Critical Success Factors of TQM for Sustainability in Higher Education Institutions: A Theoretical Contribution

Teresa Nogueiro, Margarida Saraiva, and António Ramos Pires

Abstract Total quality management (TQM) is a management approach that was initially used by the industry, but that over time has been adapted to other types of institutions, including higher education institutions (HEI). Currently, the topic of TQM associated with HEIs and higher education is certainly no longer a novelty. However, considering the competitiveness of these institutions for the best students, best researchers, and best means, the sustainability of these institutions has become almost a requirement. This chapter intends to analyze the critical success factors (CSF) in the implementation of total quality management and the critical success factors for sustainability in HEI as a way of contributing to a theoretical reflection on the sustainability of higher education. This work was based on the 11 CSFs for the implementation of TQM, following the studies of Bayraktar et al. (Total Quality Management 19:551–574, 2008), corroborated/validated by Nadim and Al-Hinai (International Journal of Applied Sciences and Management 1:147–156, 2016), in HEI: leadership, vision, measurement and evaluation, process control and improvement, program design and resources, quality system improvement, employee involvement, recognition and reward, education and training, student focus, and other stakeholders' focus. After identifying the keywords or phrases of the CSFs in TQM implementation, we identified many other aligned CSFs for a better understanding of the critical success factors for sustainability implementation in HEIs.

T. Nogueiro
School of Social Sciences, Universidade de Évora, Évora, Portugal

M. Saraiva (✉)
School of Social Sciences, Universidade de Évora, Évora, Portugal

BRU—Business Research Unit-Iscte-Instituto Universitário de Lisboa, Lisboa, Portugal
e-mail: msaraiva@uevora.pt

A. R. Pires
UNIDEMI – Universidade Nova de Lisboa, Portugal and Instituto Politécnico de Setúbal, Setúbal, Portugal

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1 Introduction

The higher education sector has become very competitive and subject to market forces; as a result of these issues, higher education has been considered a worldwide business. To deal with these developments, higher education institutions (HEIs) have discovered that total quality management (TQM) is an unavoidable approach to achieving corporate goals [2] and increasing a company's overall effectiveness, efficiency, cohesiveness, adaptability, and competitiveness [3]. The overall structure of higher education institutions is designed to achieve research and teaching goals. The operational personnel of the institutions reinforce these goals [4–6].

While many organizations around the world have implemented TQM, its implementation in nonprofit organizations and higher education institutions offers more problems and difficulties than in corporate firms. The process of client identification is a crucial stage in TQM implementation [7]. "Who are your core customers?" is a crucial question for any business. Higher education makes the matter more challenging because its services are provided to a variety of groups, such as students, businesses/employers, societies/governments, and teachers. Higher education institutions have a large variety of customer groups that have been recognized by many authors who have examined the subject.

Students are the key customers, despite the fact that higher education has numerous customers and stakeholders (future employers, governments, and societies). Education is described as the process of learning knowledge, as well as the knowledge, skill, and understanding gained via attendance at a school, college, or university. The nature of education (as a service) is that it offers the foundation for learning and demonstrating that learning has occurred. Whether students see themselves as co-creators or not, it is important to remember that education can only happen if learning happens [8].

These customers have a variety of requirements that are either complementary or discordant [9]. According to these authors, the first key finding of their research is that "education" is divided into two distinct processes: teaching/education, which is mostly the responsibility of university teachers, and learning/knowledge, which is primarily the responsibility of students. For each process, the main internal and external customers were identified. For these authors, in the process of "teaching/education," the internal customers are the faculty members and the external customers are the students; in the process of "learning/knowledge," the internal customers are the students and the external customers are the employers/companies; and in the process of "research/investigation," the internal customers are the faculty members and the external customers are the society/government. Therefore, the work of these

authors illustrates five opposing viewpoints among several client groups: (1) the student as a customer in classroom teaching activities; (2) the student's participation in his own learning; (3) future employers' expectations of the student as a product; (4) scientific productivity indicators in research; and (5) the double duty of teachers: teaching and research.

