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Mini Review

Investigating Facilities and Supporting Tools for Blended Learning in Project Management Training: A Case Study in Bahrain

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Abstract

This study explores and offers practical, actionable recommendations for Blended Learning (BL) facilities and supporting tools for project management training programs in Bahrain. The proposed strategy is categorized into two main areas: technology and environment. Technological tools include Learning Management Systems (LMS), such as the OPEN (Online Project EducatioN) Platform, Knowledge Management Systems (KMS), AI-driven tools, laptops, smartphones, and reliable internet connectivity. In addition, they are complemented by the second part of a healthy and conducive classroom environment. The study also emphasizes the critical role of the Bahrain Quality Authority (BQA) Framework in maintaining and improving the quality and effectiveness of BL initiatives. By drawing on prior research published by the author, this paper outlines the final strategies to enhance BL training outcomes, and hence providing a valuable model for Bahrain training organizations.

Introduction

Blended Learning (BL) is an educational model that integrates face-to-face instruction with online learning components, providing greater flexibility and accessibility. In the context of professional certification programs, such as the Certified Project Officer (CPO) certification in Bahrain, BL offers an effective means of bridging the gap between theoretical knowledge and real-world application.

The success of BL in professional training depends on the integration of several key elements: robust technological tools, a conducive physical environment, and quality assurance frameworks. Learning Management Systems (LMS) enable structured delivery of content, while Artificial Intelligence (AI) tools personalize learning experiences. Smartphones and high-speed internet further enhance flexibility, ensuring that learners can engage with content at their own pace. Additionally, environmental factors like comfortable seating and optimal lighting create a productive learning atmosphere. Finally, Knowledge Management Systems (KMS) store and share lessons learned, connecting theory with practice, if facilitated inside the trainees' organizations.

A critical component of ensuring the quality of these BL programs is the Bahrain Quality Assurance (BQA) framework. As an independent entity, BQA provides the necessary oversight and evaluation to ensure that educational programs adhere to national standards and continuously improve. This paper explores the role of these facilities and tools, with a focus on the integration of BQA in enhancing the effectiveness of BL programs.

Facilities Vs. Supporting Tools

In blended learning (BL), facilities and supporting tools serve distinct but complementary roles in creating an effective learning environment. Here's the difference:

Facilities

Facilities refer to the physical and infrastructural components necessary to support blended learning. These include:

a) **Classroom Environment:** Spaces designed for in-person learning, with proper seating, lighting, ventilation, and overall comfort.

b) **Technology Infrastructure:** Items like projectors, whiteboards, computer labs, or smart classrooms equipped to facilitate both traditional and digital learning activities.

c) **Network Infrastructure:** High-speed internet access within the institution to ensure seamless integration of online components.

d) **Accessibility Features:** Accommodations for students with disabilities, such as wheelchair access, assistive devices, or ergonomic workstations.

Supporting Tools

Supporting tools focus on the technological and digital resources that enable and enhance the learning process. These include:

a) **Learning Management Systems (LMS):** Platforms like Moodle, Canvas, or Blackboard for delivering and managing online course content.

b) **Knowledge Management Systems (KMS):** Tools for storing and sharing organizational or subject-specific knowledge, such as repositories of lessons learned or project data.

c) **AI and Automation Tools:** Adaptive learning systems, chatbots, and data analytics to personalize and streamline the learning experience.

d) **Devices and Software:** Smartphones, laptops, collaborative tools like Zoom or Microsoft Teams, and apps for assignments or quizzes.

e) **Digital Content:** E-books, videos, online simulations, and interactive learning modules.

Literature Review

The integration of technology in education has been widely researched, particularly in the context of BL. Learning Management Systems (LMS) like OPEN (Online Project EducatioN) Platform, which can provide the necessary infrastructure to deliver course materials, quizzes, and other free project templates. LMS platforms enable instructors to monitor learner progress, provide feedback, and foster interaction, making them indispensable tools for BL programs [1]. In fact, the OPEN platform is an online learning portal for the Center for Project Innovation. It's the most comprehensive, free-to-access project management resource hub available online with 500+ quizzes. OPEN is created as a learning material free-to-access because the developers believed in creating opportunities for people and making project teams a better place to be.

Knowledge Management Systems (KMS) help link theoretical knowledge with practical experience by storing and sharing lessons learned from real-world projects. These systems enhance the relevance of BL by offering contextual, real-world learning scenarios [2]. Artificial Intelligence (AI) has revolutionized personalized learning in BL. AI tools, such as ChatGPT, enable adaptive learning by assessing individual performance and providing real-time feedback. These tools cater to diverse learner needs, enhancing motivation and engagement [3]. The ability of AI to automate routine tasks and customize learning experiences has made it an essential tool in modern education [4].

