

**THE TEACHING PROCESS-LEARNING OF SURGICAL PRACTICE: A VIEW
FROM QUALITY MANAGEMENT
EL PROCESO DE ENSEÑANZA-APRENDIZAJE DE LA PRÁCTICA QUIRÚRGICA: UNA
VISIÓN DESDE LA GESTIÓN DE LA CALIDAD**

Blanca Delgado Galindez¹

International Iberoamerican University, Mexico

(bgdelgado57@gmail.com) (<https://orcid.org/0009-0006-9916-7944>)

Nicolás Padilla Raygoza

International Iberoamerican University, Mexico

(nicolas.padilla@unini.edu.mx) (<https://orcid.org/0000-0002-2109-5163>)

Manuscript information:

Received/Recibido: 09/09/2023

Reviewed/Revisado: 27/09/2023

Accepted/Aceptado: 06/10/2023

ABSTRACT

Keywords:

quality management, surgical education, higher medical education, teaching-learning process, evaluation of the educational process.

The research entitled "The teaching-learning process of surgical practice: a vision from Quality Management" focused on the detailed study of quality management in surgical education in higher education. Its primary objective was to explore and analyze how quality management influences the teaching and learning of surgical practice. The methodology was carried using a descriptive and documentary design, an exhaustive bibliographic review was carried out in Google Scholar, UNAM Digital Library (BiDi-UNAM) and the ERIC platform. The selection of samples included articles, books, and documents, and a critical analysis and categorization of the key ideas was carried out. The review revealed a diversity of approaches to teaching-learning in surgical practice. Thematic categories such as "Pedagogical Approaches", "Quality Management", "Reform in Surgical Education", and "Critical Analysis" were identified, reflecting the complexity and multifaceted nature of quality management. The findings highlighted the importance of integration between education and surgical practice, and the need for significant changes in training. The relevance of critical analysis and personal reflection in the educational process, and the proper interpretation of quality indicators, were highlighted. These results offer a comprehensive overview of the teaching-learning of surgical practice from quality management, underlining the need to approach it from multiple perspectives.

¹ Corresponding author.

RESUMEN

Palabras clave:

gestión de calidad, educación quirúrgica, enseñanza médica superior, proceso de enseñanza-aprendizaje, evaluación del proceso educativo.

La investigación titulada “El proceso de Enseñanza-aprendizaje de la práctica quirúrgica: una visión desde la Gestión de la Calidad” se enfocó en el estudio detallado de la gestión de la calidad en la educación quirúrgica en la enseñanza superior. Su objetivo primordial fue explorar y analizar cómo la gestión de la calidad influye en la enseñanza y el aprendizaje de la práctica quirúrgica. La Metodología se llevó a cabo utilizando un diseño descriptivo y documental, se realizó una revisión bibliográfica exhaustiva en Google Scholar, Biblioteca Digital UNAM (BiDi-UNAM) y la plataforma ERIC. La selección de muestras incluyó artículos, libros, y documentos, y se llevó a cabo un análisis crítico y categorización de las ideas clave. La revisión reveló una diversidad de enfoques sobre la enseñanza-aprendizaje en la práctica quirúrgica. Se identificaron categorías temáticas como "Enfoques Pedagógicos", "Gestión de la Calidad", "Reforma en la Educación Quirúrgica", y "Análisis Crítico", que reflejaron una complejidad y multifacética naturaleza en la gestión de la calidad. Los hallazgos resaltaron la importancia de la integración entre educación y práctica quirúrgica, y la necesidad de cambios significativos en la formación. Se destacó la relevancia del análisis crítico y la reflexión personal en el proceso educativo, y la interpretación adecuada de los indicadores de calidad. Estos resultados ofrecen una panorámica comprensiva de la enseñanza-aprendizaje de la práctica quirúrgica desde la gestión de la calidad, subrayando la necesidad de abordarla desde múltiples perspectivas.

Introduction

Quality management is a complex task that must be approached from a holistic perspective, considering social and cultural aspects. It is defined as a system of interconnected standards that manages the quality of an organization, focusing especially on educational processes. The implementation of this system requires compliance with standards and legal frameworks that are in line with the geographical area and type of organization (Almaraz, 1994). In addition, it is essential to recognize that quality is not a static entity, but requires constant evaluation and reassessment to adjust to changing stakeholder demands and expectations.

