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Impact of E-Training Quality on the Sustainability of the Corporate E-Training Programmes: A Conceptual Review

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ABSTRACT *Technology has profoundly transformed corporate training practices within organizations. A significant impact was seen in training practices managed by Human Resources (HR), leading to altered organizational training cultures and emphasizing the need for new approaches. The transition from traditional to e-training methods has yielded considerable financial and non-financial benefits for organizations. However, it is of utmost importance to ensure the sustainability of corporate training programs alongside these benefits. This conceptual review examines the impact of e-training quality dimensions and the sustainability of corporate e-training programs, highlighting key factors influencing their continued adoption and effectiveness. The study synthesizes existing literature, drawing on frameworks such as Information Systems Success (ISS) Model and Perceived Value Theory, Stakeholder Theory and the Social Cognitive Theory, alongside concepts from sustainability science, to evaluate relevant quality indicators within the sustainable e-training programmes. The review identifies core e-training quality factors, including learner quality, instructor quality, information quality, system quality, and institutional quality as crucial to employee engagement and knowledge retention. It also reveals a significant gap in the integration of e-training quality models with corporate sustainability in the current literature. The sustainability of corporate e-training programmes core factors including equal training opportunities, long-term oriented training, an integrated approach to training, a focus on well-being, environmentally-oriented training, and team building . Key academic databases were used, including; JSTOR, Taylor & Francis, Emeralds, Oxford Journals, Science Direct, Google Scholar and reviewed 100 paper from 2005 onwards. The paper proposes a conceptual framework linking e-training quality dimensions to the sustainability of e-training programme outcomes. In this framework, e-training quality is identified as the independent variable, while the sustainability of e-training programmes serves as the dependent variable. Learning organisations and technology self-efficacy function as moderating variables, and perceived value of e-training act as the mediating variable. The literature suggests that the proposed variables are interrelated; however, these relationships have not yet been empirically tested. The study calls for empirical validation and further research to explore how these factors interact across diverse corporate contexts.*

Keywords: E-Training Quality, Sustainability of E-Training , Corporate E-Training

Introduction

In the digital age, e-training has emerged as a cornerstone of corporate learning and development. As organizations strive to enhance employee skills and adapt to rapidly changing business environments, the quality of e-training programmes becomes increasingly critical. High-quality e-training not only improves learning

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outcomes but also contributes to the long-term sustainability of corporate training initiatives by ensuring employee engagement, knowledge retention, and alignment with organizational goals. While the e-training platforms becoming much popular it is unclear how the quality of these programmes directly influences their sustainability. With growing investments in digital learning solutions, comprehending this relationship is essential to optimizing returns and fostering sustainable learning ecosystems.

There are three convincing reasons for the conceptual review. First, present research frequently regards e-training quality and program sustainability as distinct domains, resulting in a fragmented view that ignores their interdependence. As for the second, the literature suffers from conceptual confusion, with diverse terminology and theoretical models utilised across fields, impeding the establishment of a coherent and transferable knowledge base. Third, findings on e-training and sustainability are distributed across studies, lacking integration and theoretical synchronisation.

Therefore, a comprehensive conceptual review is essential to consolidate existing knowledge, clarify key constructs and propose a unified framework that can guide both future research and practical implementation in diverse corporate and educational contexts.

Corporate training is an organised procedure through which businesses educate and develop their workers' skills and knowledge in order to increase overall performance and efficiency (Glance et al., 1997). It comprises a variety of training options, such as new recruit onboarding, technical skill development, soft skill enhancement, regulatory compliance, and leadership development. According to Anand & Winters (2008) corporate training is to provide workers with the tools they need to efficiently do their tasks, adapt to new technologies or procedures, and contribute to the company's success. It also helps to boost employee happiness, minimise attrition, and guarantee that the organisation remains competitive in an ever-changing business environment.

E-training (or electronic training) is a type of learning and development that takes place online utilising digital technologies and the internet (Njenga, 2018). Instead of traditional in-person meetings, e-training enables employees and learners to access training materials, courses, and interactive lessons at any time and from any location using computers, tablets, or smartphones (Akpoviroro & Adeleke, 2022). This strategy frequently incorporates videos, quizzes, webinars, and virtual classrooms, which make training more adaptable, scalable, and cost-effective for organisations. Corporate training, talent development, compliance courses, and other applications all make extensive use of e-learning.

