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Case Report

Investigating Quality Auditing Framework for the Effectiveness of Blended Learning in Project Management Certification: A Case Study from Bahrain

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Abstract

This paper investigates the effectiveness of Blended Learning (BL) methods for Project Management certification, by focusing on how Quality Auditing can also support the continuous effectiveness of training programs in this field. Building on the research by Amin Y [1], which he evaluated the effectiveness of BL through combination of classroom instruction and computer-based tools, this study further explores how quality standards can be applied in this context. Bahrain Vocational Review (BVR) 2024 Edition Framework, a local standard for education and training quality audit will be investigated for its effectiveness on BL. By assessing the quality of BL methods and comparing them with the BVR Framework, the study aims to determine how this framework can influence the overall effectiveness of BL in project management certification. This research extends Amin Y.'s findings, which he surveyed the trainees after completing the Certified Project Officer (CPO) training in Bahrain, as case study.

Introduction

In recent years, the use of Blended Learning (BL) methods for professional certifications, particularly in project management, has gained prominence. BL offers a flexible approach, combining online learning with classroom-based instruction, and has been shown to improve learning outcomes across various professional fields [2,3]. The effectiveness of BL has been explored in numerous contexts, including its role in enhancing learner engagement, practical skills development, and overall satisfaction with the learning process [1,4]. BL has been widely recognized for its potential to offer a balance between flexibility and structured learning, combining online modules with face-to-face interactions [3]. Research indicates that BL methods have been particularly effective in professional certification programs, such as project management, where practical skills are as critical as theoretical knowledge [5]. In Bahrain, Amin Y [1] explored the effectiveness of BL by surveying trainees who had completed project management certification. The findings highlighted key advantages of BL, such as enhanced learner engagement, increased flexibility in learning schedules, and improved practical skills through hands-on group activities.

Key benefits include

- Collaboration and Teamwork:** Project management inherently involves teamwork, and in-class group exercises simulate real-world project scenarios [5].
- Hands-On Experience:** Practical problem-solving and decision-making skills are best acquired through interactive exercises, as highlighted in research by Graham [3] and Means et al. [6].
- Immediate Feedback:** Face-to-face discussions allow for real-time feedback, which is crucial for correcting misunderstandings [7].
- Blended Learning Complements Classroom Learning:** While online modules provide convenience, in-person activities enhance engagement, ensuring a well-rounded learning experience [8].

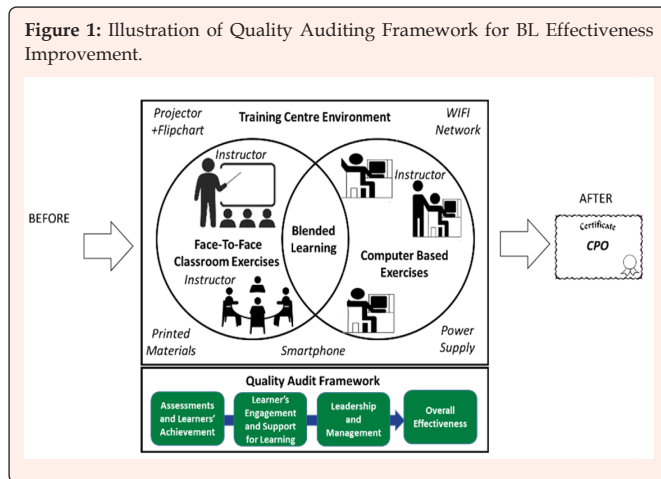
In addition, while Amin Y [1] has previously focused on learner outcomes in Bahrain, this research shifts the focus toward evaluating the quality of blended learning and its alignment with global quality frameworks. The Bahrain Vocational Review (BVR) 2024 framework was introduced to emphasize several critical quality aspects, including assessment standards, learner engagement, support strategies, and leadership management [9].

In general, the BVR 2024 Framework aims to:

- Enhance the Quality of Vocational Training:** It provides a systematic approach to assessing and improving the performance of vocational training programs in Bahrain.
- Align with Global Standards:** The framework integrates international best practices, while still being tailored to meet Bahrain's specific vocational and educational requirements.
- Support Skill Development:** It focuses on enhancing the skills and competencies of individuals by ensuring that educational and vocational programs deliver high-quality training.

