Total Quality Management: Practices to Leverage Its Principles in Distance Higher Education

Márcia Helena Borges Notarjacomo, Bruna Strapazzon Do Couto(✉), Fernanda Bica de Almeida, Miriam Borchart, and Giancarlo Medeiros Pereira

UNISINOS University, Avenue UNISINOS, RS 950-93022-000 São Leopoldo, Brazil
brunascouto9@gmail.com

Abstract. The growth of distance learning in higher education has been gaining market share. The COVID-19 pandemic has reinforced this trend. Enrollments are increasing sharply while fierce competition is a threat to distance learning institutions. To conquer and retain distance learning students, it is necessary to offer quality services and products, seeking innovation and continuous improvement to meet their needs. However, studies that analyze the application of the principles and practices of TQM (Total Quality Management) in distance higher education are still scarce. From this perspective, this study seeks to identify practices that increase the presence of TQM principles in distance higher education institutions. The qualitative research was carried out with managers from 64 teaching centers of one of the largest distance learning institutions in Brazil. The pillars of TQM considered in this study are leadership, staff, students, technological resources and continuous improvement. This study contributed to the literature by identifying practices to expand the presence of TQM principles in distance higher education adopted by the studied institution and its teaching centers. Management contributions are also presented.

Keywords: Distance learning · Higher education institutions · Total quality management · Distance higher education · Service quality

1 Introduction

This research considers three main aspects. The first is related to the relevance of distance learning in higher education. Distance learning has received increasing attention from the academic field as well as society in general [1]. The popularization of the internet has contributed to the spreading of distance learning to remote regions around the world [2]. Additionally, the COVID-19 crisis has accelerated the offering of distance learning by colleges and universities exacerbating the challenges and advantages to both: providers of service - college and universities - and students [1]. These authors reinforce the importance of understanding the impact of distance learning on the effects of education and the social consequences of this type of education.

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The second aspect is related to the quality of the distance learning education service. Dynamic market forces are compelling higher education institutions to adapt to remain relevant and competitive [3]. In this context, quality is an essential element to contribute to improving internal processes while leveraging student loyalty. To the author, in the context of higher education, quality refers to fitness for purpose, value for money, perfection, transformation and distinctiveness, and is categorized in terms of educational quality and administrative quality. Total Quality Control (TQM) is considered as one of the critical determinants to support organizations in improving their financial and operational performance [4]. TQM is a systematic approach for the continuous improvement of all organizational processes through total participation of all employees, resulting in high-quality products and services to attain customer satisfaction. The philosophy of TQM is "Do the right things, right the first time, every time" [5].

The third aspect considers that both themes separately – distance learning in higher education and TQM – have been widely discussed in academic literature. However, when distance learning is combined with TQM, there are still few academic studies [6]. It is also noteworthy that implementation of TQM in services is made difficult by the characteristics of services [7]: service heterogeneity, intangibility, and perishability, as well as the simultaneity of production and consumption, cause more complex applicability of quantitative tools and techniques of TQM [8].

In the next section, it is presented the research problem. After, the literature review is presented, concerning principal concepts related to TQM, TQM in higher education institutions, and TQM pillars in distance learning. Next, the method is presented. Then, the results and discussion. In the end, conclusions are exposed.

2 Research Problem

Effective service quality measures for distance learning have been required to evaluate the satisfaction of students. It is essential to distance learning offers to avoid evasion because students not satisfied with the course easily find other options in the market [9]. The satisfaction of students is a consequence of distance learning quality that can be leveraged by the application of TQM principles [6]. TQM was used as an analysis lens for this research because it is a consolidated structure, widely applied in services and focused on continuous improvement [7]. Understanding what TQM principles contribute to improve the distance learning quality and how they are implemented are understudied in academic literature [6]. Such understanding of what principles and how to apply them are relevant concerning TQM in distance learning offers because the COVID-19 pandemic environment has accelerated the offering of distance learning courses around the world [1]. Educational institutions focus on quality of their products and processes, supported by well-structured quality system, possibly will achieve better performance and satisfaction of students.

