Scientific Research Publishing

Open Journal of Social Sciences, 2026, 14(11), 87-103
https://www.scirp.org/journal/jss
ISSN Online: 2327-5960
ISSN Print: 2327-5952

Exploring the Adoption of ISO9001-2015 Risk-Based Thinking on Curriculum Development and its Implementation Process

Cerease Nevins-Bennett, Stacy-Ann Lawrence, Venessa Buchanan Williams

Turks and Caicos Islands Community College, Providenciales, Turks and Caicos Islands
Email: cerease.nevins-bennett@tcicc.edu.tc, Stacy.ann-lawrence@tcicc.edu.tc, Quality.assurance@tcicc.edu.tc

How to cite this paper: Nevins-Bennett, C., Lawrence, S.-A., & Buchanan Williams, V. (2026). Exploring the Adoption of ISO9001-2015 Risk-Based Thinking on Curriculum Development and its Implementation Process. *Open Journal of Social Sciences, 14,* 87-103.
https://doi.org/10.4236/jss.2026.1411007

Received: August 4, 2026
Accepted: November 8, 2026
Published: November 11, 2026

Copyright © 2026 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
http://creativecommons.org/licenses/by/4.0/

Open Access

Abstract

Educational institutions that are desirous of obtaining ISO9001 - Quality Management certification must apply to the ISO9001-2015 Risk-Based Thinking (RBT). The purpose of this application is multifaceted as it improves the quality and effectiveness of educational services provided by identifying and managing risks, supporting the delivery of teaching and support services, fostering academic integrity, and allowing for evidence-based decision making within institutions. Risk is inherent and affects the quality management systems of institutions; therefore, by using the risk-based thinking (RBT), institutions in developing and implementing their curriculum will consider risk by using a proactive approach and preventative measures (next-generation QA) rather than addressing issues after they arise (traditional QA). The purpose of this paper is to examine the risk-based approach currently practiced by the institution and its impact on curriculum development and implementation of a Caribbean institution undergoing the process of obtaining ISO9001-2015 certification. The study employed a qualitative methodology using purposive sampling. A single case study approach using (1) interviews with the institution's curriculum development specialists and lecturers who develop curriculum, (2) document analysis of curriculum materials, risk registers, and risk assessment of the curriculum processes, and (3) observations of the curriculum quality management audits, were used to gather data. Thematic analysis was used to analyze the data after transcribing, cleaning and coding. Results showed that by integrating risk-based thinking as a strategic tool into curriculum implementation and development fostered a culture of curriculum quality, and increasing the satisfaction of internal process owners. Having great implications for educational policy and higher institutional practices, this study provides a framework for proactive quality assurance and fosters a deeper understanding of curriculum risk management. The process approach shows that next-gen

QA is not only a compliance mechanism but a strategic function that generates results. It was concluded that an effort to bridge the gap between traditional and next-gen QA requires institutions to create new mindsets and continuous improvement in their curriculum development and implementation.

Keywords

Curriculum Development, Curriculum Implementation, Risk-Based Thinking, Traditional QA

1. Introduction

Educational institutions that are desirous in obtaining ISO9001-2015, quality management certification must apply the ISO9001-2015 risk-based thinking. The purpose of this application is multifaceted, as it improves the quality and effectiveness of educational services provided by identifying and managing risks, supporting the delivery of teaching and support services, and allowing for evidence-based decision-making within the institutions. Risk is inherent and affects the quality management systems of institutions, therefore by using risk-based thinking, organizations will consider risk of each process, reducing the undesirable effects of uncertainties.

The International Organization for Standardization (2015) describes risk-based thinking as a "methodological approach" of managing risk at various key stages across management systems, ensuring that risks are identified, considered, and controlled. Martins et al. (2021) state that risked based thinking should be included in organisations' processes to encourage "long-term thinking and caution" (p. 1). Risk-based thinking is necessary as it improves organizational governance, improves customers' confidence and satisfaction, and ensures that there is consistency with quality. The implementation of the Risk Based Thinking in organizational practices follows the ISO9001:2015 guidelines of first identifying the risks, analyzing the risks, evaluating risks, integrating it into the organizations' processes, monitoring and review, and continuous improvement. It is essential for organizations to continuously learn from the risks, be proactive rather than reactive, and turn the various challenges into opportunities. Organizations are encouraged to conduct root cause analysis to understand the underlying issues before corrections and corrective actions are done. It is also essential to create a risk awareness culture which will propel risk-based thinking. All levels of staff and not only faculty members who are involved in curriculum development and implementation should understand that a risk awareness culture involves integrating risk-based thinking into the organization's quality management system for the consideration of risk and opportunities.