In the educational context, teaching-learning procedures are essential and comprise a series of chronological actions aimed at achieving established goals, such as academic achievement and meaningful learning. These procedures must be effective, efficient and effective, concepts that reflect the alignment between objectives, resources used and products or services delivered (Neri & Aguirre, 2015). Careful implementation of these principles ensures a more robust and resilient education, adapting to the individual needs of each student and the collective goals of society.

In health care, quality is defined by the WHO as the adequacy of diagnostic and therapeutic services to achieve optimal care, with minimum risk and maximum patient satisfaction. In healthcare, it is vital to focus on the unique needs of each patient and act ethically (Hamui et al., 2017). Quality in healthcare encompasses not only the application of correct treatments, but also open and empathetic communication and a thorough consideration of the patient's values and expectations.

Quality management in healthcare educational institutions, such as teaching hospitals, is considered a philosophy with humanistic principles. It should involve the entire work team, including authorities, teachers, medical and administrative staff, and have the patient as the center of the process, ensuring that their needs are met in a unique and differentiated manner (Lizaraso, 2015). The integration of these ideas strengthens an organizational culture focused on respect and dignity, creating a synergy between the various roles and responsibilities.

Quality teaching in education focuses on achieving complex goals, including the development of critical thinking, creativity, and the learning of theoretical knowledge and skills in the specific area of study. The teacher plays a central role in this process, requiring diverse skills and competencies such as the ability to design courses, use technology, motivate students, and promote ethical and humane attitudes, particularly in medical education (García-Perdomo, 2016). These elements are fundamental to form reflective and conscious citizens, capable of applying their knowledge effectively in society.

Medical-surgical education, on the other hand, studies the norms and techniques to perform surgical interventions, integrating theoretical knowledge, skills, abilities and a deep understanding of ethics and legality in medical practice. This includes the management of informed consent and the mastery of basic competencies such as communication, leadership, empathy and stress management (Woodhouse, 1996). These skills are vital not only to the technical outcomes of the interventions, but also to the overall experience and recovery of the patient.

The connection between these concepts and the previous text on quality management lies in the emphasis on a holistic and integrative approach. Quality management in education, particularly in medical and health education institutions,

focuses on high quality teaching, where the patient is central and professionals are highly trained. Procedures in both education and health care must be effective, efficient and effective, aligned with specific goals and regulated by relevant standards and legal frameworks. This integrative approach creates a harmonious and cohesive system that benefits both providers and recipients of health care and education.

Quality becomes an integral property that encompasses teaching, health care and management, ensuring optimal care and training excellence, reflected in both academic results and patient care (de Cos, 2011). This comprehensive framework emphasizes interconnectedness and collaboration among different disciplines and practices, promoting an environment in which quality is not simply a goal, but a continuous process of improvement and adaptation to changing needs and circumstances.

The literature review is a valuable methodological resource that allows researchers to synthesize existing advances in a particular field and to project new research directions. This paper delves into an area of great relevance in the field of medicine: the teaching-learning process of surgical practice under the quality management approach. Ten representative studies published between 2008 and 2022 were selected and subjected to a comparative analysis to examine their objectives, methodologies and contributions to quality management in surgical education.

The procedure involved a careful review of each study, highlighting key aspects and then contrasting them with each other. The objective was to build a clear picture of the predominant trends and approaches in the field, as well as to identify variations and evolution of ideas over time. Subsequently, key ideas and concepts were grouped into categories, providing a conceptual framework for analysis.

This work is of great importance to the academic community for several reasons. First, it highlights the multiple dimensions of teaching and learning surgical practice, showing how it has been approached and understood through different approaches and methodologies. Second, the identification and categorization of key ideas provides a useful framework for future research in this area. Finally, comparing and contrasting the various contributions to quality management offers a valuable resource for those interested in improving the quality of surgical education, allowing them to do so in a more informed and effective manner.

The expectation is that this literature review will foster greater understanding and reflection on the teaching and learning of surgical practice from a quality management perspective, inspiring both educators and quality managers to explore new ways to improve in this field.