In a different approach, Reavill [10] created a framework for identifying higher education stakeholders, focusing on developing customer requirements as a key component of TQM (total quality management). Students, employers, the student's family and dependents, universities and their employees, suppliers, the secondary education sector, other universities, commerce and industry, the nation, the government, taxpayers, and finally professional bodies are among the 12 stakeholders who contribute to or benefit from higher education.

Akinyele [11] has classified HEIs' customers as internal customers (academic and administrative) and external customers (direct and indirect). More recently, Guilbault [8] referred that the student, employer, and other stakeholders might all be considered customers. Excluding the student from the role of customer can have an impact on student happiness/satisfaction and retention since who is perceived as the consumer determines policies and procedures. Students perceive themselves as customers, and there are many actions/activities/practices by HEIs that treat students as such.

Universities must be accountable to society, employers, students, and each other. Therefore, higher education must be of high quality [2, 12].

TQM has the ability to increase educational institutions' quality while also achieving continual improvement and refers to an organization's culture of continuous improvement aimed at increasing customer satisfaction [1]. For the objective of constructing a comprehensive TQM model, a synthesis of TQM philosophy and system aspects is possible. Aspects of a unit or organization that must work well if the unit or organization as a whole is to prosper are known as key issues or critical success factors (CSF). They must be addressed in order to achieve the level of quality that customers need in order to meet their demands and expectations. They have the following characteristics [13]: customer joy, external customer satisfaction, internal customer satisfaction, fact-based management, measurement, people-based management, continuous improvement, and continuous improvement cycle.

The CSFs for the implementation of TQM are critical in higher education institutions since they will assist the organization in improving its performance assessment [7].

TQM's CSF of strategic quality planning is crucial. It covers, among other things, the creation of vision/mission statements, quality policies, quality control, and other management tools [14].

Other challenges, including leadership, culture, and organizational issues, can make TQM implementation more difficult in higher education [15]. To properly adopt TQM, it is critical to ensure that everyone is completely engaged and dedicated to the process [7]. These authors identify the following CSF for the implementation of TQM: management commitment and leadership, total customer satisfaction,

employee involvement, continuous improvement, training, communication, and teamwork.

Identifying critical success factors is a crucial step in incorporating them into the processes. It gives an organization a way to assess hazards and possibilities in its surroundings. CSFs also provide a set of criteria for evaluating organizations' strengths and weaknesses [13].

This chapter intends to analyze the critical success factors in the implementation of total quality management and the critical success factors for sustainability in HEI as a way of contributing to a theoretical reflection on the sustainability of higher education.

Aside from this introduction, this chapter is divided into four sections: "Framework of the themes"; "Methodology of the study"; "Results obtained"; and "Final considerations, limitations to the study, and future research."

2 Exploring the Critical Success Factors in the Context of Higher Education Institutions

TQM can be adopted and implemented in HEIs, according to Nadim and Al-Hinai [2], but there is still a knowledge gap about how to do it successfully. The knowledge of TQM's CSF may aid in the removal of implementation difficulties.

Over the last 15 years, sustainability has gained traction and is still a hot topic in management circles. Scholars and practitioners agree on the significance of eliminating all trade-offs between business and society, as well as their inextricable interplay [16]. Indeed, there are many parallels between sustainability and TQM, particularly in terms of beliefs and methods. Both sustainability and TQM are focused on proactive and preventive techniques with the purpose of achieving long-term objectives and maintaining performance levels. On a practical level, both of these ideologies have established technical and organizational methods to ensure the true governance of their processes, such as (1) continuous improvement; (2) zero defects; (3) life cycle evaluation; (4) waste reduction; and (5) employee involvement and training [17].

TQM as a management approach might be broadened to include elements of sustainability development, according to Isaksson [18], identifying "process management" as the most appropriate tool for enhancing not only the economic firm's performance, but also its environmental and social performance.

Zink [19] highlighted the main TQM principles (i.e., leadership, continuous improvement) that can easily be discounted in this theoretical framework, stating that excellence models are valuable tools to transfer the concept of corporate sustainability into practice, according to Edgeman's theory [20], where excellence for sustainable development can be built on the triangle "person–organization–society."

Apart from the TQM CSFs already described and "naturally" linked to sustainability, environmental sustainability is frequently emphasized in the literature as a fundamental antecedent of sustainability [17].

