning [54].

Generally, models for the TQM technique result in constant improvement [55]. Oakland [18] identified three criteria for increasing the quality of school organisations: a customer-centred approach, a thorough grasp of the educational process, and participation by students and faculty. Arcaro [56] went on to say that, in addition to these three principles, other characteristics can be used to identify total quality schools, including the presence of measurements, commitment, and a commitment to continual improvement. Sallis [29] claims that to apply TQM successfully, businesses must look at continuous improvement, sustaining customer relationships, setting quality assurance requirements, cultural shifts, and organisational change. Therefore, when implementing TQM, several standard practices should be considered, including continuous improvement, preserving customer connections, and setting quality assurance criteria.

Nevertheless, Oakland [11] TQM claims that establishing TQM is a matter of strategy and organisation, dedication and leadership, implementation and training, and people coming together. continuous improvement, leadership, procedure, and customer focus are necessary for implementing TQM in education, as argued by Cokeley [57]. The most commonly mentioned TQM

components in the survey articles studied by Sila and Ebrahimpour [58] were described in their entirety. It may be concluded that the results of the study are in agreement with Bergman and KLEFSJO [59], Kennerfalk [60], and Kanji, *et al*., [61], which describe key values such as customer focus, engagement of all stakeholders, process emphasis, continuous improvement, and fact-based decision-making.

To ascertain which educational institutions adopt TQM practices, a systematic review of the literature was performed. The second table displays a snippet of the data taken from the researcher's research on applying TQM in education.

Table 2
A Study of TQM in Education

Name of Researcher	Research Subject	Title	Research Study	Method / Result / Finding
1. Karageorgos, et al. [62]	Primary and secondary school settings in Cyprus	Planning and Implementing Total Quality Management in Education: The Case of Cyprus	This study aims to evaluate and collect all preliminary findings of TQM implementation in Cypriot education so that they can be catalogued in a repository.	Method: systematic analysis of research. Result: TQM is implemented in education in two ways: through innovation and continuous quality improvement. More precisely, diverse and virtual teaching, differentiated and virtual learning, and new teaching people are recruited.
2. Kwarteng [63]	Higher Education Institution in Ghana	An assessment of outcome criteria associated with the implementation of TQM in a higher education institution in Ghana	To recognise quality dimensions that enable measuring service quality performance related to TQM implementation in higher education.	Method: Quantitative and T-test. Result: Gaps in service delivery are shown by the results, and institutions' performance and customer satisfaction go hand in hand.
3. Sowiyah [64]	Primary School	Implementation of Total Quality Management as Efforts to Improve Quality of Primary School Education Services During the COVID-19 Pandemic Period	To fully understand how well education services are prepared for this new pandemic, apply a new way of managing known as TQM to assess the impact.	Method: Questionnaire and Chi Square Result: The application of TQM can improve the education services in schools.

4. Billah and Karim [65]		Implementation of Total Quality Management in Education	To determine the imprint of the up-to-date management paradigm "Total Quality Management" (TQM) and its implementation in the field of education, an assessment was made to evaluate the management's and their work's success.	Method: Literature review Result: The continuous improvement focus of TQM is a fundamental way of fulfilling the responsibility regulations common to educational reform
5. Khurniawan, et al. [66]		An Analysis of Implementing Total Quality Management in Education: Succes and Challenging Factors	To assist the reader in comprehending the procedures required to implement TQM in education.	Method: Qualitative Result: Innovation, creativity, and humanity are influenced by continuous development, which fosters team spirit and a solid commitment to managing an organisation while also encouraging educators to become more active participants in education.
6. NGUYEN, et al. [67]	Vietnamese Higher Education	Application of Total Quality Management in Developing Quality Assessment Model: The Case of Vietnamese Higher Education	To create a quality framework that will be implemented at Vietnamese institutions as part of comprehensive quality management.	Method: Qualitative and quantitative with fuzzy logic. Result: There are eight distinct higher education quality standards that have been defined and rated.
7. Hamidi, et al. [68]	Farshchian Cardiovascular Subspecialty University Hospital, Hamadan, Iran	Effect of TQM educational interventions on the management policy standard of health-promoting hospitals	To improve management policies and, by extension, the health promotion standards in hospitals (HPHs).	Method: SPSS Software Result: The educational interventions had a positive effect on quality management and management policy.
8. Khurniawan, et al. [66]	Bogor Agricultural University, Indonesia, Indonesia	The Collaborative Strategy of TQM and School	To implement school governance and comprehensive	Method: Quantitative using