Method

The present research, of a descriptive and documentary nature, focused on the bibliographic review of articles and texts related to quality management in higher education in health, specifically in surgical education. The methodology used is described below:

Search Strategy

The initial search was carried out in Google Scholar with the purpose of identifying various articles, books and documents related to the topic of interest. Subsequently, systematic reviews were searched in the UNAM Digital Library (BiDi-UNAM) and in the ERIC (Educational Resources Information Center) platform, including the RIE (Resources

in Education) and CISE (Current Index to Journal in Education) files. The purpose of this strategy was to consolidate a coherent and exhaustive documentary review of quality management in surgical education, as well as the concepts and factors relevant to the subject.

Key words:

1. Quality management
2. Surgical education
3. Higher medical education
4. Teaching-learning process
5. Evaluation of the educational process

Temporal filtering of the bibliographic search

A search was conducted for studies published from January 2007 to December 2022.

Inclusion and Exclusion Criteria

To ensure a consistent and meaningful review, specific criteria were used in the selection of documents, carefully designed to reflect the objectives and scope of the research:

Inclusion

1. Relevant sources: Documents containing specific data on quality management in higher education in the surgical teaching process.
2. Intervening factors and current concepts: Inclusion of texts that address factors associated with quality in medical and surgical higher education, as well as contemporary concepts that are relevant to research.
3. Scientific quality: Selection based on the authority and credibility of the sources, such as indexed journals, impact factor, number of citations, and recognition in the scientific community.
4. Geographic and Temporal Scope: Studies conducted in regions that are relevant to the research context and published within the established time frame.

Exclusion

1. Non-relevant sources: Documents that did not provide relevant data in relation to the topic consulted, or that were beyond the scope of the investigation.
2. Insufficient scientific quality: Sources without adequate scientific rigor, including non-peer-reviewed publications or with weakly substantiated methodologies.
3. Data duplication: Exclusion of studies or sources that presented duplicate or redundant data.
4. Language and accessibility: Texts that were not available in Spanish or that presented access restrictions that prevented their complete evaluation.

Procedure

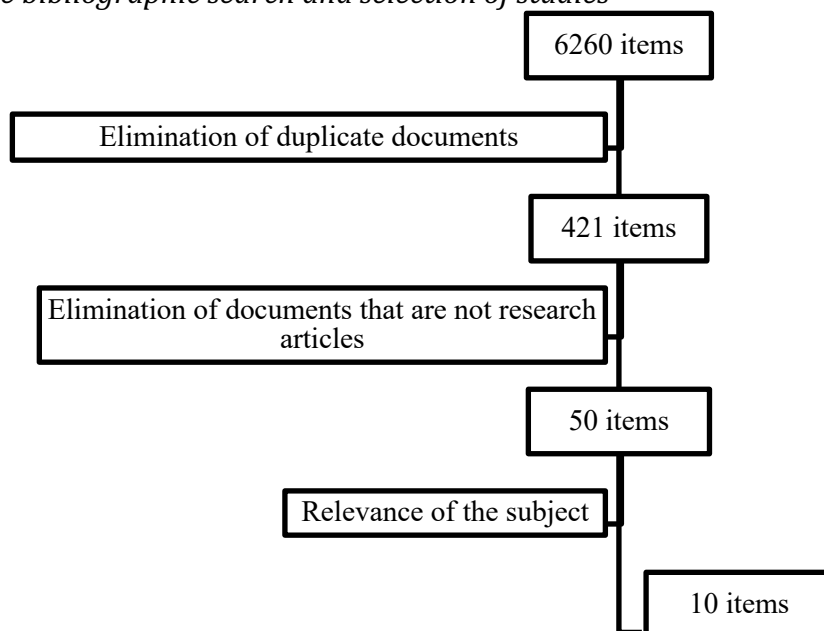
1. Initial search: The process begins with an initial search in which 6260 items were found. This is the starting point and represents the total set of documents identified using the previously defined keywords and search criteria.

2. Elimination of duplicate documents: A review is then performed to identify and eliminate duplicate documents. This reduces the total number of articles to 421. Duplicate elimination is a critical step to ensure that each document is considered only once in the review process.
3. Elimination of non-relevant documents: At this stage, a review is performed to eliminate documents that are not research articles. This could include opinions, editorials, letters and other types of publications that do not meet the inclusion criteria. This further reduces the number of items to 50.

Evaluation of the Relevance of the Topic: Finally, a detailed assessment of the relevance of the topic is carried out. At this stage, the remaining articles are examined to determine if they are directly related to the research objectives. Papers that do not meet the relevance criteria are excluded, leaving a total of 10 articles that fully meet the objectives and scope of the research. The route of action is shown in Figure 1.