1.1. Background of the Study

There has been a paradigm shift from a more traditional compliance-based quality

assurance approach to a risk-based thinking approach that is more strategic in nature. The concept of risk-based thinking is explicitly stated in clauses 4, 5, 6, 9, and 10 of the ISO9001-2015 Quality Management System, but implicitly stated in clauses 7 and 8. Clause 6 - Actions to address risks and opportunities directly address risk-based thinking by requiring organizations to determine risks and opportunities for the quality management system by ensuring the QMS achieve its intended outcomes, reduces undesirable effects, and achieves continuous improvement. Clause 4 - Context of the Organization requires the organization to determine the internal and external issues impacting its ability to achieve the intended results of its QMS (Clause 4.1) and requires the organization to address the risks in accordance with Clause 6.1 (Clause 4.4.1). Clause 5.1.1d - Leadership and commitment encourages organizations to promote the use of risk-based thinking. Clause 9.1.3e - Analysis and evaluation require organizations to analyze and evaluate the effectiveness of actions taken to address risks and opportunities. Clause 10.1 requires organizations to correct, prevent, and reduce undesired effects. Clause 7 - Support requires the organization to provide needed resources to implement the risks' action plan, and Clause 8 - Operations require the organization to manage its operational processes and associated risks (Martins et al., 2021).

1.2. Statement of the Problem

Institutions are required to develop and implement curriculum as a crucial function of the educational systems. The traditional methods of curriculum development and implementation are complex processes that focus on compliance, adherence to institutions policies, and reviews rather than on the identification and mitigation of risks for continuous improvement. Many institutions of higher learning have consistently relied on traditional curriculum development, often neglected the ISO9001:2015 risked-based thinking which has an impact on educational quality. ISO9001:2015 has been adopted by many industries; however, the application of risk-based thinking in curriculum development and implementation in the higher educational sector is not well studied and documented.

To solve this problem, this paper seeks to find answers to the main research question and sub-questions:

1.3. Research Question

"How can the adoption of the ISO9001-2015 Risk Based thinking approach influence the curriculum development and implementation process?

1.4. Sub-Questions

1) How can the ISO9001-2015 Risk Based thinking approach be integrated into curriculum development and its implementation?

2) How can the introduction of Risk-Based Thinking improve overall curriculum development and implementation?

3) How does the adoption of ISO9001-2015 Risk-Based Thinking influence a culture of quality management in curriculum development?

2. Literature Review

This research paper is anchored on the ISO9001-2015 Risk-based Thinking (RBT), clause 6.1, which addresses requirements for institutions to consider risks and opportunities so that quality management systems can achieve their intended results. The framework of this paper outlines the use of this risk-based approach to curriculum development and the integration of evidence-based thinking to manage risks. Implementing this approach to curriculum development is explored to garner insights into maintaining a quality culture throughout the institution. Guided by a robust quality management system and continuous improvement theories, this framework proposes that integrating RBT into curriculum processes enhances decision-making, fosters accountability, and strengthens the overall quality assurance system of the institution. Thus, the conceptual framework reflects the use of RBT as the driver, with the adoption of improved curriculum planning, execution, and evaluation within a higher education quality management context (Figure 1).

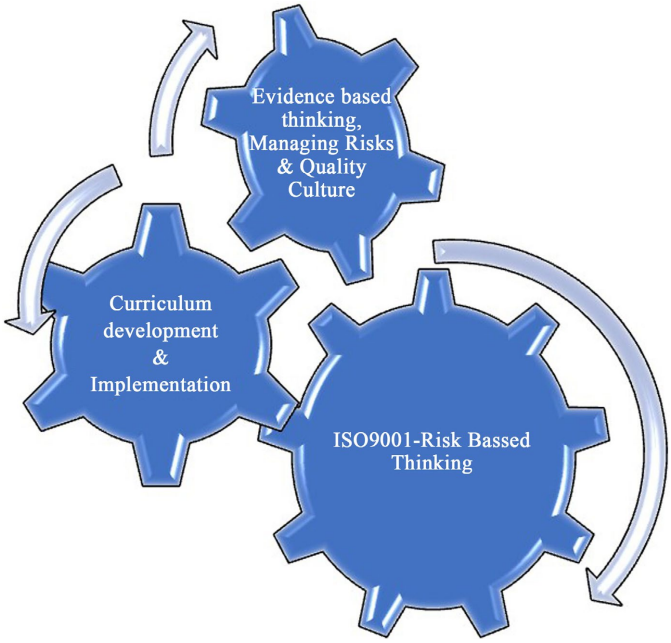


Figure 1. Conceptual framework.