The presented context of distance learning and the need to expand the application of TQM in higher education institutions led us to the question: How can TQM principles be incorporated in higher education institutions that only offer distance learning courses? The consolidation of TQM principles and practices could help the institutions to remove inefficiencies, keep the focus on the market demands and threats, achieve

better performance in all areas, and satisfy stakeholders' (students, partners, teachers, etc.) needs. To understand how TQM is implemented, a case study was performed in one of the biggest distance learning higher education institutions in Brazil. The managers of 64 educational centers were interviewed, and practices and documents were analyzed.

This study contributes to the literature by proposing a framework to TQM principles in distance learning in higher education and identifying practices adopted by the studied institution and its educational centers. Managerial contributions are presented.

3 Literature Review

3.1 Total Quality Management (TQM)

Academic literature has a multitude of studies on Total Quality Management (TQM) and its applications in the most diverse sectors. Many authors disagree on the correct definition of TQM, as there are different variables and principles to be considered. Older studies bring a broad view of the various aspects that involve TQM, such as its concepts and definitions, the roles assigned to senior management leadership, employees, the tools and methods used [10–13], as well as the importance of a quality-oriented organizational culture [4]. In a more modern view, TQM practices are understood as strategic tools, widely used by organizations to generate competitive advantages through performance optimization [14].

Briefly, the TQM is consolidated through concepts and techniques that aim to boost competitiveness through the continuous improvement of processes, involving the permanent and long-term management of all organizational resources and stakeholders involved [15]. As it encompasses the entire management of the organization, the TQM approach proposes a new management model that seeks to make organizations more efficient and flexible [16].

The so-called TQM pillars are essential elements for the implementation of a structured and strategically designed system, as the implementation of good management practices requires changes in the organization's internal arrangements [17]. There are theoretical divergences as to the principles that guide the composition of TQM. Some researchers point to 10 topics based on four different studies. They are: senior management support, customer relations, supplier relationships, workforce management, employee behavior, product development, process management, quality reporting and data, the role of the quality team and benchmarking [18]. Other authors list eight principles considered key elements for the development of TQM [19, 20]. In general, there are: (I) customers; (II) leadership; (III) continuous improvement; (IV) systemic approach to management; (V) mutual benefits in relations with suppliers; (VI) management by processes; (VII) decision-making based on facts and data; and (VIII) employee involvement.

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3.2 TQM in Higher Education Institutions

The growth of competitiveness in service organizations has been favored, especially in recent years, by the application of operational excellence tools, with a focus on quality improvement, cost reduction and process acceleration [21]. Faced with a dynamic and increasingly competitive educational scenario, valuing the improvement of service quality is an essential prerequisite for higher education institutions, requiring the reformulation of strategies for an emerging market of mass services [22].

Quality management and improvement initiatives are continuously established in all service delivery industries, as these initiatives are aimed at meeting the needs and desires of users of the services offered [6]. As in other service-providing industries, the education sector also aims to meet the needs and desires of its users [23]. About quality management in higher education institutions, the main constructs are related to the quality of student learning, their involvement with the institution, quality and satisfaction in the provision of services, TQM, quality assurance, benchmarking and accountability [24].

In TQM's philosophy, the concept of quality will not be defined by the service that the institution expects to offer, but rather by the expectations of its clients. Organizations that follow the TQM path see quality as being defined by their customers. They are the ones who make the final decision on the perceived quality and, without them, the institution would not exist. Thus, the institution that adopts the TQM philosophy must use all available means to explore the needs of its clients [25]. The implementation of TQM, in the area of education, can shape educational institutions to meet the needs of different stakeholders, such as students, parents, the market and society in general [13].

The study by Tan, Muskat and Zehrer [26] identified five major research streams present in the literature: the exploration of the student experience; exploration of the learning experience; gender differences in the evaluation of experience in higher education; improving the quality of the student experience; and student satisfaction with the higher education experience. The study by Mehta, Prakash and Nitin [6] suggests thirteen guiding principles for the implementation of TQM in the education sector: (I) Institutional resource management; (II) Long-term strategy and planning; (III) Excellence HRM; (IV) Continuous assessment and improvement; (V) Top management commitment and visionary leadership; (VI) Student focus; (VII) Employee focus; (VIII) Alumni focus; (IX) Information management system; (X) Quality mission and vision statement; (XI) Service culture; (XII) Innovative academic philosophy and method; and (XIII) Industry institution partnership.