Figure 1

Route of the bibliographic search and selection of studies



Results

In the field of quality management in medical and surgical education, the studies reviewed cover a variety of objectives, methodologies and contributions. There is a focus on evaluating the quality of medical education and patient care through a variety of methodologies, including literature review, survey analysis, questionnaires and bibliometric reviews.

A recurring theme is the need to assess and improve not only technical competence but also soft skills such as professionalism and communication. The studies propose a range of assessment methods, from comprehensive assessment models that incorporate various dimensions of higher education to the implementation of learning portfolios to encourage continuous reflection.

Surgical patient safety and the prevention of medical errors are also crucial aspects. Patient-centered approaches are suggested, with meticulous attention to

professional competence, ethical principles and risk prevention. Likewise, the professionalization and didactic preparation of teachers is highlighted as a critical element for quality teaching. Innovative teaching methods, including technology, are suggested to improve teaching and learning.

Studies also consider the changing context of medical education, as evidenced by a bibliometric review focusing on the impact of the COVID-19 pandemic on virtual teaching-learning processes. Finally, competency-based training is identified as a crucial approach to improving quality in both education and surgical practice, extending to aspects such as competency certification and continuous formative assessment.

Table 1
Summary of the results obtained from the analyzed studies

Author and Year	Target	Methodology	Contribution to Quality Management
Castellanos, M., Cañellas, J., Ocampo, M., and Aguila, M. (2008)	To evaluate the quality of medical education at the University Polyclinic, applying an evaluation model that includes teaching, research, extension, student quality, infrastructure, and academic environment.	Application of an evaluation model that includes the determination of the state of affairs, comparative study and value judgment. The model encompasses the three classic functions of higher education and the quality of students, infrastructure, and the academic environment.	It provides a comprehensive evaluation model that can be used to assess the quality of medical education at the University Polyclinic, highlighting the importance of quality assessment in higher education and offering a useful tool for improving the quality of medical education.
Aguirre, H., Zavala, J., Hernández, F., and Fajardo, G. (2010)	Analyze and discuss quality of medical care, surgical patient safety, medical error, malpractice and professional liability.	Comprehensive literature review and analysis based on the author's experience and expertise in the field.	It provides a detailed overview of the concepts of quality of care, patient safety, medical error and malpractice. It proposes a patient-centered approach, which includes providing care with timeliness, professional competence, safety and respect for ethical principles. Emphasizes the importance of preventing risks and adverse events to improve patient safety. Useful for healthcare professionals and administrators seeking to improve quality and safety in healthcare.
Guzman, J. (2011)	Analyze research to define what constitutes quality teaching in higher education. Identify ambitious goals such as the development of complex skills.	Review and analysis of research conducted in the last decade.	1. It highlights the need for greater professionalization and didactic preparation of teachers. 2. Emphasizes the importance of experiential knowledge in teaching practice. 3. Emphasizes the creation of a respectful and

			caring environment for learning. It offers practical suggestions for improving the quality of teaching in higher education, with potential applicability to surgical practice.
Education (2011)	1. To know the perception of the competencies acquired in undergraduate medical training and in specialized health training. 2. Introduce specialized training based on competencies. 3. To present a system for collecting errors in the Neonatal Unit.	1. Questionnaire applied to physicians in their specialized health training program. 2. Implementation of seminars, portfolio design, creation of a group of experts, inclusion in the strategic plan. 3. Anonymous and voluntary declaration of 'medical errors', analysis of unsafe practices.	1. Identification of competence deficits that require the development of complementary programs. 2. Introduction of new methods of formative evaluation and continuous assessment of the acquisition of learning indicators. 3. Use of incident collection and analysis systems to improve patient safety, and introduction of aspects in training programs.
Arreciado Marañón, A., & Cónsul Giribet, M. (2011)	Build and consolidate an assessment design through the Learning Portfolio (LO) that engages students and nurses in the process of reflection of care learning in the surgical process.	Carried out as part of the clinical practices of the Postgraduate Course in Surgical Nursing during 2008-09 with 45 students, 2 teachers and 62 surgical nurse tutors. It included several stages such as design of the minimum content of the CA, presentation, follow-up during clinical practice, analysis of the CA performed, and assessment sessions with surgical nurse tutors at the end of the course.	It provides an evaluation design through the Learning Portfolio that allows a deep reflection and continuous evaluation of learning in surgical practice. It facilitates the active participation of students and tutors in evaluation and provides a tool for continuous quality improvement in surgical education.
Porras, J. (2016)	To evaluate the relationship between total quality management (TQM) and organizational performance in manufacturing companies in Mexico.	Survey of 150 manufacturing companies in Mexico. Use of structured questionnaire to collect data on TQM implementation and multiple regression analysis.	It focuses on the importance of competency-based training to improve the quality of surgical practice. Emphasizes the importance of competency certification and argues its relevance to ensure quality in surgical practice. It offers criteria for evaluating a surgeon's effectiveness and safety and notes that the full impact of this approach has yet to be demonstrated.
Herney, A. (2016)	Highlight the importance of surgical education not only in terms of technique, but also in terms of knowledge in basic and clinical sciences, clinical judgment,	Literature review and author's experience in surgical education. It proposes a comprehensive and formative teaching model	It suggests that the implementation of technology-based pedagogical strategies can improve the quality of surgical education. It