In HEI, Bayraktar et al. [1] identified 11 TQM CSFs. While Nadim and Al-Hinai [2] gathered data from 144 academics from 22 HEIs in Turkey, the 11 CSFs of Bayraktar et al. [1] were validated for reliability and validity. Leadership, vision, measurement and evaluation, process control and improvement, program design and resources, quality system improvement, employee involvement, recognition and reward, education and training, student focus, and other stakeholders' focus are all reliable CSFs, according to their study's findings. Employees' involvement was found to be the most important success element, followed by stakeholder focus and other stakeholder focus, according to Nandim's and Al-Hinai [2] findings.

The 11 CSFs in HEI are presented next, according to Bayraktar et al. [1] corroborated/validated by Nadim and Al-Hinai [2].

2.1 Leadership

The European Quality Award and the Malcolm Baldrige Quality Award both emphasize the need for leadership commitment to TQM efforts as a well-accepted TQM implementation premise. HEIs'top management should be aware of TQM's requirements, recognize the value of employee involvement, and focus on long-term stable performance measures while actively supporting TQM procedures through their activities [1]. If top management is not committed to TQM, it will not be implemented efficiently [21].

Vision, mission, and values are components of leadership dimension [13]. TQM believed leadership to be a primary CSF. In order to reach the given aims, leaders are responsible for defining and articulating the company's vision, as well as building organization-wide commitment in the workforce [2, 22, 23]. The dedication of the top management is critical to the success of a quality improvement program. Management commitment entails defining a clear and appealing future vision as well as offering strategic leadership [24].

It is vital for the top management to commit to developing an organizational atmosphere that empowers employees [25].

It is critical for HEIs'top management/leaders to pay more attention to employee participation in decision-making and ensure that key performance indicators (KPIs) are clearly communicated to all employees [2].

To foster a sustainable culture, HEIs, like other companies, rely on competent leadership [26].

According to Weiss et al. [27] (pp. 51), "There is a significant effect that no leadership is associated with a low-level ('bolt-on') of sustainability curricula implementation." Their findings imply that a curriculum change is only achievable if leadership support is at least reasonable.

2.2 Vision

A vision is a declaration of one's wish to evolve into a preferred state in the future. All personnel should be allowed to focus on how they can help realize the goal. Visions are linked to what is known as transformational or charismatic leadership, which refers to leaders who have a significant impact on their organizations [13].

An HEI's vision is a public expression of what kind of organization it wants to be in the future. The vision statement shared and practiced throughout the organization can be seen in the values, beliefs, and business practices of the organization. Obviously, different vision statements will result in varied TQM implementation policies and performance measurements [1] and that may prove misleading [2]. To these authors, leadership's innovative approach and goals in the growth of HEIs are determined by vision.

To develop a prosperous environment for sustainability, university leadership must promote a vision of sustainability on campus and continually support it in order for it to take root and grow. Building a team with a shared vision, acting on that vision, and leveraging the vision to empower the campus are all part of leadership's responsibilities [26].

2.3 Measurement and Evaluation

These are tools for determining the quality of HEI performance. As a result, areas of weakness will be identified, and performance adjustments will be pursued [2].

In any implementation, determining the degree of success is essential for identifying areas for improvement. Even though it is difficult to identify globally acceptable performance measures for all HEIs, measurement and assessment are almost impossible without them [1].

Before monitoring and evaluating staff performance in HEIs, Bayraktar [28] emphasized that it is critical to precisely establish the key performance indicators (KPIs).

2.4 Process Control and Improvement

This is a natural result of measuring and evaluating things. Because HEIs are viewed as service organizations with many processes, they may require a unique organizational structure. Measurement, evaluation, control, and improvement of administrative and academic procedures in HEIs should be done on a regular basis [1].

Any complete quality approach must include process management. Processes that have an impact on the quality of products and services should be given special

attention. Process management is concerned with ensuring that processes run smoothly as expected [14].

Process control and later improvement are required at each step to relieve pressure on the quality improvement system and contribute to meeting stakeholder demands [2].

2.5 Program Design and Resources

Academic programs are HEIs'principal products for attracting and satisfying the needs/requirements of stakeholders like students, industry/firms, academia, and the general public. These initiatives should be examined on a regular basis, taking into account the requests of stakeholders and technology advancements, and revised as needed. Interdisciplinary study fields, as well as the facilities required to perform such research, should be taken into account while developing curriculum and programs [1].