E-learning is the use of digital platforms to offer educational information, primarily focused on general knowledge and theory (Abid et al., 2005). It is utilised by a diverse group of learners, including students and professionals, and provides for flexible, self-paced learning. E-training, a type of e-learning, is intended to help people improve their professional or employment skills (Abid et al., 2005). It is more practical and task-oriented, with a focus on enhancing employee performance and accomplishing organisational objectives (A. D. Kumar & Kumar, 2021). While both employ comparable technology, e-learning is more

comprehensive and scholarly, whereas e-training focuses on particular skills for professional application. In essence, e-learning teaches, whereas e-training trains people to execute particular professional duties.

E-training is important in an organisation because it provides a flexible, cost-effective, and scalable method for developing employee skills and improving performance (Glance et al., 1997). It allows employees to study at their own speed, lowers the need for in-person seminars, and ensures uniform training across several locations (Anand & Winters, 2008). E-training enables organisations to remain competitive by swiftly upskilling people, responding to new technologies, and satisfying regulatory needs. It also improves employee engagement and retention by encouraging continual learning and professional development. E-training boosts productivity, assures worker preparedness, and helps organisations succeed in a quickly changing business environment.

The sustainability of an e-training program is important because it assures long-term value, relevance, and effectiveness for both individuals and the organisation (Gupta et al., 2023) . A sustainable e-training program is simply modified to keep up with new technology, industry trends, and corporate demands. It has a lower environmental effect than traditional training since it requires less travel, paper, and energy (Alam et al., 2021). Sustainability also implies that the program is cost-effective over time, expandable to accommodate development, and adaptive to various learning styles. A sustainable e-training program promotes continual learning, aids in talent retention, and increases an organization's capacity to remain competitive in a changing market.

Current information, a dependable platform, and interesting, interactive learning are the needs for sustainable e-training . Further, it should be cost-effective, scalable, and able to measure progress using quantifiable results. Also, continuous support and maintenance encourages long-term effectiveness, allowing organisations to adapt, expand, and develop employees skills more efficiently (Gupta et al., 2023).

For long term-success, sustainability of the e-training programs is crucial . Key considerations contributing to sustainability include institutional support, stable funding structures, and stakeholder collaboration (Bandoh et al., 2019). A suitable course design efficient technology infrastructure, organisational readiness, and relevant content are all essential components of effective e-training programs. (Ahmad et al., 2018). Stakeholder training course flexibility, security, and user-friendliness are the priority factors to improve the sustainability and performance in E-training organizations. (Ahmad et al., 2018). Notwithstanding the growing importance of sustainable e-learning, there is a need for more empirical research to develop a comprehensive body of knowledge in this area (Stepanyan et al., 2013). A sustainable e-learning and training programs require a multifaceted approach addressing financial, institutional, and technological aspects.

An e-training program's enduring success is determined by the quality of its design and delivery. The quality system , information quality, service quality, satisfaction , usage, and entertaining delivery keep trainees engaged and facilitate skill development. Importantly, quality fosters trust and encourages repeat usage, making the program more adaptive and useful in the long run. Further, Alam et

al.(2021) suggests that the learner's quality, instructor's quality, course content quality information quality, system's quality, and institutional quality has an impact for sustainable learning. Furthermore, in the research work of Zareisaroukolaei et al. (2024) has identified content, instructor, learner, organization, assessment, and technical system as effective evaluation indicators of e-learning courses in the industry.

E-training success depends on organizational culture (Polo et al., 2018); learning organizations foster continuous learning and collaboration to ensure effectiveness. Learning organizations are entities that prioritize continuous learning, knowledge creation, and adaptation to environmental changes (Odor & Samuel, 2018) .These organizations foster a culture of learning that directly influences innovativeness and long-term success (Odor & Samuel, 2018).