Smartphones have emerged as a critical tool in the BL ecosystem, providing portability and enabling learners to access LMS platforms, collaborate with peers, and engage in learning activities on the go. When coupled with high-speed internet, smartphones ensure seamless connectivity, making BL more flexible and accessible for learners with varying schedules [2]. In addition to technological tools, environmental factors such as comfortable seating, optimal lighting, and climate control contribute to a conducive learning environment. Research has shown that comfortable physical environments enhance learner focus and motivation, improving overall training outcomes [3].

Lastly, Bahrain Quality Authority (BQA) plays an essential role in evaluating and accrediting educational programs, ensuring that they meet high national standards. The BQA framework provides the necessary feedback for continuous improvement, ensuring that training institutions adhere to quality standards. BQA's comprehensive reviews help maintain the credibility of BL programs by aligning them with global best practices in education and training [5].

Methodology

As a follow up to last studies on this subject, this new study employs a qualitative research approach, drawing insights from existing literature and practical applications of BL tools and facilities. Observations and documentation from the Certified Project Officer (CPO) training program at the Bahrain Society of Engineers (BSE) Training Centre were highlighted to assess the integration of LMS, AI tools, smartphones, comfortable facilities, KMS, and Quality Audit framework in the training process. Data were synthesized from published sources on the role of technological tools (LMS, AI, smartphones), environmental factors, KMS, and Quality Audit to develop actionable recommendations for optimizing BL programs in Bahrain. The findings and analysis are shown in Figure 1 & Table 1.

Findings and Analysis

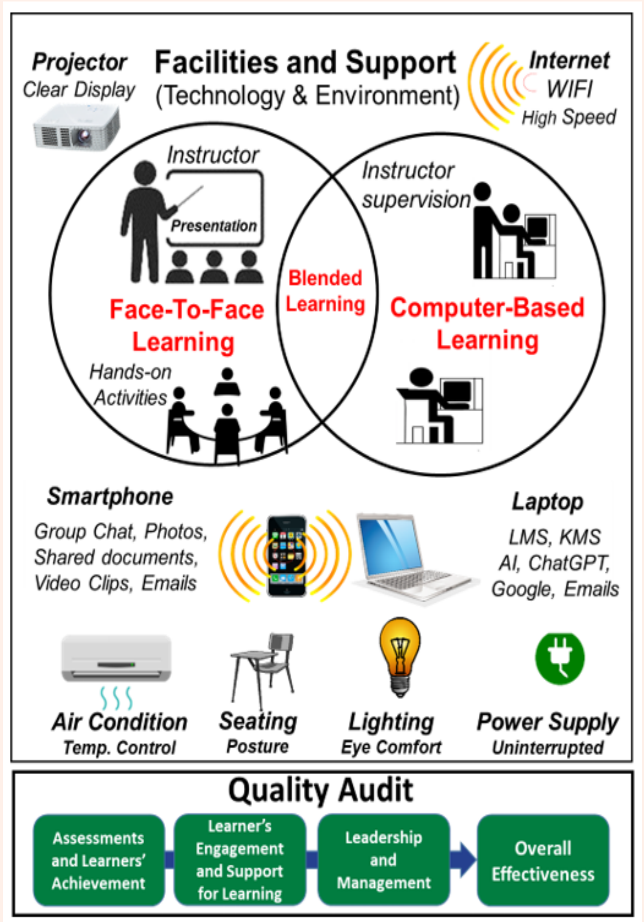

Figure 1: Result shows an overview of tools and facilities required for effective BL.

Table 1: Mapping facilities and supporting tools for effective BL.

Category	Tools/Factors	Purpose/Impact
Essential Technological Tools	Laptops with Updated OS	Compatibility with advanced LMS and tools (Alammary et al., 2014).
	High-Speed Internet & Wi-Fi	Seamless access to LMS; enhances trainee satisfaction and engagement during online sessions (Allen & Seaman, 2017)
	Smartphones	Portable learning tool for accessing LMS, collaboration platforms, and online resources (Allen & Seaman, 2017).
	Learning Management Systems (LMS)	Platforms like OPEN and Blackboard for content delivery, quizzes, discussion forums, and progress tracking [1].
	Knowledge Management System (KMS)	Storing experience and sharing lessons learned from real-world projects. These systems enhance the relevance of BL by offering contextual, real-world learning scenarios [2].
	AI Tools & ChatGPT	Provide personalized feedback, automate administrative tasks, and support interactive learning through conversational AI [2].
	Projectors/Displays	Enable visual content delivery, enhancing understanding and engagement during classroom sessions [3].
Environmental Factors	Air Conditioning & Lighting	Ensure physical comfort and a conducive learning atmosphere for trainees [3].
	Comfortable Seating	Enhance focus and motivation by providing a comfortable learning setup [3].
	Regular Maintenance of Facilities	Maintain facility quality to ensure their suitability for ongoing training purposes [2].
Quality Audit	Training Quality Assessments	Conduct Quality Audit under BQA using BVR Framework [5].