The designed programs must be reassessed on a frequent basis in response to any internal or external pressure to modify them [2].

2.6 Quality System Improvement

To ensure the consistency of quality-related concerns in HEIs, a well-documented quality assurance system is required [1].

Any organization's quality processes must be established and reviewed on a regular basis. It was clear in HEIs that there are two recommended instruments for improving the consistency of quality systems: process flow charts and quality criteria checklists [2, 29].

2.7 Employee Involvement

A good TQM implementation will not be achieved without the unambiguous support and involvement of the workforce. TQM is an organization-wide endeavor to create a high-quality culture. Employees' negative attitudes about TQM implementation may be eliminated with active participation. Employee involvement in HEIs can be measured by cross-functional team formations, employee collaboration, voluntary employee participation in TQM research, and system acceptance of employee proposals [1].

Teamwork and cross-functional interactions are emphasized in TQM techniques, which give numerous chances for social engagement and reinforcement [30].

Employee participation is widely cited as a critical TQM CSF. Employees that are more involved have a greater knowledge of the value of product quality and are more devoted to improving it. Employees should feel a sense of belonging to the organization [14].

Employee empowerment is a motivational strategy that encourages administrators, academics, staff, and others to advocate for environmental sustainability [26].

2.8 Recognition and Reward

Any employee, department, or school that demonstrates success in TQM-related initiatives should be rewarded as a means of bolstering a specific performance level. Performance measurements for HEIs may need to be updated to take quality efforts into account in order to encourage employee commitment to TQM adoption [1].

According to Zhang [31] quoted by [2], a regular and open method for evaluating employee performance and selecting award criteria is required. As a result, it is advised that the recognition and reward system criteria be designed to reflect the HEIs' staff involvement in this process in order to create and strengthen the level of organizational commitment among the employees.

2.9 Education and Training

Even in higher education institutions, educating and training personnel on TQM adoption and its consequences is critical to the program's success. Academic and nonacademic staff training needs should be recognized individually and included as part of a quality awareness workshop. Missing skill sets should be identified, and additional training should be organized to bridge the gaps. Such activities should have access to the necessary financial resources [1].

Staff should be trained and informed of all relevant sectors, and a mandatory financial arrangement should be in place to support this effort [32].

One of the most crucial elements for a successful TQM deployment is training. Employees must be knowledgeable and skilled in order to provide high-quality services and products [14].

2.10 Student Focus

To Zhang et al. [33], each organization's main mission is to understand, serve, and exceed client demands and expectations. Effective TQM implementation necessitates a strong focus on the customer, resulting in excellent customer satisfaction.

Recognizing students' needs requires a close interaction with them within the boundaries of academic ethics. Some of the primary issues of a successful TQM program that is deemed to be student-focused are the collection and review of student complaints, careful examination of course evaluations, support of student club activities, and alumni follow-ups [1, 34].

2.11 Other Stakeholders' Focus

The demands and expectations of a certain business or industry, as well as society as a whole, should be systematically observed and used to inform HEI academic and continuing education programs. Employees of higher education institutions play a critical role in providing practical services to HEI clients. The ability of employees to grasp the entire process and goal of the organization is critical to the success of a TQM implementation program [1].

To Bayraktar [28], employees, students, society, governing bodies, and other stakeholders all play a role in any HEI. As a result, it is recommended that you be aware of the demands of these various stakeholder groups and work hard to meet their needs [2].

3 Methodology

This research is based on a qualitative analysis of the themes. Thus, regarding the critical success factors associated with total quality management in higher education institutions, a literature review was carried out.