Moreover, the perceived value of e-training positively affects learners' intention to continue using it (Nugroho et al., 2019). Perceived value of e-training is the learner's belief in its usefulness and relevance, influencing engagement, satisfaction, and the long-term success of the e-training programme. Researchers have indicated that employees' perception of training value significantly influences their motivation and satisfaction with training programs. Also, employees who understand the importance of e-training and are required to participate show higher training motivation compared to volunteers (Mohammad & Potapova, 2021). Further, To & Leung (2023) suggest that the organisational support ,e-training orientation, and training satisfaction are all mediated by perceived training value.

A sustainable e-training program that ensures continuous, easily accessible, and well-supported learning opportunities can significantly strengthen learners' technology self-efficacy (Rahmawati, 2019). A person's belief in their own ability to successfully use technology to perform specific tasks or solve problems refers as the Technology self-efficacy(Itasanmi & Ajani, 2023). Learners gradually gain confidence in using digital tools and platforms when they interact with reliable, well-designed e-training systems. Frequent exposure to responsive, user-friendly technologies increases their confidence in their own capacity to use them efficiently. Furthermore, feedback systems, continuous assistance, and flexible learning pathways are frequently included in sustainable programs, all of which help participants become more tech-savvy and less anxious. Students grow more independent and open to taking advantage of future digital learning opportunities as a result (Compeau & Higgins, 1995).

Problem statement

The rapid transition from traditional to e-training methods has significantly transformed corporate training practices. However, organizations continue to face challenges in ensuring the long-term sustainability of these digital learning initiatives. Current research inadequately integrates critical e-training quality dimensions, such as learner quality, instructor quality, information quality, system quality, and institutional quality, with sustainability outcomes, including equity, long-term development, environmental awareness, and organizational cohesion (Piwowar-Sulej, 2021). This disconnect highlights a significant research gap in understanding how quality focused e-training can foster sustainability of e-training programme within organizations. While e-training offers flexibility and

cost-effectiveness, its success and long-term sustainability are highly influenced by the quality of the training. Furthermore, Alam et al.(2021) suggest five main factors, learner quality, instructor quality, information quality, system quality, and institutional quality, influence the sustainability of e-training.

Addressing this gap is crucial for organizations aiming to align e-training initiatives with evolving corporate priorities and ensure their long-term effectiveness and sustainability. Therefore, a systematic investigation is needed to examine the relationships between e-training quality, organizational factors, and sustainability outcomes, providing insights to guide the design, delivery, and management of sustainable corporate e-training programs.

Scope and Objectives

This conceptual review focuses on exploring the theoretical and empirical dimensions of how e-training quality affects the sustainability of corporate e-training programmes. The objectives are to:

1. Identify and analyse key quality dimensions of e-training.
2. Examine the components and indicators of sustainability in corporate training.
3. Propose a conceptual framework linking e-training quality to sustainability.
4. Suggest directions for future research and practical application.

E-training refers to the application of electronic technologies and digital media to deliver training content and support learning processes within organizational settings. The quality of such training is typically assessed through perceptions of its effectiveness, relevance, user-friendliness, and the degree of learner engagement it fosters across content, platforms, and delivery methods. Sustainability of training programmes pertains to their capacity to remain effective and relevant over time, ensuring continuous learner participation while adapting to evolving organizational needs and technological advancements. A conceptual review, in this context, involves synthesizing existing theories and models to develop a cohesive framework or enhance conceptual clarity within a specific area of inquiry.

This review paper is structured as follows: a literature review, which discusses existing research on e-training quality and the sustainability of training programs; a theoretical framework, which identifies and integrates relevant theories related to e-learning and sustainability; and a conceptual model development section, which proposes a conceptual framework linking e-training quality to sustainability. This is followed by a discussion, which analyses implications for research and practice, and finally, a conclusion and future research section, which summarizes the findings and outlines directions for future inquiry.

Methodology

To ensure a comprehensive and relevant foundation for this narrative review, a structured approach was adopted for the selection of literature and conceptual materials. The following steps outline the process.

