



(REVIEW ARTICLE)

Quality in education - foundation for sustaining competitiveness

Gomes Rickardo ^{1,*} and Madeiro Filho Sebastião ²

¹ *Department of the Euvaldo Lodi Institute (IEL), and Postgraduate Department of the Farias Brito University Center (FBUNI), Fortaleza, Ceará, Brazil.*

² *Environmental Management from the State University of Amazonas, Manaus, Amazonas, Brazil.*

World Journal of Advanced Research and Reviews, 2023, 20(03), 1014–1020

Publication history: Received on 04 November 2023; revised on 13 December 2023; accepted on 15 December 2023

Article DOI: <https://doi.org/10.30574/wjarr.2023.20.3.2548>

Abstract

The undertaking of this study was justified by the undeniable need for the enhancement of knowledge concerning the current status and future evolution of the quality standards in our education system. Its current performance underscores the necessity for the implementation of teaching methodologies that facilitate learning based on technological innovations. Additionally, the study explores perspectives for the improvement and enhancement of teacher development programs, coupled with considerations of meritocracy and salary improvement. The overarching objective of this research is to illustrate the correlation between the quality of Brazilian education and the structural maintenance of competitiveness among Brazilian enterprises. It is asserted that without this quality, it is not feasible for Brazil to sustain its competitiveness in the current global business landscape. This research clearly highlights the urgent need for our education system to accelerate the implementation and use of technological resources and modern teaching techniques. The implementation of an Integrated Quality Management System in Education is crucial to achieving a positive leap in quality, thereby providing positive impacts on the performance of teachers, future generations, society, and the trinity of quality, productivity, and competitiveness.

Keywords: Education; Technological Innovations; Competitiveness; Productivity.

1 Introduction

At the conclusion of the last three decades, the majority of the Brazilian population has reached the consensus that in business, politics, and the coexistence among various segments of society, there is no longer room for tricks, half-truths, and, above all, improvisations. Brazilians have reclaimed principles once forgotten, now demanding honesty, seriousness, and active involvement from their counterparts in addressing issues that impact both their individual interests and the nation as a whole.

Citizens demonstrate increased vigilance in safeguarding their rights as stipulated by the prevailing legislation. Consumers are more attentive to the quality vector of products and services, particularly those related to the field of education. The pulsating force that will provide sustainability, productivity, and competitiveness, along with the essence of quality for Brazilian products, as well as the aforementioned ethical principles, will emanate from the Brazilian educational system. However, this will only be realized through a grand and effective transformation of the modus operandi of this system.

Many Brazilian entrepreneurs who were attuned to the signals of the new demands of the global market have adapted to them and are currently enjoying stability, engaging in excellent business ventures. This is a result of their implementation of educational programs in their companies focused on enhancing the quality of their products and services.

* Corresponding author: Gomes Rickardo; <https://orcid.org/0000-0001-6101-9571>.

These programs are grounded in the implementation of educational initiatives, particularly in technical training and the mastery of technological innovations, which are in their infancy in the traditional Brazilian educational system. Quality in education constitutes a significant milestone for industrial and business competitiveness, and Brazil urgently needs to further expand its share in the globalized market.

The methodology employed for the development of this article is characterized by a qualitative approach, using investigative resources developed from bibliographical and documentary research. These research activities were conducted through consultations in sources related to the studied theme, such as books, newspapers, magazines, official documents, and other relevant sources.

The overarching objective of this research is to illustrate the correlation between the quality of Brazilian education and the structural maintenance of competitiveness among Brazilian enterprises. It is asserted that without this quality, it is not feasible for Brazil to sustain its competitiveness in the current global business landscape.

The specific objectives of this research are as follows: to discuss productivity, competitiveness, and quality in education; to address the levels of Brazilian education; to explore the issues to be addressed for the improvement of Brazilian education; to identify the obstacles arising from the education system being incompatible with the demands of competitiveness; to present technological variables indispensable to the quality teaching and learning process.