2.1. Risk Management and Risk-Based Thinking

In education and curriculum development, risk management is the process of identifying, evaluating and reducing risks affecting the functioning and quality of curriculum development and implementation (Moreira, 2024). An efficient quality management system in higher educational institutions should operate based on international standards; to this end, these institutions should focus on meeting

industry requirements, stakeholder requirements (Bazalu et al., 2024), managing resources, and managing the teaching and learning processes. Effective risk management fuels a successful quality management system, and while there is no one way to manage risks, institutions should ensure that processes are in place for the prevention and mitigation of risks (Suprin et al., 2019). When the risk management system is effective, it will result in better leadership outcomes, better evaluation and control of risks, and effective communication of risks (Suprin et al., 2019).

2.2. ISO-9001-2015 Risk-Based Approach Integrated into the Curriculum

Risk-Based Thinking (RBT), as a key feature in quality management, became an integral part of institutions as they saw fit to change the organizational culture. Ykydal et al. (2020) stated that the Risk-Based Approach requires institutions to strategize and plan activities while considering the risks and opportunities that are the foundation for achieving efficiency, improved results and mitigating negative impacts. Integrating a robust quality management system that focuses on risks requires the institution to create and maintain a culture of high standards (El Abbadi et al., 2013). Other higher education institutions have also seen the need for a quality management system and have adopted international standards to maintain a quality culture (Bazaluk et al., 2024). **Table 1** outlines the process of risk-based thinking in the institution as outlined by Martins et al. (2021).

Table 1. ISO9001:2015 risk-based thinking requirements.

Sections	Requirements
4. Organizational Context	Organizations are required to define the QMS's processes, addressing their respective risks (threats and opportunities)
5. Leadership	Emphasizing the top management responsibility in RBT awareness and effectiveness
6. Planning	Identifying the risks (threats or opportunities) and establishing appropriate actions to handle them
7. Support	Providing the resources needed to implement the risks' action plans
8. Operations	The organization is required to manage its operational processes and associated risks (threats and opportunities)
9. Performance Evaluation	Monitoring, analyzing, and evaluating the effectiveness of actions realized to approach risk
10. Improvement	Working in a continuous improvement flow, correcting, preventing and or reducing the undesirable effects and updating the (risks and opportunities)

2.3. ISO-9001-2015 "Risk Based" Thinking Requirements

The standards require higher education institutions to plan and perform certain tasks while taking into consideration the risks and opportunities to endeavour for

a more efficient and effective quality management system to improve results (Vykydal et al., 2020). Lopes et al. (2022), Sohel-Uz-Zaman and Anjalin (2016) joined the conversation as they stated that there is an urgent need to develop a clear risk process, amidst the unresolved issues that have occurred with institutions that had implemented the ISO management system.

3. Methodology

This study adopted a qualitative single case study design to explore the adoption of ISO9001-2015 Risk-Based Thinking on curriculum development and implementation processes within an unnamed college. A qualitative approach was most appropriate for this study to capture the risk-based practices and procedures of the curriculum development and implementation processes within the institution. While a single case study approach was most suitable to gain an in-depth understanding of the phenomenon being investigated allowing for a holistic description of the case.

Data was collected using a purposive sampling technique because the researchers needed to include participants who had working knowledge and expertise in curriculum development and implementation as well as knowledge of ISO9001:2015 Risk Based Thinking. The institution was purposively selected for study because it is currently seeking ISO9001:2015 certification, employs RBT, and had well documented policies, risk registers, and a quality management system in place.

The sample size of five participants was used in the study. Ahmed (2025) suggested that a sample size of 4 - 12 is adequate for use in a single case study to achieve data saturation. Data saturation is an essential process in achieving methodological rigor. The participants included the institution's curriculum development specialists (CDS), three lecturers who were instrumental in curriculum development, with one of the three being a member of the curriculum committee, and the Dean of Academic and Student Affairs, who were all selected purposively because of their responsibility and oversight of the curriculum processes. The CDS provides quality assurance support and ensures each curriculum aligns with the quality management processes of the institution. The curriculum committee member reviews, validates, and makes recommendations for improving the curriculum. The Dean provides oversight of the curriculum implementation process, giving approval, and monitors its implementation and use. The lecturers are subject matter experts and curriculum developers.

Multiple data sources were used to corroborate the findings. The researchers collected data by conducting 30 - 50 minutes semi-structured interviews. The interview protocol consisted of 12 questions. Document analysis of curriculum materials and risk registers were also done to corroborate the interviews, reveal inconsistencies, and provide evidence of the Risk-Based Thinking principles embedded in the curriculum processes. Observation of the internal audits of the curriculum processes and a review of a curriculum design process and associated risk were also used to gather data. The curriculum development process was observed

against the ISO9001:2015 Clause 8.3 - Design and Development of Products and Services. This is to ensure that the researchers captured how the curriculum was designed and how the risks are assessed and taken into consideration to meet customers' needs.