		Governance to Improving Effectiveness of Vocational School-Based Enterprise	quality management to develop a plan for promoting the efficacy of vocational school-based enterprises (TQM).	Analytic Hierarchy Process (AHP) Result: Upgrading and improving the quality of human resources must be the starting point for enhancing school management effectiveness.
9. Glaveli, et al. [69]		The soft side of TQM and teachers job satisfaction: an empirical investigation in primary and secondary education	The adoption of fundamental soft TQM principles in primary and secondary education and their effect on teacher job satisfaction (TJS).	Method: Result: TQM is highly utilised in primary and secondary education due to leadership and empowerment.
10. Felestin and Triyono [2]	Vocational school, public and private in the city of Yogyakarta	The Implementation of TQM at Vocational High Schools in Indonesia	To determine how TQM is implemented in public and private vocational high schools in Yogyakarta and compare the time to which TQM is implemented in public and private vocational high schools.	Method: Questionnaire analysed using descriptive and statistics t-test. Result: In public vocational schools, the implementation of TQM is already at its maximum. On the other hand, in private vocational schools, performance is lower due to private schools' lesser funding.
11. Talib and Rahman [70]	Collection of Literature Review	Prioritising the TQM Enablers in HCEs for Improved Performance: An AHP Approach	Investigate and categorise TQM enablers and rate their relative importance for implementation in HCEs.	Method: Literature reviews analysed by Analytic Hierarchy Process (AHP) Result: Increased performance is greatly influenced by top management and personnel and the availability of resources and competence in the company.
12. Sohel-Uz-Zaman [6]		Implementing Total Quality Management in Education:	to identify and highlight important issues that arise while applying TQM in education	Method: Qualitative Result: To make TQM successful, it

			Compatibility and Challenges		is essential to create a quality culture,
13.	Saleh [71]	Education Institution in Bangladesh	TQM in Higher Education: A Search for New Insight	Assessing the potentials of TQM in increasing quality and assurance in higher education and to generate general recommendations	Method: Qualitative

Reviewed published publications on the methodology utilised in TQM procedures in educational institutions are used in this paper. According to Tranfield, *et al.,* [72], systematic reviews are a crucial tool for fostering discussion and disseminating academic findings from multiple specialists. A systematic review is a process for finding, assessing, and analysing the published contributions made to a study with a particular research topic, as Manatos, *et al.,* [39] define it. This paragraph provides a step-by-step breakdown of the review process, including preparing for the review, reviewing the information, reporting the findings, and disseminating the results.

Several researchers have used the same technique: a literature survey on TQM methodologies used in educational institutions was conducted. This support by Töremen, *et al.,* [45]. In addition, some scientists used varied databases and focused topics in their systematic reviews; they all followed the same methods, as seen in Tranfield, *et al.,* [72].

Papaioannou, *et al.,* [73] have proved the methods and tactics above to be reliable, consistent, and unbiased, which is why they are adopted. On the other hand, systematic reviews are open and accurate, but they are subject to flawed processes, including conflicting outcomes, lack of definition, ambiguous language, and an unclear status of terms. To provide a thorough picture of quality management techniques employed at educational institutions, this study analysed papers in English and Malay language journals available in English and Malay databases.

First, the abstracts of the publications were read, and if the abstracts were unclear on any point, the complete version of the article or the paper was studied and discussed. This exclusion was made for the following reasons:

i. Were the articles theoretical?
ii. Were they duplicates?
iii. There was no critical analysis of TQM implementation in educational institutions?
iv. There was no focus on TQM implementation in educational institutions?