This article is structured into four sections. The first section is the introduction, where the research objectives are explained. The second section is reserved for the methodology. The third section is the theoretical framework, which promotes discussions related to the researched theme, and the fourth and final section presents the concluding remarks.

2 Material and methods

The approach of this research is classified as qualitative, employing a research procedure based on exploratory bibliographic research.

Exploratory research is conducted in the preliminary phase with the purpose of providing more information about the subject under investigation, enabling its definition and delineation. It facilitates the delimitation of the research theme, guides the establishment of objectives and formulation of hypotheses, or discovers a new approach to the subject [1].

The study under consideration examined, with an investigative perspective, situations relevant to the studied object, which, in the specific case of this analysis, is the Quality of Education as the Foundation for the Sustainability of Competitiveness within the Brazilian education system. This quality should be inherent in the educational environment, considering it as the cornerstone for the sustainability of competitiveness, as well as the continuous employment of new technologies in the teaching-learning process and the importance of the role of teachers and stakeholders in the education system.

To achieve this purpose, it was necessary to direct the approach based on the use of theoretical material. A research line was established to guide the work, ensuring the gathering of all indispensable material to establish an evolution within the context of the proposed objective.

The deductive-hypothetical method was employed to study the levels of application and the respective benefits obtained with the continuous use of modern instructional resources in improving the quality of the Brazilian education system. This, in turn, has positive repercussions on the development of professionals capable of enhancing the competitiveness potential within Brazilian companies.

3 Literature Review

3.1 Productivity, Competitiveness, and Quality in Education.

Competitive enterprises rest upon two crucial pillars: Quality and Productivity. Without quality, customers become dissatisfied and refrain from making further purchases; without productivity, costs escalate, and the company lacks competitiveness. The significance of quality requires the oversight of the entire production process, with a focus on employee qualification. This premise applies in every sense to the Brazilian Educational System [2].

Quality is the inherent characteristic of the product or service provided, while productivity is the measure of effectiveness in using resources to produce a specific product or service. Quality Management contributes positively to making routine processes more efficient, serving as a key factor in the overall elevation of human talents' productivity. This, in turn, motivates them for new challenges. When our education system operates based on these principles, it undoubtedly focuses on meeting the entire spectrum of demands from our production and service system.

The Brazilian Education System calls for decisive actions and decisions from those in charge, leading to a radical change in education, with a spotlight on the teacher, student, and the most suitable means for improving education. The multiplier effects will be felt in the quality of life, with positive repercussions for our competitiveness among nations. Our companies will become more competitive, and their higher-quality products will enjoy greater acceptability in all market segments, especially in the international market [2].

3.2 Levels of Brazilian Education

3.2.1 Basic Education

In this initial stage of the educational journey, which represents the first steps on the path of knowledge, the student must possess a good dose of motivation to gain momentum towards the desired level. In basic education, the student needs to anticipate ways to improve their skills and, from another perspective, deepen preliminary technical knowledge. At this stage, the learner will also gain insights into themselves within the context of their role in society.

The National Common Curricular Base (BNCC) defines the normative character, the organic and progressive set of essential learning that all students must develop across the stages and modalities of Basic Education. As defined in the Law of Guidelines and Bases of National Education (LDB), Law 9394/1996, this base should guide the curricula of educational networks, federative units, as well as the pedagogical projects of all public and private schools in early childhood education, elementary education, and high school throughout Brazil [3], [4].

During this phase, curricular programs should encompass topics related to Quality, Productivity, and Competitiveness, aiming to instill the importance of these principles in academic performance and future professional endeavors [2].

3.2.2 Elementary Education

Elementary Education in the initial years manages teaching in the areas of Portuguese Language, Mathematics, Natural Sciences, and Human Sciences. This education constitutes the Second Phase of Basic Education. Its goal is to provide students with mastery in reading, writing, and arithmetic, in addition to aiding in the understanding of the social, political, artistic, and basic societal values.