Data was analyzed in three ways. Thematic analysis was used to analyze interview data after transcribing, cleaning and coding. A set of a priori codes were developed from the conceptual framework of the study, specifically the risk-based thinking and the stages of the curriculum cycle. Each interview transcript was then coded line-by-line by the three researchers who recorded each code's definition and checked against the "a priori coding." Related codes were then developed into themes and checked against each role group (The Dean, CDS, and lecturers). Themes were kept if they were consistent among each group of respondents. Themes were further crossed check with the document review process and internal audit observations. Themes were refined through discussion and consensus.

Triangulation of data was used to establish credibility of the study. The validation of the research was achieved through member checking. The five participants performed synthesized member checking. Each was given their summarized transcripts, preliminary themes, and quotations that were anonymous. The participants reported whether the information corroborated their experiences and responses. The overall interpretations were deemed appropriate and were not disputed.

Approval was obtained from the institution's Research Committee. The participants were debriefed and gave informed consent before their engagement in the research, The participants were informed that their information will be kept confidential, there will be minimal harm, and will be able to voluntarily withdraw from the study at any time. Data were protected using passwords and two-factor authentication while still in use. The reflexive role of the researchers was maintained throughout the research process to maintain credibility. The researchers were either directly involved in the management of the institution's quality management system (QMS) or acted as internal auditors providing oversight and assessing that the college's processes conformed to the QMS and ISO9001:2015. The researchers did not influence the results of the research, nor was the data of this research used as audit findings.

4. Results

4.1. Results from Document Analysis

A comprehensive review of the institution's curriculum materials and risk registers was undertaken by the researchers. In examining the adoption of Risk-Based Thinking within the curriculum process, five major categories of risks stood out. These categories captured the operational realities of curriculum development and implementation also including the strategic, cultural, and governance dimensions that underpin a sustainable, quality-driven institution. The categories are Strategic and Governance Risks, Academic Process Risks, Resource and Infrastructure Risks, Data-Driven, Feedback and Reputational Risk, Cultural and Change Man-

agement Risks. Table 2 shows the identified risks of the curriculum process and the mitigation strategies.

Table 2. Identified risks of the curriculum process and the mitigation strategies.

Risk ID	Category of Risk	Risk Description	Mitigation of Risk
R003	Operational Process	Delays in launching new courses at satellite site	- Streamline approval processes. - Implementation Plan for readiness. - Identify programme/course needs, - Leverage external partnership for funding or grants
R004	Operational Process	Inadequate infrastructure/resources at satellite site	- Scheduled infrastructure audits, - build partnership with local stakeholders. - Timely management and reporting on the targeted output of phases of the project, - leverage external partnership for funding or grants
R005	Reputation	Low enrolment in newly offered courses	Targeted marketing initiative
R010	Strategic	Inability to identify workforce readiness gaps	- Expand stakeholder network, - regular and targeted survey - Identify courses/gaps required to address the skills gap
R012	Strategic	Dated Skills Gap Analysis misaligned with labor market	- Labour Market Needs Assessment conducted in collaboration with employers. - The Curriculum Development & Design Policy requires industry validation before new or revised programmes are approved.
R013	Governance & Compliance	Document reviews process falls behind schedule	- Approved Curriculum Review schedule
R021	Governance & Compliance	limited use of data-driven decisions	- Implementation of a Curriculum Review Data capturing enrolment, attrition, student feedback, and graduate employability. - Mandatory use of programme performance indicators (KPIs) in annual programme evaluation reports. - Integration of feedback (student surveys, tracer studies, industry feedback)
R023	Financial/ Funding	Over-reliance on government funding	- Collaboration with industry partners for sponsored training or franchised programmes. - Periodic curriculum reviews to ensure cost-effective delivery models (e.g., blended learning).
R024	Academic Quality Programme	Competition & overseas preference for tertiary programmes	- Continuous curriculum benchmarking against international institutions. - Development of unique programme offerings aligned to local labour needs (e.g., Tourism/Hospitality, TVET specializations).
R025	Academic Quality Programme	Undersubscribed programmes;	- Annual Programme Viability Review using enrolment and completion data. - Curriculum redesign or modularization to make programmes more flexible and appealing.

4.2. Results from Observations of the Internal Audit of Curriculum Development, Design, and Review Process

As part of the institution's annual internal audit schedule, the curriculum development, design, and review process is routinely audited to ensure conformity with both institutional policies and the requirements of ISO 9001:2015. This process must demonstrate compliance with internal documents such as the curriculum development and design policy, the programme management policy, and the curriculum review procedure, among others. It also aligns relevant external regulatory, accreditation, and certification standards applicable to the programmes offered by the institution. While the audit covers several clauses of the ISO 9001:2015 standard, the primary focus relates to Clause 8 - Operation: Planning and Control of Processes and Clause 6 - Planning, which encompasses the principle of Risk-Based Thinking (RBT).