The surveys were subsequently scrutinised to ensure that their material was pertinent to the review's core objective, resulting in 130 papers. The causes for this decrease are: i) a lack of critical examination of TQM practices in educational institutions, and ii) a lack of focus on TQM practices in educational institutions. First of all, the abstracts of the publications were read, and, if necessary, the complete content of the article was evaluated. Second, this elimination was based on the following criteria: i) They were theoretical articles, ii) They were duplicates, iii) They lacked a critical examination of TQM practices in educational institutions, and iv) They lacked a focus on TQM practices in educational institutions. This resulted in the elimination of 120 studies due to their failure to meet the inclusion criteria, leaving only 51 for further examination against the mandated assessment criteria. The following Figure 2 summarises the inclusion and exclusion criteria.
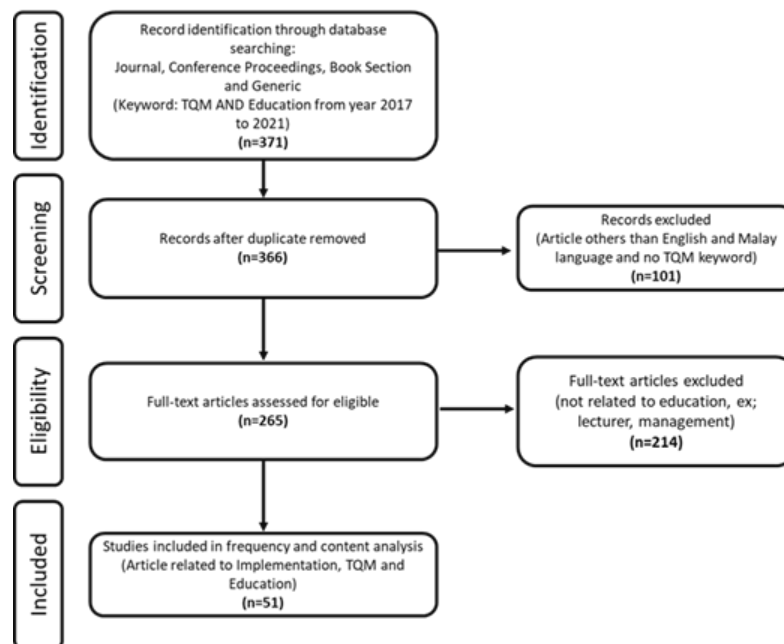
Fig. 2. Systematic Literature Review

First, the well-defined keyword is identified. In some cases, bibliographic searches can yield thousands or even tens of thousands of references, each of which must be reviewed for eligibility. Therefore, it is critical to ensure that search results are organised so that they can be screened quickly and efficiently for eligibility for inclusion in evidence synthesis. Before the screening, the following steps will be required to assemble the references into a library using one or more bibliographic reference management systems; identifying and removing any duplicate relations, and conducting a preliminary screening. About 2,515 written about TQM from 2016 to 2021, and about 371 write about TQM and education. The database was extracted from the articles, and the articles' titles and abstracts were screened. The full text of all potentially eligible articles will be assessed after excluding duplicate articles - the potentially suitable paper as screen-based on the inclusion or exclusion criteria.

3. TQM Critical Analysis

There is a disagreement if TQM is appropriate in higher education. The findings of the literature on the effectiveness of TQM in education are inconsistent. There are three main schools of thought regarding the applicability of total quality management in education: agreement, to a certain extent applicable, and disagreement.

The first point of view is an agreement, which means that TQM is utterly consistent with education. Several researchers have argued that the values of total quality management (TQM) are equally applicable in higher education Sirvanci [74] and that these values are also compatible with higher education [75]. Quality management in higher education is a method of reaching and maintaining excellence [76]. According to this school, TQM is more than just a mechanistic system; instead, it is a philosophy of continual improvement. While discussing the nature and imperatives of TQM, it is shown that it has a universalism appeal as well. Higher education is a natural fit because it is a process-oriented strategy intended to boost production while decreasing costs and improving quality [77].

The second point of view is that TQM is suitable in higher education to a certain extent. Because of the dynamic and competitive environment of contemporary higher education, Total Quality

Management (TQM) values are to some extent applicable [78]. According to one fair interpretation [78], TQM's applicability for higher education is dependent on how it is implemented. This is because the nature of an academic institution is fundamentally different from the nature of a typical industrial and business organisation. Even though higher educational organisations are not the same as businesses, some of the essential ideas and methods applicable to companies are also applicable to individuals who work in service organisations [79,80]. The success of some tools and approaches in specialised areas is astounding, as is the effectiveness of some techniques in general. For example, the utilisation of customer and stakeholder input and top-down control (as seen in Six Sigma), was applied to development projects in higher education [81]. Nevertheless, soft aspects still appear to be more prevalent in TQM. Academic management and process management are highlighted [74], while people management is included at number 13 [82].