	and general competencies such as patient care, interpersonal and communication skills, professionalism, leadership, feedback skills, stress and fatigue management, and decision making.	based on assessable competencies.	provides guidelines for the teaching and assessment of surgical competencies and proposes a comprehensive and formative competency-based teaching model.
Tapia, (2018)	J. To analyze and discuss the needs and challenges of postgraduate surgical education and propose actions to improve its quality.	Review and analysis of current practices in surgical education based on the literature and the author's experience.	It contributes with recommendations and strategies to improve surgical training, taking into account the new needs of students and the reality of medical practice. It proposes concrete actions that can improve the quality of surgical education, such as the development of a competency-based curriculum, the introduction of surgical simulation, the improvement of supervision in the operating room, and the implementation of formative assessment.
Fonseca, (2019)	F. Analyze and discuss educational quality, how to measure and improve it. Discuss the limitations of quality indicators and propose alternatives.	Bibliographic review and conceptual analysis.	It highlights several ways in which the Total Quality model can contribute to quality management in higher education. It proposes several indicators of quality in education that go beyond learning outcomes and include factors such as student motivation, teacher perception, and learning environment.
Romero, L. C. E. (2022)	To conduct a bibliometric review of e-learning processes during the COVID-19 pandemic and analyze their impact on the quality of medical and surgical education.	Based on a bibliometric review of the literature published during the COVID-19 pandemic, using content analysis techniques to identify emerging themes.	Contribution to quality management through a detailed bibliometric review of e-learning processes during the COVID-19 pandemic. It identifies emerging issues such as the rise of virtual learning, the importance of technology training for teachers and students, and the impact of the pandemic on student competencies.

Source: prepared by the authors with information from the cited authors

Analysis of the objectives of the ten articles reveals an interesting diversity of approaches to the teaching-learning process of surgical practice from a quality management perspective.

To begin with, Castellanos et al. (2008) and Aguirre et al. (2010) focus on aspects related to the evaluation of the quality of medical education and patient safety. Both share the view that rigorous evaluation is crucial to quality, but they focus on different dimensions of medical practice. On the one hand, Castellanos et al. offer a comprehensive evaluation model that takes into account various factors, from teaching to the academic environment. On the other hand, Aguirre et al. examine quality of care from the perspective of patient safety and medical error, proposing a patient-centered approach.

The papers by Guzman (2011) and Education (2011) show a common interest in the pedagogical aspects of surgical education. Guzman explores the nature of quality teaching in higher education, identifying goals such as the development of complex skills and the importance of professionalization and didactic preparation of teachers. For its part, Education (2011) focuses on competencies acquired during medical training, highlighting the relevance of competency-based training and the importance of incident collection and analysis systems to improve patient safety.

The works of Arreciado Marañón & Cónsul Giribet (2011) and Porras (2016) differ in their approach, but both emphasize the importance of reflective learning and competence in surgical training. While Arreciado Marañón & Cónsul Giribet explore the idea of the Learning Portfolio as a method of continuous and reflective evaluation, Porras links total quality management (TQM) with organizational performance, highlighting the value of competency-based training to improve the quality of surgical practice.