Audit findings indicated that while the curriculum development and review process demonstrate general compliance with established institutional policies and procedures, it was observed that risk-based thinking was consistently applied across all curriculum units. There was evidence of stakeholder feedback integration and consistent monitoring of curriculum review cycles. This confirmed the need for continuous alignment between documented procedures and operational practices to fully achieve the intent of Clauses 6 and 8 and support continual improvement across the academic division.

4.3. Results from Interviews

Interviews were conducted with the Curriculum Development Specialist, the Dean of Academic and Students Affairs, and lecturers responsible for curriculum development and implementation.

Dean of Academic and Students Affairs

Three themes emerged from the interview session with the Dean of Academics and Student Affairs. These were: 1) Integrating risk-based thinking into curriculum development, 2) institutional challenges integrating RBT, 3) Building a sustainable quality culture for curriculum development. The Dean explained that "*the use of a centralized risk register managed by the Quality Assurance Manager, with departmental inputs, and the Dean's involvement in key roles such as monitoring the curriculum specialists' influences mitigation strategies.*" The Dean emphasized the importance of risk-based thinking and recognized that it should be embedded at all stages of curriculum development, "*this could be done through training, beginning from proposal initiation to final approval.*" This is to ensure continuous improvement, and effectiveness is achieved.

The Dean mentioned that several operational and institutional challenges also influenced the successful integration of risk-based thinking. This includes "*limited resources, lack of training, and the need for stronger administrative support.*" The discussion also highlighted that "*enablers can help overcome these barriers.*" Other stakeholders in the process can play their role mitigating these challenges.

When asked about what specific strategies, tools, or practices would you recommend ensuring that Risk-Based Thinking continues in the curriculum planning and review processes? the response was "*the success of risk-based thinking depends on institutional support structures, which involve adequate training, funding, and leadership commitment.*" The respondent believed these are integral measures that can be implemented to translate policy into practice.

The Dean referred to the broader goal of embedding a culture of quality and sustainability within curriculum development through ISO 9001:2015 principles. This involves making quality practices an institutional norm supported by continuous improvement and reflective evaluation. A proactive, institution-wide quality culture, grounded in ISO 9001's risk-based approach, ensures sustainability, accountability, and continuous enhancement of curriculum quality. This initiative, when supported by all staff members, will lay the foundation for maintaining standards.

Curriculum Development Specialist

The interview conducted with the Curriculum Development Specialist revealed that the introduction of ISO 9001:2015 Risk-Based Thinking (RBT) has the potential to significantly enhance curriculum development and implementation processes by fostering proactive management, structured decision-making, and continuous improvement practices. The major themes emerged from the data were: 1) identification of existing risks, 2) opportunities emerging from RBT, 3) proactive and preventive improvement, and 4) strategies for sustained enhancement.

The Curriculum Development Specialist (CDS) confirmed that key risks affecting curriculum development and implementation have been identified within the institution. A primary challenge is staffing shortages, described as "not having enough personnel with regards to handling the process of curriculum development or to even handle the day-to-day." This shortage disrupts workflow and slows the completion of curriculum projects. Highlighted also were the process backlogs caused by interdepartmental dependencies, noting that "*what is considered your urgency may not necessarily be the urgency for someone else.*" Another significant risk is the limited understanding of the Risk-Based Thinking (RBT) concept among staff. As explained, "*some persons understand the system on paper but not its on-the-ground applicability.*" This gap between theory and practice underscores the need for ongoing training and capacity building to ensure full adoption of RBT principles. Overall, while systems exist to manage risks, human and operational weaknesses continue to hinder the effective realization of ISO 9001:2015 benefits.

Despite the identified challenges, Curriculum Development Specialist (CDS) was keen to emphasize that RBT also opens up positive risks, or opportunities, for improvement. The description of how the introduction of a risk-based framework compels institutions to modernize their systems and adopt new technologies. According to the CDS, "*by virtue of implementing a system that is structured and functioning well, you will find that there is the need for extensive investment in*

technology." Specifically highlighted examples such as "*the integration of augmented reality/virtual reality (AR/VR) in the core curriculum,*" which represents a forward-looking approach to enhancing student engagement and program relevance. Curriculum Development Specialist (CDS) regarded these developments as indicators of system transformation, describing them as "*positive risks… because of the nature of the system, the institution is being tasked to provide resources that they previously would not necessarily have thought about.*" This perspective reflects how RBT not only mitigates negative risks but also encourages innovation, technological integration, and strategic resource allocation. Hence, the adoption of RBT can serve as a catalyst for modernization and digital transformation in curriculum design and delivery, aligning academic offerings with contemporary educational trends.