In the final years, students will study Portuguese Language, Natural Sciences, Mathematics, and Human Sciences as disciplines. Although the subjects remain the same, the knowledge levels within the curricular programs are at a more advanced level compared to the initial years. In this phase, students assimilate all educational concepts and fundamentals, along with the necessary preparation to position themselves as responsible citizens and embark on a promising professional future. It is crucial that, at this stage of educational evolution, students already have a complete command of these three variables.

3.2.3 High School and Technological Education

Investing in technical and vocational education will enable continuous and accelerated national growth, providing better job opportunities and income for young people and adults. Vocational education offers greater opportunities for those skilled in this area to enter the job market more quickly. It is evident that a significant majority of those completing these courses have more job opportunities than those recently graduated from higher education.

Technical education plays a fundamental role in the job market and for society as a whole. The preparation of youth for various fields of work is undoubtedly a vector for economic and social development, especially for the productive sector. In all vocational courses, students must have a mandatory full command of the topics related to Quality, Productivity, and Competitiveness [2].

3.2.4 Higher Education

For Brazil to achieve a promising future with the foundation of its higher education system, a collective commitment is necessary in constructing a more open, innovative, and sustainable Academic Education, both in the traditional on-site modality and in distance learning.

Over the past decades, higher education has undergone significant transformations globally, and Brazil is no exception. Numerous advancements have been made, notably the integration of technologies into educational processes and the expansion of access to higher education. According to the National Institute for Educational Studies and Research (INEP), the number of students enrolled in higher education in Brazil increased from approximately 2.7 million in 2000 to 8.9 million in 2021. However, challenges still exist to ensure quality education, with a focus on competitiveness for everyone and strengthening the ties between Higher Education Institutions and society, especially in productive and technological development sectors [5].

Another crucial aspect in Higher Education is the Continuous Training of Teachers, which, with few exceptions, remains inconsistent. This is because teacher update programs are still in their early stages due to the lack of a Master Program for Renewal and Recycling of Teachers. Such a program would encompass the absorption of modern pedagogical techniques, progression to levels of specialization, improvement, postgraduate studies, master's, doctoral, and other essential aspects for the ongoing updating of the entire teaching staff in establishments belonging to the Brazilian Education System. It is explicit that the inclusion of parameters such as Quality, Productivity, and Competitiveness in Teacher Update Programs, along with the full presence of Meritocracy, is imperative [2].

3.3 Issues to be Addressed

The issues focused on in this present study are all correlated with the needs of our education system, aiming to enter with greater efficiency and effectiveness into the level of excellence required by the imperative force of market competition in products and services.

One question to be refined in the education system is the greater need for significant support in all sectors involved in industrial competitiveness in the developed world. It is worth questioning why Brazil does not invest more in education and why other countries with the same level of investment in education achieve better results. We must also address why our Academic Centers quantify but do not qualify at the level demanded by the market and question why teachers are so undervalued in our society.

Could part of the problem be the lack of in-depth research to identify the true flaws in quality in all variables of the educational context and eliminate them once and for all? The current moment demands the prompt realization of long-term programs for effective improvement of the education system, without the intervention of individuals who have no understanding of education but insist on gaining political dividends to enjoy benefits related to their personal interests.

In this context, this research cites lived experiences, with inquiries and answers that will stimulate the thinking of scholars and researchers on the highlighted topic. It is also a subject of questioning the omission and the lack of political will from those responsible for the goals that Brazil currently demands to modernize and swiftly advance towards an enviable position as a great economic power.

Quality for Competitiveness and Productivity are variables that our technological process urgently needs. In the past, our education corresponded to the aspirations of sovereign will. In the present and future, this will inevitably have to happen again. The problem is not just the lack of schools but the absence of recognition and prestige that we must direct towards the teaching profession, associated with a solid and permanent Meritocracy Program focused on the teaching profession at various levels of the Brazilian education system.

This program should compulsorily be amalgamated with another program of scholarships in universities or research centers abroad to reward and clearly demonstrate the recognition of the education system for these actors who are authentic sowers of knowledge in all areas of talent development.