Technological Tools are list as Follows

Learning Management Systems (LMS)

Platforms like OPEN provide a structured framework for delivering content and tracking learner progress. These platforms support quizzes, assignments, and discussion forums, which are integral to the BL model. Additionally, they enable real-time feedback and personalized learning paths, enhancing learner engagement [1].

Knowledge Management Systems (KMS)

KMS integrate real-world knowledge with theoretical training, providing learners with a repository of lessons learned and case studies. This integration supports a practical, application-based approach to training in project management [2].

AI Tools

AI-driven tools, such as ChatGPT, enable personalized learning experiences by assessing individual performance and adapting learning paths. AI's ability to provide automated feedback and suggest areas for improvement has shown to improve learner outcomes, particularly in project management courses [3].

Laptops, Smartphones and High-Speed Internet

Smartphones facilitate communication and flexible learning by providing learners with portable access to course materials and collaboration tools. When paired with high-speed internet, laptops and smartphones ensure seamless interaction with online resources and real-time communication during synchronous sessions [2].

Facilities or Environmental Factors are Listed as Follows

Comfortable Facilities

Comfortable seating, appropriate lighting, and climate control are essential for maintaining focus and preventing fatigue during training sessions. These environmental factors were identified as key contributors to enhanced learner satisfaction and productivity [3].

Quality Audit

The Bahrain Quality Authority (BQA) Framework is essential in ensuring that BL programs maintain high educational standards. Regular reviews and evaluations by BQA ensure that training centers adhere to national standards and continuously improve their programs. The BVR 2024 framework introduces quality standards aimed at enhancing vocational training by focusing on assessment criteria, learner support, and skill development. Amin's research suggests that effective implementation of BVR framework can elevate the quality of training programs to meet global standards, thereby supporting Bahrain's goals for sustainable development through a skilled workforce.

The BVR framework also supports the development of a self-evaluation culture among institutions, which leads to the continuous refinement of educational practices. By aligning training programs with BQA standards, institutions can enhance the credibility and effectiveness of their BL offerings (BQA, 2023; BQA, 2022),

Recommendations

Technological Infrastructure

a) Develop LMS platforms with updated PM latest knowledge and features to support personalized learning and real-time feedback.
b) Ensure high-speed internet and provide updated smartphones or other mobile devices to facilitate flexible learning access.

Physical Environment

a) Invest in comfortable seating, optimal lighting, and climate control to create a comfortable and conducive learning environment.
b) Implement regular facility audits to ensure that physical environments remain suitable for effective BL.

Knowledge Management Integration

a) Develop and maintain a centralized KMS to store lessons learned, best practices, and case studies that provide context and relevance to training inside project-based organizations [6].

Quality Assurance Integration

a) Leverage the Bahrain Quality Authority (BQA) framework to ensure that BL programs meet national and international standards.
b) Use BQA reviews and feedback to guide continuous improvements and ensure the credibility of BL certification programs.

Conclusion

Blended Learning (BL) in project management training is a highly effective system that integrates technology with traditional classroom-based instruction. The success of BL programs hinges on the combination of advanced technological tools, a conducive learning environment, and robust quality assurance frameworks. This study emphasizes on the efficient usage of Learning Management Systems (LMS), Knowledge Management Systems (KMS), AI tools, smartphones, comfortable facilities, and leveraging Bahrain Quality Assurance (BQA) framework for optimizing the BL experience. Training institutions should align their programs with BQA standards to ensure consistent quality and improvement, thereby ensuring the sustainability and success of their BL initiatives. As shown in Table 1.

Finally, to maximize the effectiveness of BL programs in Bahrain and similar contexts, it is recommended that institutions invest in upgraded technological infrastructure, ensure a comfortable learning environment, and integrate LMS and KMS for theoretical and real-world context [6]. This can be achieved by collaboration with project-based organizations who has experience in this field [7-11].

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