The principles listed cover a variety of technical and behavioral topics to be worked on, which include strategic planning, continuous improvement and a focus on internal and external customers, represented by the institution's employees, students and alumni.

3.3 TQM Pillars in Distance Learning

From a literature review, 11 articles were selected in order to identify the main TQM pillars and how they best relate to distance learning [2, 6, 24, 27–34]. Thus, relevant elements for the approach of each of these pillars were identified. In this way, a preliminary theoretical basis is elaborated, which serves as the starting point for the empirical research of this study.

From these related studies, it is identified that leadership, staff, students, technological resources and continuous improvement should govern the management of such educational institutions. Four studies indicate that leadership, combined with good planning, builds relationships, and improves the quality of service provided by the institution [24, 27, 29, 31]. All authors list the training and monitoring of professionals as a key aspect for standard teaching quality, encouraging their high performance and, consequently, minimized costs and times for preparation and execution of services. Seven studies list student-centered teaching as essential for the quality of distance learning, which includes rapid feedback and assistance to them, as well as constant monitoring and measurement of their dissatisfaction, so that there is an understanding and improvement of such aspects [2, 6, 24, 27, 28, 30, 34]. Four studies show that technological resources should be used in favor of more fluid, agile and complete teaching, in order to provide access to classes and material at any time, the exchange of information between students and tutors, in addition to enabling familiarization of students with the professional environment from virtual reality [24, 28, 32, 33]. Furthermore, all studies indicate continuous improvement as a pillar of distance learning, mainly as a result of employee training, the pursuit of innovation and prominence, and adaptation according to the needs of students. The results of this review are detailed next.

Regarding the pillar leadership, management and leadership operate at different levels because while the manager looks for the best ways to solve problems, the leader determines what exactly needs to be done [29]. Few publications in the current literature bring complete and structured studies on leadership as a fundamental part of teaching and learning processes [24].

The leadership principle is directly related to decision-making processes. To manage is to make the right decisions, even if they do not satisfy most stakeholders involved in learning [31]. In the education service provision environment, leaders influence and define instructional activities and processes, academic and social support, and the hiring and development of employees, establishing what strategic priorities should be for the use of available resources [27]. In this way, leaders build relationships and improve the quality of the service provided by the institution.

With regard to educational management, a leader will act as a mentor, serving clients - students -, at the administrative level, seeking to meet needs, solve problems and doubts that may arise. In some cases, there may be a leadership team, with the task of finding better ways of teaching [24]. In carrying out their daily activities, leaders promote instrumental goals, while recruiting faculty for the change effort, they cultivate a growing cadre of leaders in this process [27].

Regarding the pillar students, the quality of a service provided must always be improved, evaluated and measured reliably. Regarding educational institutions, it is essential to apply solutions for measuring quality developed from the students' point of view [35]. Student focus depends on a number of other factors, such as improving the overall performance of faculty, staff, benchmarking, assessments, safety, skills, alumni feedback, syllabus, partnerships, and more. These factors represent the critical outcome, which should receive special care from senior management [6].

Baig, Abrar, Ali and Ahmad [5] emphasize the importance of tolerance to freedom of expression and partial participation in decision-making processes within the institution

by the student. This is so that they feel included in the teaching environment. The standardization of teaching must be combined with personalized service to each student, so that they acquire a feeling of belonging and importance, increasing their satisfaction and achievement.

Concerning pillar staff, it is reinforced that an educational institution is an organization that requires a lot of human resources. The training of the faculty is one of the essential factors for the quality of the service delivered. This aspect requires special attention from leaders with regard to the ability to recruit and retain trained employees, the effectiveness of performance feedback and professional development, and social resources within work teams [27].