3.4 Hindrances Arising from the Educational System's Incompatibility with the Demands of Competitiveness.

The educational system, at its core, failing to manifest ready solutions to the requirements for the comprehensive development of a nation, is out of sync with the predominant variables that ensure stability to the market economy. Faced with this assertion, there is no alternative but to reverse this scenario through in-depth studies and the formulation of goal-oriented planning to strengthen the educational, industrial production, and service systems.

The Brazilian educational system is striving to optimize all variables relevant to formal and specialized education geared towards the productive sector. Failing to provide quality education to its population formalizes the lack of preparation of qualified workforce demanded by the market. In a scenario where high technology and complex machinery increasingly dominate the daily operations of companies and individuals, education has become the key variable for any entrepreneurial endeavor. Brazil is beginning to feel the negative effects of not having abolished this deficiency earlier, within the context of competitiveness linked to education [6].

If the lack of quality education made no difference in a market that required mechanized work without the involvement of the worker, at present, the solid education that the country has not yet fully provided becomes indispensable for enhancing the synergy of various educational sectors, with a focus on competitiveness crucial to activities that drive the progress of our country.

3.5 Obstacles Arising from the Incompatibility of the Education System with the Demands of Competitiveness

An education system that, at its core, does not manifest ready responses to the requirements for the full development of a nation is out of sync with the predominant variables that ensure stability in the market economy. Faced with this assertion, there is no alternative but to reverse this situation through studies and the development of a goal-oriented plan to strengthen the Education, Industrial Production, and Service Systems.

The Brazilian education system is striving to optimize all relevant variables related to formal and specialized education geared towards the productive sector. Failing to provide quality education to its population formalizes the lack of preparation of qualified workforce demanded by the market. In a scenario where high technology and complex machinery increasingly dominate the daily operations of companies and individuals, education has become the key variable in any business venture. Brazil is beginning to feel the negative effects of not having addressed this deficiency earlier in the context of competitiveness linked to education [6].

If the lack of quality education did not make a difference in a market that demanded mechanized work without worker involvement, in the current moment, the good training that the country still does not fully provide becomes indispensable for increasing the synergy of various educational sectors, with a focus on competitiveness, crucial to activities that drive the progress of our country [7].

In the current moment, the education system requires a shared commitment from all stakeholders involved in the education and production systems of our country. This will thereby provide highly positive benefits, contributing to a more harmonious empowerment of the two mentioned systems[7].

Quality education is built over decades, and societal mindset needs to change regarding education. Efforts in education may not yield immediate results, but in the long term, they will form the foundation for the sustainable development of the country. Recognizing education as a long-term investment that brings benefits not only to individuals but also to the enduring development of the country should be a commitment of all involved in the educational process [8].

3.6 Technological Variables Essential to Quality Teaching and Learning

- Variable I. Virtual and Immersive Reality. Virtual reality aids students in immersive learning experiences, facilitating the understanding of scientific concepts and complex technologies. It is estimated that those who learn through virtual reality achieve results 15% to 20% better than those using traditional methods [9].
- Variable II. Artificial Intelligence (AI). This technology has numerous applications in the field of education. Within AI, Learning Analytics is a notable aspect, known as Technology Applied to the Teaching-Learning Process, providing benefits to students, teachers, and educational institutions. This AI technological tool, including Neuro-Linguistic Programming (NLP), represents one of the latest advanced resources for the educational realm [9].
- Variable III. Programming and Robotics. These two resources offer significant opportunities for students to engage in meaningful learning and planning projects. Their numerous applications are applicable to various learning methods, strengthening fundamental technological skills for the digital era and the competitiveness of Industry 5.0. Higher education institutions are swiftly revising their curricula to incorporate this variable into various courses [9].
- Variable IV. Design Thinking. Design thinking, or projective thinking, is an educational technology that directly connects learning to real-life problem-solving or challenges. In this approach, students independently seek theoretical information to achieve a specific goal through teamwork and the creation of prototypes that allow learning from mistakes [9].