Hence, this study examines how well BL aligns with the Bahrain VBR framework audit objectives for improving training practices. First, the framework will be compared with other recognized international benchmarks, and then the alignment of Bahrain's VBR framework with BL methods will be demonstrated, as illustrated in Figure 1. By integrating the quality management framework with BL methods, this study aims to show how the effectiveness of project management certification program scan be further enhanced.

Figure 1: Illustration of Quality Auditing Framework for BL Effectiveness Improvement.



In summary, the main purpose of this research is to assess whether the integration of the Bahrain VBR quality framework with Blended Learning methods can improve the effectiveness of project management certification programs in Bahrain.

Problem Statement

The effectiveness and quality of blended learning (BL) methods in project management certification in Bahrain remain under-explored, particularly in relation to the locally established Framework that was designed to be aligned to international standards. There is a research gap on how BL methods, which integrate both classroom instruction and digital tools, can be aligned with the Bahrain Vocational Review (BVR) 2024. This study aims to fill this gap by evaluating the adherence of BL practices to the BVR Framework.

In summary, the gap exists for the following reasons:

1. Limited Exploration of Blended Learning (BL) in Project Management Certification in Bahrain: While Blended Learning (BL) methods have been researched extensively in various fields and regions, their specific application in project management certification in Bahrain is still under-explored.
2. Bahrain Vocational Review (BVR) 2024 framework was designed to align with international standards, but there is limited research on how well BL methods adhere to these local BVR. Since this framework is relatively new, it makes sense that its application in BL environments remains under-researched.
3. There is a clear gap in assessing how BL methods can be aligned with the BVR 2024 framework. While BL combines digital tools and classroom instruction, research on how these methods conform to the specific standards laid out in the BVR is limited. This gap is significant because the BVR 2024 is a locally established framework designed to ensure quality, and its effectiveness in ensuring high-quality training through BL methods remains unexamined.

By identifying how BL practices adhere to the BVR framework, the study can fill this research gap, contributing to both academic literature and practical applications

in vocational education. The novelty lies in combining the local framework (BVR) with global best practices to create an effective framework for BL in project management training.

Research Objective

This study aims to address the research gap and achieve the following objectives:

- a. Compare Bahrain's VBR framework with international standards in vocational training quality.
- b. Assess how Blended Learning (BL) methods align with the Bahrain Vocational Review (BVR) 2024 framework.
- c. Identify the challenges in aligning BL methods with the BVR 2024 framework.
- d. Provide recommendations to improve BL methods for project management certification based on BVR standards.

Materials and Methods

The research methodology, hypothesis, and data analysis will be presented in this section.

Research Methodology

Document Analysis:

- i. BVR 2024 Framework Review: Conduct a detailed examination of the Bahrain Vocational Review (BVR) 2024 framework to understand the criteria and standards it establishes for vocational and educational training [9].
- ii. ISO Standards Review: Analyze ISO 9001 (Quality Management Systems) and ISO 21001:2018 (Educational Organizations) to determine the quality management and educational standards relevant to BL methods (ISO, 2015; ISO, 2018).

Comparative Analysis:

- a. Criteria Mapping: Compare the quality criteria outlined in the BVR 2024 framework with those specified by ISO standards. Identify similarities and discrepancies in the standards related to BL methods (ISO, 2015; ISO, 2018).
- b. BL Method Assessment: Evaluate how BL methods in Bahrain meet or fall short of the criteria established by both the BVR and ISO standards, focusing on instructional quality, learner engagement, and assessment practices.

Quality Evaluation:

- i. Standards Alignment: Assess the alignment of current BL practices with the BVR 2024 framework and other international standards to determine compliance and effectiveness.
- ii. Best Practices: Identify best practices and propose recommendations to enhance BL methods based on the findings from the standards review and criteria mapping.

Hypothesis

H1: Blended learning methods used for project management certification in Bahrain is aligned with the quality criteria set forth by the Bahrain Vocational Review (BVR) 2024 framework.

Data Analysis

- a. Framework Comparison: Analyze and compare the content of the BVR 2024 framework with ISO standards to determine key quality metrics and criteria relevant to the BL method.
- b. Criteria Evaluation: Systematically evaluate how well BL methods align with BVR's Aspects and criteria.