Baig, Abrar, Ali and Ahmad [5] emphasize the importance of training and monitoring teaching professionals for the standardization of the service, while they should have the freedom to plan the time, place and duration of classes. The authors also emphasize that the participation of professionals is encouraged in the innovation of the teaching method, in order to explore modern and digital tools so that quality and teaching time can be gained. For Gay and Betts [30], the humanization of these professionals becomes essential for the quality of the service provided; thus, they reveal the importance of personalized communication, inclusion, equalization, follow-up, and quick feedback to students.

It is important to emphasize that, in addition to teaching professionals, the administrative and practical sectors of institutions must also retain some attention, as their correct execution guarantees a better experience for customers [2]. According to Gay and Betts [30], the correct handling of service in the first instance is capable of building customer loyalty, even before they use the service. Furthermore, the technical support team must be agile so that students do not miss out.

Regarding the pillar technological resources, distance learning is designed to promote independent learning, which eliminates the need for students to be physically present in the same environment as peers and teachers [24]. Such a system uses electronic technologies to enable the interaction of students and teachers separated geographically, temporally, or both [33]. Technological resources must be employed so that the student feels comfortable so that their learning is more effective. This also includes the infrastructure and study environment, which must be inclusive, secure, standardized, easily accessible and student-centered [27]. Gay and Betts [30] add that the use of technological resources such as virtual reality allows students to have theoretical and practical learning.

The availability of technological resources makes the educational process more accessible, as the asynchrony of classes makes the schedules and pace of learning more flexible, resulting in student satisfaction in relation to educational processes [36]. However, Tan, Muskat and Zehrer [26] emphasize that the digital platforms used must be easy to use, so that users can enjoy agile and punctual service and research. Still, it is suggested the provision of training, especially for students not yet familiar with the technology. Gay and Betts [30] also point out the importance of a fluid system and the provision of continuous support so that the experience does not become negative.

Finally, regarding the pillar continuous improvement, with the expansion of the offer of higher education courses and the increase in competition among higher education

players, it is increasingly important that higher education institutions pay attention to the quality and perceived value of their services, both for managerial and business reasons, as well as the requirement established by Organs regulatory bodies [37]. Higher education institutions have faced new challenges every day, due to the dynamism of a scenario of continuous changes and full of demands, characteristics of the current educational market. Thus, when talking about quality and continuous improvement with regard to education, it is necessary to consider how it is understood and evaluated [38].

4 Method

This is a case study operationalized through qualitative research [39], in which the concepts and definitions of Total Quality Management in higher education institutions and the pillars of TQM regarding distance learning were addressed.

In order to establish a starting point for the TQM framework in distance learning, we seek to identify how the topic has been addressed in the literature. From the search in the databases, exclusion criteria were established in order to select only articles that addressed applications or literature reviews in relation to the application of the TQM in distance higher education environments. The exclusion criteria adopted were: (i) duplicate articles between the two bases, (ii) complete reading of the abstracts and (iii) complete reading of the articles to verify the elements related to each of the main pillars for the application of the TQM in teaching from a distance.

To better understand the current scenario of distance learning in higher education institutions, interviews were conducted with managers of educational centers from one of the largest distance learning higher education institutions in Brazil. Direct observations and documentary analyze were also carried out in part of the educational centers. Documents such as internal procedures, performance indicators, part of the strategic planning were analyzed. These interviews sought to identify common relevance factors in different educational centers to draw a profile of the practices and presence of the TQM pillars and understand the concerns and strategies adopted in terms of quality management in this sector.

For this, managers of educational centers from different Brazilian locations and of different sizes were chosen. In total, 30 interviews were carried out with managers from 64 educational centers, distributed in the five regions of Brazil. Some managers coordinate more than one center. Some managers coordinate more than one center. The higher education institutions studied have 300,000 active students and have already graduated 100,000 students in more than 60 different undergraduate courses. It also offers postgraduate courses, has 900 educational centers in Brazil and 5 abroad teaching in Portuguese.

In addition to the distribution by region, an attempt was also made to apply the research to educational centers of different sizes, in order to better capture the differences between them. Thus, managers of 49 small-sized centers, 10 medium-sized centers and 5 large centers were heard.