- Variable V. Gamification. Gamification involves applying game mechanics in non-entertainment contexts, such as corporate training, marketing, and learning processes. This technology was created with the aim of generating motivation and engagement among participating students [9].

4 Conclusion

The objective of this research was to analyze the operational aspects of quality within our education system, considering its crucial role in providing the resources and human capital necessary for the teaching-learning process, with the aim of elevating its quality standards. The ultimate goal is to equip the demanding labor market with professionals who meet the requirements of the productive sector and related services, emphasizing qualities such as quality, productivity, and competitiveness. To achieve this objective, a comprehensive literature review was conducted, providing adequate means and support to gather information with a high level of credibility and reliability for a thorough analysis of the obtained data. It was observed that the quality of education is a pivotal sector in the context of our country, serving as a secure foundation for enhancing competitiveness in all sectors involved in generating revenue through the competitiveness of our products and services. The perspective for improving the quality of our teaching and learning processes lies in making the pursuit of continuous improvement a permanent endeavor, utilizing advanced technological resources, and implementing new models in the manager-teacher-student relationship, with a positive impact on the formation of human capital intended to meet the demanding needs of sectors committed to competitiveness. An education system that prioritizes the introduction of technological innovations, consistently adopts a program of recognition and improvement for teachers, and values managers, educators, and administrative support staff in educational institutions, will be affirming the significant quality leap demanded by the present. All citizens, especially government officials, have the duty and obligation to work towards the growth and enhancement of our education system. Every individual's growth and success in life undoubtedly stem from the knowledge acquired through the teachings of teachers in the classroom, complemented by family education. This research clearly highlights the urgent need for our education system to accelerate the implementation and use of technological resources and modern teaching techniques. The implementation of an Integrated Quality Management System in Education is crucial to achieving a positive leap in quality, thereby providing positive impacts on the performance of teachers, future generations, society, and the trinity of quality, productivity, and competitiveness.

Compliance with ethical standards

Acknowledgments

The authors express their gratitude to the directors of the Postgraduate Program in specialization in Higher Education Teaching at Bithencourt da Silva College, for their kind attention.

Disclosure of conflict of interest

The authors assure that there is no conflict of interest with the publication of the manuscript or an institution or product mentioned in the manuscript and/or important for the result of the presented study.

References

- [1] Prodanov, C. C., & Freitas, E. C. (2013). *Methodology of scientific work: methods and techniques of research and academic work*. 2nd ed. Novo Hamburgo: Feevale.
- [2] CNI. (2018). *Education: the foundation for competitiveness / National Confederation of Industry*. – Brasília: CNI. 42 p. ISBN 978-85-7957-196-1.
- [3] Brazil. (1996). LDB - Law No. 9394/96, December 20, 1996. Establishes the Guidelines and Bases of National Education. Brasília: MEC.
- [4] Brazil. (2018). Ministry of Education. *National Common Curricular Base*. Brasília.
- [5] INEP. (2023). *Higher Education Census, 2022*. Brasília: MEC/INEP.
- [6] Barbosa, M. L. de O., & Pires, A. (2022). An exploratory analysis of selection and inclusion in Brazilian Higher Education: from inherited merit to relational merit. *Pro-Posições*. Campinas. V. 33. e20210070. e-ISSN: 1980-6248. <https://doi.org/10.1590/1980-6248-2021-0070>.

- [7] Lopes, A. E. M. P., Santos, J. N. A. dos, & Alencar, D. (2023). Contribution of education to economic development: theoretical reflections. *Cadernos CEPEC, Belém, 11(2): 26-39. ISSN: 2238-118X.*
- [8] World Bank. (2018). *World Development Report Education*. Available at: <https://www.worldbank.org>. Accessed on: 10/11/2023.
- [9] Lima, J. da S., Figueredo, D. C., Castanheira, F., & Araújo, H. A. B. de. (2022). Contemporary variables into integrated teaching and integral education. *Conjecturas, Vol. 22, Nº 15. ISSN: 1657-5830. <https://doi.org/10.53660/CONJ-1957-2R08>.*