Literature Review

According to literature, the quality audit is essential for enhancing the effectiveness of blended learning (BL) methods in project management (PM) certification. It systematically evaluates various aspects of the BL program, providing insights and recommendations for improvement.

Here's how the quality audit contributes to BL's effectiveness, based on literature:

Identification of Gaps and Areas for Improvement

- a. Compliance Check: Quality audits assess whether BL methods comply with established Framework such as the Bahrain Vocational Review (BVR) 2024 framework. According to McDonald et al. [10], compliance audits help identify gaps between current practices and established quality benchmarks, highlighting areas requiring improvement.

Enhancing Instructional Quality

- a. Content Relevance: Audits can evaluate whether the content delivered through both classroom and digital formats is up-to-date and useful [2]. Furthermore, the study by Bernard et al. [11] indicates that high-quality content alignment is crucial for effective blended learning environments.
- b. Teaching Methods: Evaluating teaching methods and engagement strategies can enhance instructional quality. According to Means et al. [6], effective teaching strategies in BL environments improve student outcomes by balancing theoretical knowledge and practical application.

Improving Learner Engagement and Experience

1. Feedback Mechanisms: Quality audits assess how learner feedback is collected and utilized. This is crucial for improving learner satisfaction and engagement [12].
2. Furthermore, in the context of blended learning (BL), quality audits serve as a tool to assess how effectively feedback is gathered from learners and how that feedback is used to refine and enhance educational programs. According to Keller [12], feedback is a crucial element in instructional design, and the ARCS model emphasizes the importance of learner motivation, satisfaction, and engagement. By integrating quality audits, institutions can systematically evaluate and improve their feedback mechanisms, leading to better alignment with learner needs, ultimately increasing satisfaction and engagement. Hence, feedback mechanisms help tailor BL programs to better meet learner needs and preferences [12,13]. They highlighted the importance of feedback in blended learning (BL) environments. Feedback mechanisms, according to their study, play a critical role in enhancing learner satisfaction and engagement by addressing individual needs and preferences. These mechanisms allow instructors to adapt and fine-tune BL programs, ensuring they are more effective and personalized to improve learning outcomes.
3. Engagement Strategies: Audits review how BL methods foster engagement and interaction. Effective engagement strategies in BL have been shown to enhance learning experiences and outcomes [14].

Optimizing Assessment and Evaluation

- a. Assessment Practices: Evaluating assessment methods ensures they align with learning objectives and measure learners' skills accurately [15]. Quality audits can recommend improvements in assessment practices to enhance the validity and reliability of evaluations [16].

- b. Continuous Improvement: Identifying areas where assessments fall short allows for continuous improvement. Quality audits support this by providing recommendations for refining evaluation practices [17].

Ensuring Quality Assurance and Continuous Improvement

- i. Quality Assurance Processes: Audits examine quality assurance processes, such as regular reviews and updates to the BL program [18]. Effective quality assurance helps maintain high standards and adapt to evolving industry requirements [19].
- ii. Actionable Recommendations: Based on audit findings, actionable recommendations guide improvements in BL programs. This process helps address identified issues and enhances overall program effectiveness [20].

Alignment with Standards

- a. Standards Compliance: Aligning BL methods with standards like BVR and ISO ensures that the program meets both local and international benchmarks. This alignment helps maintain credibility and enhances the quality of certification processes [2,12].

By utilizing a quality audit to evaluate these elements, BL methods in project management certification can be significantly improved, leading to enhanced effectiveness and learner outcomes.

Blended Learning Relationship to the BVR Framework

Research suggests that the quality audits in BL environments not only improves learner outcomes but also contributes to long-term organizational efficiency and effectiveness [7]. Furthermore, by comparing the BVR 2024 framework with ISO21001, EQAVET, QAA UK and VET Australia, this study aims to identify the quality gaps and strengths in the current BL practices for project management certification in Bahrain. From comparison with the BQA Vocational Review Handbook (BVR) 2024 in terms of educational assessment, learner support, leadership, data management, and adherence to regulations, we found the followings:

- i. ISO 21001 has strong alignment in terms of management systems and continuous improvement, but less in specific vocational aspects.
- ii. EQAVET (European Quality Assurance in Vocational Education and Training) aligns well with BVR due to its focus on vocational education standards in Europe, particularly in learner engagement and assessment.
- iii. QAA (Quality Assurance Agency) UK shares strong similarities, especially in the areas of leadership, management, and data-driven continuous improvement.
- iv. Australian VET (vocational education and training) shares also strong similarities, especially in the areas of leadership, management, and data-driven continuous improvement.