To carry out the interviews, a questionnaire was prepared with 10 open questions. The questions are related to the pillars identified in the literature: leadership, staff, students, technological resources and continuous improvement. The objective was to understand

present aspects of each pillar and how they have been applied from the perspective of each interviewee. 4 interviews were face-to-face and 26 took place remotely. All were recorded and transcribed.

For the organization of data and analysis of the results, the answers of each interviewee were organized in a table in which the TQM pillars considered were included. In this way, the convergences and diverses perspectives of the respondents could be analyzed. Furthermore, for the proposition of the final framework, the pillars identified in the literature were considered, complemented with the practices pointed out in the interviews and with the documents made available by the institution studied.

5 Results and Discussion

Regarding the TQM elements in distance learning, the literature has several references to the importance of continuous improvement strategies, from a strategic and service management point of view. The points highlighted as pillars in the theoretical framework are due to literary findings, as in the study published by Mehta, Prakash and Nitin [6], in which principles are identified to guide the implementation of the TQM in the educational area.

The authors frequently highlight the importance of strategic leadership, responsible for institutional decision-making. Bryk, Sebring, Allensworth, Easton and Luppescu [27] state that, in the academic environment, leaders influence and define instructional activities and processes, academic and social support, and the hiring and development of employees, establishing what strategic priorities should be for the use of available resources. In this way, leaders are responsible for building relationships and, consequently, for the quality of the service provided by the institution.

After completing the interviews, it was evidenced that the higher education institutions addressed have a well-defined standard, applied and controlled in all their partner educational centers. As much as the educational centers have some independence in their decision-making, they must still provide a level of service required by the head office. This working method has been successful in partner educational centers, regardless of size, location or courses offered. This standardized work is possible due to the support offered by the head office, whether in the form of staff training, instruction for the accommodation of the structure and assistance in strategies in pursuit of the achievement of goals.

It is noticed that the larger educational centers have a management model that is a little different in relation to employees. In large educational centers, the coordinator leads the managers of each physical structure, while in small educational centers, this leadership comes entirely from the manager. The achievement of funding targets, in turn, proved to be the main objective of all interviewed managers, precisely because students are the source of the business.

The satisfaction of the student that has already been recruited is the next objective, as maintaining the acquired base is as important as increasing it with each module - the period for attracting new students. This satisfaction is periodically measured through surveys by the CPA (Proper Assessment Commission), a requirement of the Ministry of Education in Brazil, to measure the quality of service provided by higher education

institutions. The results obtained through these assessments, in addition to serving as a basis for the accreditation and de-accreditation of higher education courses, also guide managers in promoting continuous improvement in their courses, in the infrastructure offered and in procedures adopted.

Based on the insights obtained, a framework is proposed that presents the pillars of TQM with regard to distance learning. From the conclusions obtained through interviews carried out with area managers, the main topics to be worked on in each of the five principles initially defined were pointed out, as observed in Fig. 1.

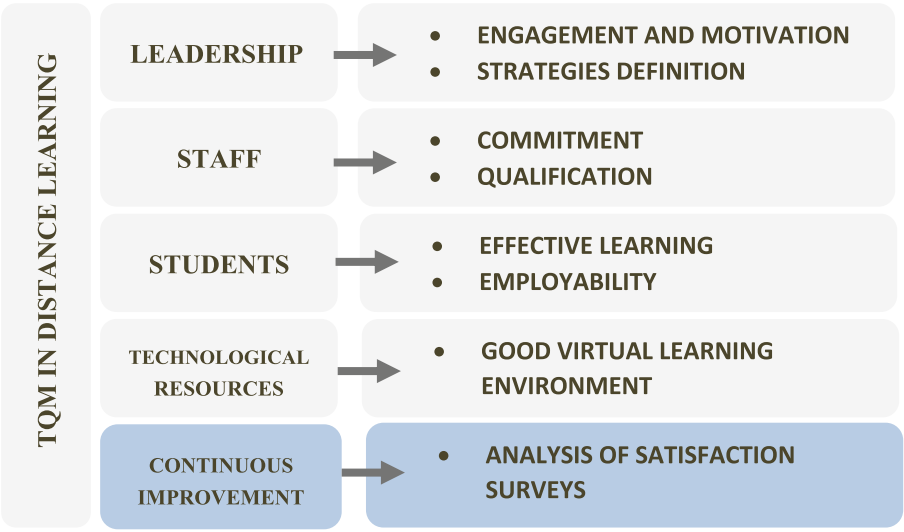

Fig. 1. Framework of TQM pillars in distance learning.