Another key theme that emerged from Curriculum Development Specialist (CDS) reflections was the proactive nature of RBT. It was explained that "*having a risk-based approach means that we're being proactive… identifying risks, putting structures in place to minimize or accept them, or to maximize the opportunities that arise.*" This statement illustrates the shift from a reactive culture, responding to problems as they occur, to one that emphasizes foresight, planning, and control. Curriculum Development Specialist (CDS) further elaborated that the RBT framework enhances institutional learning, as "*the approach would improve the effectiveness if we were adequately applying the lessons that have been learned from how we have been dealing with those risks.*" It was the view that effective application of these lessons requires investment in human capital to sustain risk mitigation practices. Without adequately trained personnel, the CDS cautioned, "*you are not putting in place the human capital to ensure that the gains you have made are maintained.*" This underscores the link between human resource capability and the continuous improvement ethos embedded in ISO 9001:2015.

To ensure the sustainability of these improvements, Curriculum Development Specialist proposed several strategic and technological interventions. It was recommended that the development of "*curriculum databases and systems that help to build the curriculum and collect data over time to track changes.*" Such systems, the CDS argued, would create an evidence-based foundation for monitoring curriculum evolution and assessing impact. The Curriculum Development Specialist also emphasized the importance of "*greater integration in terms of accessibility to curriculum via internal intranets and access to web pages,*" suggesting that digital platforms can promote transparency and streamline communication among departments. Furthermore, Curriculum Development Specialist advocated for international partnerships as a means of enhancing curriculum quality and institutional learning: "*Institutions are not stuck in a silo, there is that international relationship with other institutions, where you can share skills, share expertise, curriculum improvements, approaches, and even staff.*" This global perspective demonstrates how collaboration can strengthen institutional resilience and expand capacity for innovation. Emphasis was placed on "*tracking data to monitor*

curriculum effectiveness" reflects an alignment with the ISO 9001:2015 principle of evidence-based decision-making, reinforcing the role of data as a driver for sustained improvement.

4.4. Lecturers

Lecturers were asked how the ISO9001-2015 risk-based thinking approach can be integrated into curriculum development and its implementation (RQ1). Three themes emerged from this research question. The themes were (1) minimal awareness of risk-based thinking, (2) monitoring and evaluation of risks, and (3) capacity building. While the lecturers were aware of how to develop and implement curriculum because it is engrained in their job descriptions, one lecturer (respondent 1), despite having knowledge of risk, was not fully aware of how the risk-based thinking was relevant to curriculum development and implementation. The lecturer stated that "*we need to be sensitized on how to integrate risk-based thinking into curriculum development because it is clear that we are still using the traditional approach despite moving towards gaining ISO9001:2015 certification.*" The lecturer went on to state that it will improve quality and gain more confidence from the college's external stakeholders. The participant stated that curriculum-related decisions were currently made by the lecturers and curriculum development specialist. However, they were not sure at what stages RBT can be effectively incorporated, then assured that risks should be included "*at every stage of the curriculum development and implementation process.*"

When asked about the elements of the ISO 900:2015 RBT approach that is considered most applicable to curriculum design, review, and continuous improvement processes, the participant stated that monitoring and evaluating the risks is most applicable.

> "*While it is easy to determine the risk that may have an impact on curriculum development and implementation, it will be most difficult to monitor and evaluate the risk to determine the underlying cause. If you are not able to ascertain the cause, then we are prone to making the same mistakes when developing the curriculum.*"

Capacity building is a potential challenge that may arise when integrating ISO 9001:2015 RBT into the curriculum development process of the college. The participant stated that "*the skills and competencies of those involved with curriculum development needs to be strengthened through meaningful in-house training that is continuous, not crash training.*"

Lecturers were asked how the introduction of a risk-based thinking can improve overall curriculum development and implementation (RQ2). one theme emerged from analyzing the data. The theme is "Continuously think about risk to strengthen curriculum quality". It was found that risk-based thinking can enhance curriculum design and implementation when those responsible for curriculum design and change are intentional, proactive, continuously think about risk even before they occur, whilst using an evidence-based approach. This will ensure qual-

ity programs, sustainable programs, and meet the needs of industry stakeholders. When asked about the specific strategies, tools, or practices one would recommend ensuring that risk-based thinking continues in the curriculum planning and review processes, Respondent 2 recommends that the college should continue to upgrade its risk register, continuously train faculty, and continue with the internal audit of the curriculum processes. Respondent 1 stated that "*we can create cross functional teams as a strategy to ensuring the risk-based thinking continues in the curriculum planning and review processes.*"

Research question 3 asked respondents to tell how the adoption of ISO9001-2015 RBT may influence a culture of quality management in curriculum development. Overall, lecturers believed that the adoption of risk-based thinking is not only a requirement for ISO9001:2015 certification, but also a sustainable way for the improvement of the curriculum. Two themes emerged from this question: (1) Defining a culture of quality and (2) creating a sustainable culture of quality. For the theme: defining a culture of quality", respondents collectively agreed that a culture of quality in curriculum development and implementation is one where all staff buys into the process, understands the role they play in the process, be accountable, uphold quality standards. As one respondent stated:

> "*a culture of quality in curriculum development and implementation means that curriculum risks, processes, and changes are accepted by all levels of staff, internal and external stakeholders, and not only those who prepare and use curriculum.*"

One respondent stated that "*Creating a sustainable culture of quality*" *means that the institution is engraining within its way of processes a set of curriculum development and implementation practices that is of quality*". The respondent stated that we must first learn to be adaptable to changes, use evidence-base and documentation throughout our activities, and continuously use the risk-based thinking, converting risks into opportunities. Respondent 2 stated that:

> "*We can no longer go back to the reactive approach, where we made changes as we go along, fixing curriculum issues after they occur, and not listening to our stakeholders, or incorporating industry best practices, we now need to have a culture of adaptability and one where we are proactive in the face of risks.*"

5. Discussion, Conclusion, and Recommendations

The adoption of the ISO 9001:2015 Risk-Based Thinking (RBT) approach marks a significant shift in how academic and administrative processes are managed. Traditionally, curriculum development within Caribbean tertiary institutions has mostly focused on meeting accreditation and programme approval requirements, often limiting continuous improvement. The RBT framework now introduces a proactive dimension, requiring the institution under investigation to identify and manage risks and opportunities that impact quality and relevance, which will see

the moving of the institution from a reactive to a preventive culture.

The curriculum process, which spans different stages such as design, review, approval, delivery, implementation and evaluation, carries potential risks that, if not managed properly, can compromise the quality of the product. Through the institution's internal audits and institutional risk register, several recurring themes emerged, highlighting challenges that influence how effectively RBT is applied across the institution. The themes of strategic and governance risks, academic process risks, resource and infrastructure risks, data-driven, feedback and reputational risk, cultural and change management risks that were identified from the document analysis collectively demonstrate that adopting risk-based thinking within curriculum development and implementation is not confined to academic design alone. It requires institution-wide coordination across governance, data management, resourcing, and cultural transformation. By identifying and classifying risks through these categories, the institution can ensure that curriculum decisions are strategically aligned, evidence-based, and continuously improved, ultimately fulfilling the intent of ISO 9001:2015 to enhance educational quality, stakeholder confidence, and institutional effectiveness.

The results obtained from the observed audit of the curriculum design process showed the importance of continually auditing against Clause 8 - Operation: Planning and Control of Processes and Clause 6 - Planning, as both encompass the principle of RBT. Clause 8 requires that organisations' plan, implement, and control processes needed to meet customer and stakeholder requirements. In the context of the college, this translates to ensuring that programme design, course development, and curriculum review activities are conducted under controlled conditions supported by documented evidence, stakeholder engagement, and validation mechanisms that confirm their effectiveness. While Clause 6 emphasizes the need to identify, evaluate, and plan for risks and opportunities that may affect the institution's ability to achieve intended outcomes. It also requires the establishment of quality objectives (Clause 6.2) and proper planning for changes (Clause 6.3). This includes recognizing and addressing factors such as programme relevance, market demand, stakeholder expectations, faculty readiness, and resource availability. The auditor's role is to verify that:

- Curriculum teams have identified and documented the risks and opportunities affecting their processes (Clause 6.1).
- Quality objectives related to curriculum development and improvement are clearly defined, measurable, and monitored (Clause 6.2).
- Any curriculum development, revisions, or programme changes are planned, communicated, and approved in accordance with institutional policy (Clause 6.3).

Failure to integrate these steps represents a nonconformance with both the ISO 9001:2015 Standard and institutional procedures, particularly the requirements outlined in Clause 6. The investigated institution received no nonconformities.

The document analysis and the observation results corroborated the results of

the lecturers who were involved in the curriculum design and implementation process as was clearly articulated; there needs to be continuous training and development in the areas of risks (capacity building) and building a culture of quality.

5.1. Limitations

The study was limited by time constraints due to organizational competing events. The researchers were busy preparing for the institution's ISO9001, 2015 audit. This limited the scope of data collection. The study however offers valuable implications for educational policy and higher institutional practices, as it provides a framework for proactive quality assurance and fosters a deeper understanding of curriculum risk management.

5.2. Conclusion and Recommendations and Implications for Quality Assurance

The study showed corroboration among the three methods of data collection with emerging themes that were similar across methods. While the curriculum development and review process demonstrate general compliance with established institutional policies and procedures, it was observed that risk-based thinking has been consistently applied across all curriculum units. Specifically, there was limited evidence of stakeholder feedback integration and inconsistent monitoring of curriculum review cycles. This reflects a need for greater alignment between documented procedures and operational practices to fully achieve the intent of Clauses 6 and 8 and support continual improvement across the academic division.