The actions undertaken to process the data were as follows:

1. Literature review.
2. Collection of systematized information on the CSFs related to TQM, identifying the keywords or the key expressions per CSF, based on the studies of Bayraktar et al. [1], which were corroborated/validated by Nadim and Al-Hinai [2], who identified 11 CSF in HEI.
3. Analysis of the systematized information, from the identification of keywords or key expressions of the CSF in the implementation of TQM for a better understanding of the critical success factors for sustainability in HEIs.
4. All information about CSFs, obstacles/barriers, and challenges to the implementation of sustainability in higher education institutions in various countries was analyzed in each study offered by the following authors: Aleixo et al. [35], Disterheft et al. [36], Larrán Jorge et al. [37], Nadim and Al-Hinai [2], Salleh et al. [6], Velazquez et al. [38], Verhulst and Lambrechts [39], Blanco-Portela et al. [40], and E Akins et al. [26]. Following the collection of these elements, a preliminary screening was conducted to eliminate duplicates. The elements were

then classified as closely as possible according to their nature (processes, resources, structure, or others). Because the bulk of these studies make no direct reference to the CSFs connected with sustainability, their assessment was based on an examination of the obstacles/barriers and challenges to the implementation of this component in higher education institutions.

The data were analyzed in a qualitative way, done manually without using any other analysis tool, and the results obtained were organized in tables for a better understanding.

The purpose of this study is to study the critical success factors in the implementation of total quality management and the critical success factors for sustainability in higher education institutions, in order to contribute to a theoretical reflection on higher education sustainability.

4 Results

Section 2 clearly identifies critical success factors in the implementation of total quality management in HEIs. These elements can be summarized for a better understanding of the critical success factors of the implementation of total quality management identified in that section. In order to group, it was necessary to define per TQM's CSF implementation keywords or key expressions as presented in Table 1.

The 11 critical success factors for the implementation of total quality management were analyzed in Sect. 2, and Table 1 presents the keywords and key expressions per CSF, in order to enable a better identification and characterization of each CSF.

The perspective of sustainability in higher education institutions was added due to the importance of this dimension to their quality and excellence. Therefore, the critical success factors for sustainability were identified by taking into consideration the studies of Aleixo et al. [35], Disterheft et al. [36], Larrán Jorge et al. [37], Nadim and Al-Hinai [2], Salleh et al. [6], Velazquez et al. [38], Verhulst and Lambrechts [39], Blanco-Portela et al. [40], and E Akins et al. [26]. In each study presented by the authors, all information concerning CSFs, and obstacles/barriers and challenges to the implementation of sustainability in higher education institutions in various countries was analyzed. After collecting these elements, a first screening was carried out in order to eliminate repetitions. Subsequently, the elements were grouped as far as possible according to their nature (processes, resources, structure, or others). Since the majority of these studies make no direct reference to the CSFs associated with sustainability, their determination was based on the analysis of the obstacles/barriers and challenges to the implementation of this dimension in HEIs. The main results obtained are presented in Table 2.

As main findings, we have identified more CSF for the implementation of sustainability than for the implementation of TQM. For sure and analyzing Table 2, we were able to observe the perfect match or alignment between CSFs for the implementation of TQM and those for the implementation of sustainability.

Table 1 Keywords/key expressions per CSF

CSF for TQM in HEI	Keywords/key expressions
Leadership	Commitment; top management; vision; mission; values; empower employees; employee participation in decision-making; clear communication to all employees
Vision	Focus of employee in the future; leadership association to vision; can be seen in values, beliefs and business practices of HEIs; innovative approach determined by vision
Measurement and evaluation	Tools for determining quality of HEI performance; establish key performance indicators
Process control and improvement	Organizational structure; procedures; measurement; evaluation, control and improvement; done on a regular basis; process management; meet stakeholders' demands
Program design and resources	Academic programs; interdisciplinary study fields; facilities required to perform research; development of curricula and programs
Quality system improvement	Quality assurance system; quality processes; instruments for improving the consistency of quality systems: process flow charts and quality criteria checklists
Employee involvement	Support and involvement of workforce; attitudes; quality culture; participation; teamwork and cross-functional interactions; social engagement and reinforcement; sense of belonging; knowledge of the value of the product/service
Recognition and reward	Reward as a mean of bolstering performance level
Education and training	Education and training; awareness; skill sets; financial resources; knowledge
Student focus	Customer focus and satisfaction; recognition of students' needs; complaints; course evaluations; club activities; alumni follow-ups
Other stakeholders' focus	Demands and expectations; society; employees of HEIs; needs of stakeholders

Source: Own elaboration

5 Final Considerations

5.1 Discussion

It might seem at first sight that the themes of total quality management, higher education, and sustainability have nothing in common or related. However, synergies are required in these areas. With this study and based on the studies of Bayraktar et al. [1], corroborated/validated by Nadim and Al-Hinai [2], we identified the alignment between the CSFs for the implementation of TQM and those for the implementation of sustainability in HEIs.