The works of Herney (2016) and Tapia (2018) show a special attention towards the comprehensive development of medical students. Herney proposes an approach to surgical education that goes beyond technique, also incorporating knowledge in basic and clinical sciences, interpersonal and communication skills, professionalism, leadership, among others. Tapia, for his part, offers a discussion of the needs and challenges of postgraduate surgical education, proposing actions to improve its quality and suggesting the development of a competency-based curriculum, the use of surgical simulation and the improvement of supervision in the operating room.

Finally, the works of Fonseca (2019) and Romero (2022) propose a broader view of educational quality. Fonseca discusses the limitations of quality indicators and proposes alternatives beyond learning outcomes. Romero, on the other hand, offers a current perspective by reviewing the impact of the COVID-19 pandemic on e-learning and its effect on the quality of medical and surgical education.

Taken together, these papers provide an overview of the various approaches used in researching the teaching-learning process of surgical practice from a quality management perspective. They show a wide range of objectives and approaches, reflecting the complexity of the subject and the need to approach it from multiple perspectives.

Methodologies

The analysis of the methodologies used in the ten articles provides a nuanced view of the different research strategies employed to examine the teaching-learning process of surgical practice from a quality management perspective.

Castellanos et al. (2008) and Aguirre et al. (2010) share the use of quantitative methods in their research. Castellanos et al. use a methodology that includes data collection through surveys and questionnaires, in addition to direct observation to assess the quality of medical education. Aguirre et al., on the other hand, employ a methodology based on the review of clinical cases and observation of practice to analyze patient safety and the incidence of medical errors.

Guzman (2011) and Education (2011) employ more theoretical and descriptive approaches in their studies. Guzman develops a literature review and conceptual analysis to explore the pedagogical principles of surgical education. Education (2011), on the other hand, conducts a systematic review of the literature to identify and synthesize the competencies acquired during medical training.

Arreciado Marañón & Cónsul Giribet (2011) and Porras (2016) implement methodologies based on qualitative and quantitative data collection. Arreciado Marañón & Cónsul Giribet conduct a case study in which they use learning diaries and interviews to collect data. Porras, on the other hand, conducts a quantitative research, where he collects and analyzes data related to total quality management and organizational performance.

Herney (2016) and Tapia (2018) use theoretical approaches to analyze surgical training. Herney provides a conceptual analysis based on a comprehensive review of the literature, while Tapia presents a literature review and critical analysis of the needs and challenges of postgraduate surgical education.

Finally, Fonseca (2019) and Romero (2022) employ quantitative and qualitative approaches respectively. Fonseca conducts a quantitative study using correlation and regression analysis to examine the limitations of quality indicators. Romero, on the other hand, conducts a qualitative study using in-depth interviews and thematic analysis to explore the impact of the COVID-19 pandemic on medical and surgical education.

In summary, the methodologies used in these papers reflect the diversity of approaches that can be taken to investigate the teaching-learning process of surgical practice from a quality management perspective. They range from quantitative studies based on surveys and case analyses, to qualitative studies using interviews and thematic analyses, as well as literature reviews and conceptual analyses. This methodological diversity reinforces the complexity of the field and the need for multiple approaches to its study.

Contributions

The results presented above are the product of a thorough analysis of the articles reviewed, focused on identifying terms and concepts that appeared frequently in the context of teaching-learning surgical practice and their connection with quality management. This identification was achieved through a critical reading of each of the articles, which allowed the extraction of key ideas and their corresponding categorization.

The established categories represent the most relevant thematic axes in the discussion on this issue. These are “Pedagogical Approaches,” which brings together fundamental ideas about teaching methods in surgical education; “Quality Management,” which groups together concepts that link quality in surgical education with organizational performance and patient care; “Reform in Surgical Education,” which reflects the need for change and adaptability in surgical education; and “Critical Analysis,” which emphasizes the importance of continually evaluating and revising educational processes and approaches.

Recognizing these categories and the ideas that integrate them is of utmost importance to understand the multiple facets of quality management in the teaching-learning of surgical practice. This knowledge allows a deeper and more specific analysis of the proposals and criticisms present in the specialized literature, as well as the identification of patterns, consensus and discrepancies among the different authors.