Analysis Result

The next step was to show the key BVR Framework Aspects and Criteria' can align with the quality audit required for BL Project Management (PM) training (e.g., CPO certification). Table 1 illustrates how each blended learning component aligns with BVR's requirements for quality assurance in vocational education. In general, BL learning components supports and aligns with BVR's Aspects, providing a comprehensive, high-quality learning environment for Project Management certifications like the CPO program. However, further analysis was needed to find out the percentage (%) similarity between them.



Table 1: illustrates how each blended learning component aligns with BVR's requirements.

BVR Handbook Aspect	BVR Criteria	Blended Learning Components	Effectiveness of Learning Outcome
1. Assessment and Learners' Achievement	1.1 Assessment Standards	Online assessments, face-to-face exams, group projects	Holistic learner evaluation through digital and in-class assessments
	1.2 Learners' Achievements	Performance tracking, group exercises, class discussions	Combines practical and digital monitoring for well-rounded achievement
2. Learners Engagement and Support for Learning	2.1 Training Strategies	Virtual sessions, group exercises, workshops	Engages learners through interactive methods that foster teamwork and critical thinking
	2.2 Support and Learning Environment	LMS, instructor support, classroom resources	Combines digital and in-person support to ensure comprehensive guidance
3. Leadership and Management	3.1 Effective Strategic Leadership for Continues Improvement	Curriculum flexibility, BL planning, hands-on workshops	Leadership ensures integration of digital tools and practical workshops
	3.2 Monitoring of Learners' Performance	Progress analytics, class observations, group evaluations	Comprehensive insight into both digital and physical performance
	3.3 Human Resources Performance Management	Training for BL tools, in-class teaching methods	Ensures educators are proficient in both virtual and physical environments

By further investigation with other worldwide known standards and compared them to the Bahrain Vocational Review (BVR) aspects. We came across this interesting result in Table 2. This table 2 compares the similarity percentage (%) alignment of BVR criteria

with international standards like ISO 21001 (Education Organization Management Systems), EQAVET (European Quality Assurance in Vocational Education and Training), and other frameworks. The similarity percentage differences represent how closely these standards match the BVR's specific criteria [21].

Table 2: illustrates how each blended learning component aligns with BVR's requirements. Source: [21].

BVR Handbook Aspect	BVR Criteria	Similarity % with Worldwide Standards	Worldwide Standards Compared
1. Assessment and Learners' Achievement	1.1 Assessment Standards	85%	ISO 21001, UNESCO Guidelines, EQAVET
	1.2 Learners' Achievements	80%	OECD Guidelines, ISO 21001
2. Learners Engagement and Support	2.1 Training Strategies	78%	ISO 21001, UNESCO Education Framework
	2.2 Support and Learning Environment	90%	ISO 21001, European Standards (ENQA)
3. Leadership and Management	3.1 Strategic Leadership for Improvement	82%	EQAVET, ISO 21001, OECD Guidelines
	3.2 Monitoring Learners' Performance	88%	ENQA, ISO 29990, ISO 21001
	3.3 Human Resources Performance Management	75%	UNESCO TVET, ISO 29990, EQAVET