Sustainability is still a fresh political agenda according to Aleixo et al. [41], but it is also critical for all institutions to fulfill their responsibilities to create proactive interactions among institutions, agents, and people. To attain sustainability in HEIs,

Table 2 CSF for TQM and sustainability

Higher education institutions	
Critical success factors for TQM	Critical success factors for sustainability
Leadership	Support of top management, policymakers and administrators and empowerment; support from university leaders and policymakers
Education and training	Education and training and knowledge
Measurement and evaluation	Measurement instruments, monitoring and qualitative and quantitative performance indicators
Process control and improvement	Communication, more dialogue, making sure that the right people are at the table and that they are heard and find out what people are caring about; inefficient communication; long-term planning, systematization and continuity
Program design and resources	Organizational structure and workplace, fund-raising, financial resources and factors, investment in R&D and socioeconomic factors, interdisciplinarity of courses, programs and research; available resources; internal organizational structure
Quality system improvement	Enough time and starting on time and autonomy, positive image of the university and optimism, excellence and quality
Employee involvement	Personal strength and persistence, empowerment and confidence, dedication, engagement, awareness, interest and involvement, non-judging attitude, change resistance, increase of acceptance; education staff involvement; assumption of responsibilities
Recognition and reward	Stimulate positive feelings and sense of belonging; recognition
Vision	Identification with goals, strategy with a goal and tangible objectives
Student focus	Raising champions and attract students; student's engagement in extracurricular activities
Other stakeholders' focus	Needs of enterprises and labor market
	Outcomes/benefits
	Capacity building
	Rigorous and consistent regulation and legislation; inconsistent institutional legislation and implementation; institutional framework for sustainability
	Collaboration and networking
	Social legitimacy; social, economic and political context of the country

Source: Own elaboration

the Sustainable Development Goals, according to Leal Filho et al. [42], may provide a chance to overcome challenges. Because of their function as centers of learning, innovation, and research, universities can now make a significant contribution to the sustainability challenge. Universities, on the other hand, can approach sustainability issues in a variety of ways, all of which should be clearly recognized in their strategy [43].

We consider that HEIs should take into consideration, in addition to their own ambitions and strategies in terms of quality and sustainability, also the alignment with the European university strategy published by the European Commission and the national strategy for higher education defined per country.

5.2 Conclusions

This study offers a list of CSFs based on studies and experiences in several countries with different realities and that could serve as guidelines for higher education institutions that are starting the process of integrating sustainability in their system, or for those that are looking for models and referential support from others to define the best approaches and practices.

We believe that the strong alignment that exists between the critical success factors for the implementation of TQM and sustainability will allow us to create a model that will help higher education institutions to more easily contribute to the SDGs that they consider strategic and to have a performance that will aim for excellence in these dimensions. We aim with this chapter to contribute to the discussion that has been going on for at least two decades around the literature on sustainability and, more recently, the SDGs and the alignment to TQM approach.

5.3 Limitations to the Study and Future Research

The limitation of this study is the fact that it is only a theoretical contribution, which needs to be validated. Therefore, it is suggested that future research should validate this study by applying surveys or other tools that are considered more appropriate to obtain results that may corroborate the theoretical foundations described herein.

It is suggested in future studies to analyze the sustainability critical success factors that apparently have no relation with the CSFs of TQM implementation in order to assess the need to consider them as CSFs in TQM implementation, too. It can be done through analysis of the HEIs'strategic documents, webpages, application of surveys, and other documentary information.

In order to confirm/corroborate the existence of common CSFs and their importance for the implementation of TQM and sustainability, and their contributions to the SDGs, identified through documentary analysis, it is suggested to apply surveys to the various stakeholders (internal and external) of higher education institutions.

Equally, as future research it is intended to understand how the TQM and sustainability CSFs can relate to the SDGs and how HEIs can contribute to them in order to continuously improve toward sustainability.

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