5.3. Implications

Practical implications for the study are that the results can help to strengthen administrative decision making, enhance the college's quality assurance practices, and improve the curriculum processes of design and implementation. The curriculum risks may be mitigated by using the framework of the study. The risk management processes of organizations may be aligned with their quality management system and ensure that all curriculum processes adhere to risks, formulate and keep risks in risk registers.

This study may have social implications for countries within the Caribbean. Curriculum risk-based practices within higher education may contribute to ensuring that there are academic integrity and ethical standards in developing and implementing curriculum. The institutions will be better equipped to produce graduates that are better equipped to meet the needs of their organizations, and this may foster resilience, institutional stability, and institutional continuity.

The study of risked-based thinking in curriculum development and implementation provides insights into how higher educational institutions view risks in that core process to strengthen delivery and academic outcomes. The study connects the elements of ISO9001, 2015 risk-based thinking, whereas other studies focus

solely on quality assurance and risks management of the institution overall. Examining risk in such an operational context from the curriculum development stage to its implementation bridges the gaps that exists in the quality assurance literation and total quality management of the curriculum processes.

This study contributes original insight by positioning risk management as a strategic and integrative function within higher education administration rather than a purely compliance-driven activity. While existing literature often examines risk management, quality assurance, and governance as separate domains, this study uniquely connects these elements by proposing a structured framework for curriculum risk management aligned with institutional quality assurance systems. The originality of the study also lies in its contextual focus on administrative practices within higher education institutions undergoing formal quality management processes, such as ISO 9001:2015 implementation. By examining risk management within this operational context, the study provides a practical and institutionally grounded perspective that is underrepresented in current research.

5.4. Recommendations

It is recommended that the college should make quality practices an institutional norm supported by continuous improvement and reflective evaluation. It was also recommended to create curriculum databases and systems that help to build the curriculum and collect data over time to track changes. The Curriculum Development Specialist advocated international partnerships as a means of enhancing curriculum quality and institutional learning:

Future research could use a mixed method approach to examine the impact of ISO9001 RBT on curriculum effectiveness whilst also exploring stakeholders' perspective on such effectiveness.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Ahmed, S. K. (2025). Sample Size for Saturation in Qualitative Research: Debates, Definitions, and Strategies. *Journal of Medicine, Surgery, and Public Health, 5,* Article ID: 100171. https://doi.org/10.1016/j.glmedi.2024.100171

Bazaluk, O., Pavlychenko, A., Yavorska, O., Nesterova, O., Tsopa, V., Cheberiachko, S. et al. (2024). Improving the Risk Management Process in Quality Management Systems of Higher Education. *Scientific Reports, 14,* Article No. 3977. https://doi.org/10.1038/s41598-024-53455-9

El Abbadi, L., Bouayad, A., & Lamrini, M. (2013). ISO 9001 and the Field of Higher Education: Proposal for an Update of the IWA 2 Guidelines. *Quality Approach in Higher Education, 4,* 14-19.

International Organization for Standardization (2015). *Quality Management Systems. Fundamentals and Vocabulary (ISO Standard No. 9000:2015).* https://www.iso.org/standard/45481.html

Lopes, A., Polónia, D., Gradim, A., & Cunha, J. (2022). Challenges in the Integration of Quality and Innovation Management Systems. *Standards, 2,* 52-65. https://doi.org/10.3390/standards2010005

Martins, Y. S., Sanches da Silva, C. E., Sampaio, P. A. D. C. A., & Catalani Gabriel, L. (2021). ISO 9001:2015 and Risk-Based Thinking: Scientific Research Insights. *Total Quality Management & Business Excellence, 33,* 1326-1343. https://doi.org/10.1080/14783363.2021.1954898

Moreira, J. C. R. (2024). Risk Management in Education: A Systematic Literature Review of the Last Five Years. *Revista de Gestão Social e Ambiental, 19,* e010977. https://doi.org/10.24857/rgsa.v19n1-127

Sohel-Uz-Zaman, A. S. M., & Anjalin, U. (2016). Implementing Total Quality Management in Education: Compatibility and Challenges. *Open Journal of Social Sciences, 4,* 207-217. https://doi.org/10.4236/jss.2016.411017

Suprin, M., Chow, A., Pillwein, M., Rowe, J., Ryan, M., Rygiel-Zbikowska, B. et al. (2019). Quality Risk Management Framework: Guidance for Successful Implementation of Risk Management in Clinical Development. *Therapeutic Innovation & Regulatory Science, 53,* 36-44. https://doi.org/10.1177/2168479018817752

Vykydal, D., Folta, M., & Nenadál, J. (2020). A Study of Quality Assessment in Higher Education within the Context of Sustainable Development: A Case Study from Czech Republic. *Sustainability, 12,* Article 4769. https://doi.org/10.3390/su12114769