This third opinion, which is opposed to the adoption of TQM in higher education, is just a disagreement. Its proponents are numerous, yet it has little impact on schools and institutions. Because these theories are not consistent with the values of higher education, they are unworkable in practice [10]. As a result, various items such as product, customer, empowerment, or even strategy, which do not easily match in higher education institutions, are called tools and techniques of TQM. This theory proposes that the artificial implantation of TQM does not affect higher education.

Most of the TQM methods and tools were developed in order to assist manufacturing firms and help them resolve problems. This has evolved from manufacturing sectors because of the flexibility of the jurisdiction. According to De Jager and Nieuwenhuis [83], despite TQM was initially established for industrial companies, the benefits are of equal use to education institutions, such as universities.

4. Result and Discussion

A variety of factors, including teachers, leaders, students, staff, teaching and learning processes and curriculum, financial support, and administrative oversight, will all play a role in improving the overall quality of education in today's society. However, when divided into two key categories, internal and external, the results are more favourable. Internal concerns all of the components within the school, whereas external aspects, come from outside the school and contribute to and determine the success of education within the institution. Internal elements are those that contribute to and assess the success of education within the school. Both will encourage and assist one another in their pursuit of educational objectives.

The application of TQM in education has been discussed in specific articles, with numerous institutions, schools from various countries success with TQM. According to Khan, *et al*., [84], TQM adoption in education can improve the overall system. Where adoption of TQM in education can ascertain more effective institutional change with success.

Houston [78] also performed research on New Zealand's higher education system. He found that TQM is insufficiently matched with the substance of higher education, owing to the complexity of the subject matter. However, it would be more beneficial to examine the creation of locally appropriate systemic approaches to improving the quality of higher education in general, and specifically, higher education.

We can see that TQM is widely used not only in education but in other sectors as well in others countries around the world. This can be seen in the publication of research papers in the last five years, which confirmed that researchers are still interested in observing TQM implementation in an organisation. Additionally, it confirmed that TQM is still in use and is still compatible with today's corporate climate, which is characterised by rapid and constant change (agile).

4.1 Gap Analysis

TQM has proved the positive effects on education, but the implementation of TQM in teaching and learning education is limited to two weeks [54]. Quality management is a complicated management strategy that is ineffective in educational institutions due to the strength of the institutional culture [15]. Several scholars think TQM will have little effect in institutions [54]. According to Ah-Teck and Starr [85], while the ideal benefits of TQM exist in the industry, the viability and value in education are yet to be proven. While business philosophy can be used in service organisations, like educational institutions, educational philosophy has traditionally not been applied in the business world [6]. Schools are somewhat different from the work ethic and mentality of the sector [6,86]. Products, clients, empowerment, and strategies are challenging to incorporate into institutions because of the word "reengineering" [87].

One of the most significant barriers to implementing TQM in education is not enough commitment to participating in the educational system, particularly senior management and educators. In the traditional education system, the role of entities, especially instructors, is informal and less intrusive [88]. Intuition, habit, and experience allow educators to tackle difficulties that have accumulated through time successfully. However, they would not assist in assessing the entire institution's system's effectiveness [56]. Thus, not only does it reduce the opportunity for process improvement, but without management support, no improvements will be made.

5. Conclusion

This study explored the characteristics that contribute to the relevance and success of TQM adoption in education. These criteria included a customer-centric strategy, a process-centric approach, continuous improvement, stakeholder involvement, and fact-based decision-making. Additionally, the study examined the extent to which TQM can aid in the advancement of educational quality. TQM, on a broad level, attempts to enhance quality and affects all facets of educational processes, including organisational management, interpersonal relationships, and the utilisation of resources, both physical and intellectual. Furthermore, TQM directly affects human development because it creates a high level of commitment and team spirit in corporate management and motivates educators to take an active role in providing high-quality training. However, implementing TQM in an organisation presents its own set of challenges. For instance, insufficient dedication among those involved in the school system, notably top management and instructors, is a significant hindrance to success.

Therefore, TQM is an excellent way for TVET MARA to ensure higher education establishment education. Implementation of TQM is thought to encourage each educational institution's management function to run efficiently. Teachers, staff, students, curriculum, teaching and learning methods, financial support, administration, and many other variables will influence improvements in the quality of education. An excellent educational climate is defined by how much the community, government, and academic environment support learning. Education institutions require a well-established infrastructure, qualified teaching personnel, and a well-executed quality management program to get TQM up and running [9]. Only in this way will the quality of the education system improve over time.

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