Key Takeaways from the Mapping Table 1

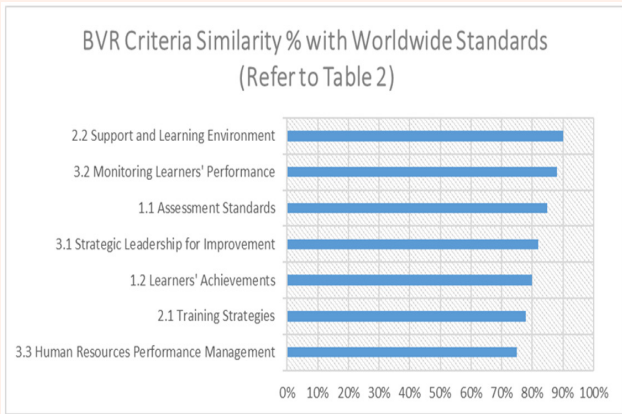
- Learning Management Systems (LMS) are crucial for meeting BVR requirements for learner support, assessment, and continuous improvement. BVR evaluates how well the LMS tracks learner progress and how easily instructors can update the curriculum.
- Virtual classrooms and webinars enhance learner engagement and teaching quality, aligning with BVR's focus on interactive and high-quality instruction.
- Group projects and collaboration tools ensure practical application of knowledge, which is a core BVR requirement for vocational programs.
- Online quizzes and assessments are key to ensuring assessment quality and relevance, helping institutions meet BVR standards for evaluation and continuous feedback.
- Self-paced learning modules and learning analytics support BVR's emphasis on flexibility and continuous improvement, ensuring that the curriculum remains responsive to learner needs and performance.

Key Takeaways from the Mapping Table 2

- High Alignment with International Standards: The Bahrain Vocational Review (BVR) shows a high similarity with international standards. Hence, demonstrating strong alignment with globally recognized standards in vocational education and training.
- The primary global standards include ISO 21001 (focused on Education Organization Management Systems), EQAVET (European Quality Assurance in Vocational Education and Training), and UNESCO Guidelines were used. These standards are frequently referenced in the table, indicating their widespread relevance to vocational education.

As a result, from Tables 1 & 2 analysis and as reflected in Figure 2, we can conclude that the BVR's criteria align strongly with the international standards in key areas but not fully as 100%. Hence, the BVR framework for Bahrain will need further development to achieve 100% to be fully aligned with other international standards, as per this study scope and data collected [22,23].

Figure 2: Analysis of BVR Criteria Against Other Standards (Refer to Table 2).



Challenges

Some identified potential challenges in aligning Blended Learning (BL) methods with the Bahrain Vocational Review (BVR) 2024 framework:

- Assessment Standards Compatibility:** The BVR 2024 framework may have more specific requirements for assessments, which might not fully align (100%) easily with BL methods that use a mix of digital tools and classroom evaluation techniques.
- Learner Engagement Metrics:** Measuring learner engagement in BL environments can be more complex compared to traditional learning, especially in terms of meeting the engagement criteria outlined in the BVR framework.
- Consistency in Instruction Quality:** BL methods may lead to inconsistencies in the quality of instruction between online modules and in-person sessions, making it difficult to meet the uniform quality standards emphasized by the BVR.
- Technological Infrastructure:** Implementing BL methods that align with the BVR standards may require advanced technological infrastructure, which can be a challenge for institutions with limited resources.
- Instructor Training and Support:** Instructors may need additional training to meet the BVR framework's quality management criteria while using BL methods, which can be a logistical and financial challenge for some organizations.

Conclusion

Based on the study analysis, we can conclude that the hypotheses were fulfilled. The study revealed that Blended Learning (BL) methods in Bahrain's Project Management (PM) certification largely align with the BVR 2024 framework, but challenges and gaps may remain in certain areas.

From the analysis, it is proven that Bahrain's Vocational Education (BVR) framework is highly credible for quality auditing when using best practices on blended learning programs (Refer to Table 1). It is also proven that BVR aligns closely (min. 75- max. 90%) with the global standards (Refer to Table 2). Hence, there are further needs for addressing the minor gaps which could further enhance its international standing.

Recommendation

Continuous research into vocational training methodologies and best practices, is suggested by focusing on bridging gaps between local and international standards and exploring innovative solutions, such as new digital tools or blended learning models, to enhance vocational PM education in Bahrain. By implementing these recommendations and addressing the challenges, the BVR framework can further solidify its position as a credible standard for quality auditing in vocational education, ensuring blended learning methods in project management certification continue to be effective, modern, and globally competitive. Finally, based on the broad range of topics required for project management training and the rapid advancement of technology, it is recommended that qualified PM trainers with strong technology backgrounds to conduct further research to address the gaps in this field.

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