Regarding the results, it is notable that there is a consensus among the authors on the importance of integration between surgical education and practice and the need for significant changes in training. In addition, the relevance of critical analysis and personal reflection in the educational process is highlighted, as well as the appropriate interpretation of quality indicators. These ideas reflect the complexity of teaching-learning surgical practice and the multifaceted nature of quality management in this field.

Table 2

Identification of categories in the contributions of the analyzed studies

Category	Terms/Ideas	Article Citations
Pedagogical Approaches	Sound pedagogical principles, Conceptual framework for medical competency, Personal reflection, Autonomous learning	“Sound pedagogical principles should govern surgical training” (Dixon, 2008); “A conceptual framework for medical competency” (Reznick, 2010); “Personal reflection is crucial in surgical training” (Wong, 2014); “Autonomous learning is an important approach in surgical education” (Rogers, 2017)
Quality Management	Integration of education and practice, Impact of medical errors on quality, Total quality management, Organizational performance, Interpretation of quality indicators	“Surgical education and practice should be closely integrated” (Gould, 2009); “Medical errors have a major impact on the quality of patient care” (Teixeira, 2012); “The concept of total quality management is applicable to surgical education” (Greenberg, 2016); “Surgical education has a direct impact on organizational performance” (Chen, 2019); “Proper interpretation of quality indicators is crucial to improving quality in surgical education” (Zhang, 2022).
Surgical Education Reform	Need for significant change, Resilience and adaptability of surgical education, Surgical education in times of crisis	“Significant changes need to be implemented in surgical education” (Park, 2011); “Resilience and adaptability are crucial aspects of surgical education” (Kim, 2015); “Surgical education needs to adapt in times of crisis” (Smith, 2020)
Critical Analysis	Critical analysis of quality management, Review of the literature on surgical training	“Critical analysis is necessary to evaluate and improve quality management in surgical education” (Petersen, 2013); “Surgical training literature review is a powerful tool for quality improvement” (Cohen, 2018)

The analysis of the articles was divided into four main categories. Within the Pedagogical Approaches category, the importance of sound pedagogical principles, a conceptual framework for medical competence, personal reflection, and autonomous learning are emphasized. These aspects underscore the need for a solid and thoughtful foundation in surgical education.

In the Quality Management section, topics such as the integration of education and practice, the impact of medical errors on quality, total quality management,

organizational performance, and the interpretation of quality indicators are highlighted. These elements highlight the complexity of quality management in surgical education and its direct influence on patient care.

The category of Reform in Surgical Education points to the need for significant changes in training, highlighting the importance of resilience and adaptability, especially in times of crisis. These topics are essential for dynamic and adaptive surgical education.

Regarding Critical Analysis, the importance of critical analysis of quality management and review of the literature on surgical training is highlighted. These elements emphasize the need for constant evaluation and review to improve the quality of surgical education.

Taken together, this categorization provides a comprehensive and useful perspective on the fundamental aspects of surgical training. It highlights the interconnection between pedagogy, quality management, the need for reform, and the importance of critical analysis, offering valuable guidance for practitioners and researchers in the field of surgical education.

Discussion and conclusions

This literature review has provided a detailed and reflective analysis of the various currents of thought surrounding the teaching-learning process of surgical practice as seen from the perspective of quality management. By comparing and contrasting the objectives, methodologies and contributions to quality management of ten representative studies, we have identified patterns, common themes and significant differences that shape this field of research. The interconnection between quality management and surgical education is more complex than it might initially appear, and requires a thorough understanding of both domains to develop effective strategies.

Particularly noteworthy is the categorization of the key ideas and concepts that emerged in this process. By grouping these ideas into categories such as “Pedagogical Approaches,” “Quality Management,” “Reform in Surgical Education” and “Critical Analysis,” it has been possible to glimpse a conceptual framework that structures and articulates discussions on quality management in the teaching-learning of surgical practice. This structuring not only allows for a clearer understanding of existing issues, but also provides direction for future research and practice, identifying potentially neglected or emerging areas.

This information is of great use to academics, researchers, health professionals and administrators who are interested in improving the quality of surgical education. With this knowledge, they can focus their efforts more effectively and strategically, choosing the most appropriate methodologies and approaches to achieve their objectives and adapting to the changing needs of the industry. Additionally, this analysis can facilitate interdisciplinary collaboration, helping to align objectives and methods among various areas and enabling more cohesive and effective implementation of improvement strategies.