When dealing with the relationship with the customer in the educational environment, Gay and Betts [30] highlight the use of personalized communication strategies, which encourage regular and continuous interaction between instructor and students, whether through active participation in discussion forums or simply using Students' names respond to posts, creating a sense of closeness, in addition to providing personalized feedback on the assessed tasks. In the distance learning environment, technological resources are key elements for higher education institutions, according to Baig, Abrar, Ali and Ahmad [5], the educational world is closely connected to information technology, which allows students to access information and develop new skills, regardless of their location. Distance education becomes an effective way to gain leadership without the influence of social stereotypes and other barriers. Razik and Swanson [33] also emphasize that the use of electronic technologies enables the interaction of students and teachers separated in terms of geography, time, or both.

The focus on student satisfaction, with the maintenance of the relationship from enrollment to follow-up after completion of the course, appears as one of the main strategies to be applied to continue improving educational processes. An example of

this is the award received by the institution object of this study due to the quality of the teaching material made available to students – a fact widely cited in interviews with managers. The use of augmented reality technology, support material with QR Code and virtual visits seeks to make studying more attractive for students, in addition to enabling their own management of study times and places. The bet on technological resources is a great differential for higher education institutions, since the mobile application allows the download of classes to attend at the time and place that is most convenient for each student.

Another essential point is the maximum use of available technology in favor of distance learning. For this, it is necessary to aim for resources that, in addition to being functional, are viable and accessible, as is the case of the mobile phone application, made available by the higher education institutions observed. The possibility for the student to have the study material at their disposal in an application, with the possibility of attending classes at the time that is most convenient for them, is not only a facilitator of learning, but also an interesting way to work on the issue of dropout. Many students opt for distance learning precisely because they work full-time and have little time available to attend classes at conventional times, in addition to the difficulty of daily travel to a university's headquarters. This is one of the main reasons for dropping out of the course, along with the financial issues involved. With the possibility of optimizing their study time, the academic gains another incentive to take the course forward.

Given these issues, it is understood that this study contributes to the literature on TQM by presenting a framework that associates the pillars defined in the literary findings with topics that stood out during observations and applied research, from the point of view of managers who experience daily the reality of higher education institutions focused on distance learning.

6 Conclusions

Since there is still a small number of articles that explore the TQM related to distance learning and, also, that the implementation of TQM in services is hampered by its particularities, such as heterogeneity, intangibility and perishability, the study guides future research to the development of the theme, as well as the application of the TQM in distance higher education institutions. This allows for a better-quality service, which is increasingly necessary, especially after the onset of the COVID-19 pandemic and the need to adapt to study and work.

From the identification of the practices adopted by the studied institution and its teaching centers associated with the practices identified in the literature, it is possible to answer the research question of this study. The resulting framework points to the way in which TQM principles can be incorporated in higher education institutions that only offer distance learning courses. The application of such guidelines enables the minimization or elimination of inefficiencies, the maintenance of competitiveness in the market, the agility in meeting customer demands, as well as providing a favorable environment for the work of employees and the learning of students, including cooperation between the same.

The elements presented in the proposed Framework can be seen as leverage points, capable of supporting the implementation of TQM principles in higher education institutions that offer distance learning. The result is a direction centered on the experience of educational processes, identified with the needs and interests of the stakeholders of these processes, indicating practices adopted with favorable effects for higher education institutions of different sizes and markets, which makes the delivery of this study even more interesting, as it is unrestrictedly applicable to any institution that seeks continuous improvement of its processes.

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