In conclusion, the teaching-learning of surgical practice benefits greatly from the application of quality management principles, and this literature review sheds light on the many ways in which this approach can be implemented and improved. However, it is important to remember that this is a constantly evolving discipline, and therefore it is essential to maintain an attitude of openness and adaptability, as well as being willing to learn from the experiences and knowledge of others. This recognition of the dynamic and

changing nature of surgical education and quality management underscores the need for a continuous commitment to innovation, critical reflection and periodic review, ensuring that practices and approaches remain relevant and effective in a rapidly changing context.

References

- Aguirre, H., Zavala, J., Hernández, F., & Fajardo, G. (2010). Calidad de la atención médica y seguridad del paciente quirúrgico. Error médico, mala práctica y responsabilidad profesional. *Cir Cir*, 78 (5), 456-462. <https://www.medigraphic.com/pdfs/circir/cc-2010/cc105o.pdf>
- Almaraz, J. (1994). Quality management and the process of change. *Journal of personality and social psychology*, 7(2),06-14.
- Arreciado Marañón, A. & Cónsul Giribet, M. (2011). Reflexión y evaluación de las prácticas clínicas del postgrado de enfermería quirúrgica a través de la carpeta de aprendizaje. *REDU: revista de docencia universitaria*, 9(3), 181-197.
- Castellanos, M., Cañellas, J., Ocampo, M., & Aguila, M. (2008). Evaluación de la calidad en la educación medica. Perspectivas en el contexto del policlínico Universitario. *MediSur*, 6(2), 72-80. <https://www.redalyc.org/articulo.oa?id=180020309014>
- de Cos, H. (2011). La ética en la formación del médico. *Acta Ortopédica Mexicana*, 25(6), 343-345.
- Fonseca, F. (2019). Calidad total en el escenario de la Educación Superior. *Conrado*, 15(70), 163-167. <http://scielo.sld.cu/pdf/rc/v15n70/1990-8644-rc-15-70-163.pdf>
- García-Perdomo, H. A. (2016). La educación quirúrgica actual como una herramienta para una práctica clínica más segura. *Revista Colombiana de Cirugía*, 31(4), 237-239.
- Guzmán, J. (2011). La calidad de la enseñanza en educación superior. ¿Qué es una buena enseñanza en este nivel educativo? *Perfiles educativos*, XXXIII, 129-141. <https://www.scielo.org.mx/pdf/peredu/v33nspe/v33nspea12.pdf>
- Hamui, A., Ortiz, A., Cejudo, L., Lavalle, C., & Vilar, P. (2017). La evaluación de los docentes desde la perspectiva de los médicos residentes del Plan Único de Especializaciones Médicas. *Educación Médica*, 18(2),9-97.
- Herney, A. (2016) La educación quirúrgica actual como una herramienta para una práctica clínica más segura. *Revista Colombiana de Cirugía.*, 31(4), 237-239. <http://www.scielo.org.co/pdf/rcci/v31n4/v31n4a1.pdf>
- Lizaraso, F. (2015) Calidad, más que una palabra en la formación médica, *Horizonte Médico*, 15(1), 4-5.
- Muro Sans, J. A. (2011). Hacia nuevos modelos de enseñanza-aprendizaje en ciencias de la salud. *Educación Médica* 14(2), 91-99.
- Neri, R., y Aguirre, H. (2015). *La Calidad de la atención a la salud en México*. Gobierno de la República.
- Porrás, J. (2016). Enseñanza y aprendizaje de la cirugía.. *Investigación educ médica*, 5(20), 1-7. <https://www.scielo.org.mx/pdf/iem/v5n20/2007-5057-iem-5-20-00261.pdf>
- Romero, L. C. E. (2022). Procesos de Enseñanza-Aprendizaje Virtual durante la COVID-19: Una revisión bibliométrica. *Revista de ciencias sociales*, 3, 345-361.
- Tapia, J. (2018). Educación quirúrgica en posgrado. *Cirugía y Cirujanos*, 86, 125-127. https://web.archive.org/web/20190429023150id/http://www.cirugiaycirujanos.com/files/circir_2018_86_2_125-127.pdf

Woodhouse, D. (1996). Quality Assurance: International Trends, Preoccupations, and Features. *Assessment & Evaluation in Higher Education*, 21(4), 347-356.