Key academic databases were used, including JSTOR, Taylor & Francis, Emeralds, Oxford Journals , Science Direct, Google Scholar. A total of 100 articles were reviewed to provide a thorough analysis of the topic. These databases were

chosen for their extensive coverage of interdisciplinary research, particularly in the areas of e-learning, human resource development, organizational sustainability, and education technology. The search was conducted using combinations of the following keywords: "e-training quality", "corporate e-learning", "training programme sustainability", "online training effectiveness", "learning management systems", "sustainable training practices", "conceptual framework in e-training".

Also followed inclusion criteria; Peer-reviewed articles, theoretical models, and academic books was conducted to identify key constructs, publications from the year 2005 onward (to capture developments in modern e-training technologies) studies that addressed either e-training quality, corporate training sustainability, or both conceptual and theoretical papers as well as empirical studies relevant to the topic. Exclusion criteria followed as; non-English language publications, studies focused solely on academic (non-corporate) education, articles lacking a theoretical or conceptual component.

Theoretical Foundation

Social Cognitive Theory (SCT) is a psychological framework that emphasizes the reciprocal interaction between individuals, their environment, and behaviour (Bandura, 2001). It evolved from social learning theory and focuses on how people learn from one another, moving away from behaviourism towards a more cognitive orientation (Williams & Cervone, 1998). Key constructs of SCT include self-efficacy and outcome expectancies, which influence behaviour initiation and maintenance (Luszczynska & Schwarzer, 2020). The theory has proven effective in predicting and influencing behaviour across various groups and contexts, which explains its broad use and impact on other theoretical models (Luszczynska & Schwarzer, 2020).

To ensure effective learning outcomes and user satisfaction, the quality of e-training systems is critical. A well-established theoretical framework for assessing and refining e-training quality is the Information Systems Success (ISS) Model proposed by DeLone and McLean. (1992, updated 2003). According to Scopus, the DeLone and McLean (D&M) model has been the most commonly utilized in the fields of education and learning, with increasing emphasis in recent years on its application to mobile learning and e-learning (Pour et al., 2021). The model identifies six core dimensions; system quality, service quality ,information quality, use, user satisfaction, and net benefits, that collectively determine the success of any information system. In the context of e-training, these dimensions constitute an integrative framework for the systematic assessment of quality.

The concept of perceived value of E-Training is underpinned by Perceived Value Theory (PVT), first introduced by Zeithaml (1988). The theory defines perceived value as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14). Further, the study discusses and analyses the significance of e-training for job development and emphasises how important it is to create a resourceful working environment.

This appraisal involves a subjective trade-off between the perceived benefits of a service and the perceived costs incurred, such as time, effort, and financial investment.

In corporate e-training environments, perceived value encompasses employees' views on the training's practical relevance, quality, and the return it offers for the effort and resources invested. Importantly, PVT proposes that it is not merely the objective quality of the training system that matters, however rather the individual's personal assessment of what they gain from the learning experience (Cronin et al., 2000).

Together, Bandura's Social Cognitive Theory (Bandura, 2001), Perceived Value Theory (Sweeney & Soutar, 2001), and the Information Systems Success (ISS) Model provide a strong theoretical foundation for exploring how factors such as technology self-efficacy, emotional responses to digital learning environments, perceived value of e-training, and the role of learning organizations shape learning preferences and support the long-term sustainability of e-training programs across diverse organizational contexts.

The ISS model and Social Cognitive Theory (SCT) were chosen as the theoretical foundations for this study because they together offer a robust framework for understanding the sustainability of e-training programs. The ISS model emphasizes structural and systemic quality factors, including information, system, institutional, and social quality, which correspond closely with the critical elements that shape e-training effectiveness. Complementing this, SCT provides insight into learner behaviour, motivation, and self-efficacy, illustrating how individual and environmental factors interact to support ongoing engagement and long-term adoption of e-training. By integrating these two perspectives, the study captures both the organizational and human dimensions of e-training, offering a comprehensive understanding of how quality driven programs can sustain meaningful outcomes within corporate settings.

Conceptual Clarifications

Training

Training is a structured and systematic process aimed at developing individuals' skills, knowledge, and abilities to improve their performance in specific roles or tasks (Polo et al., 2018). It encompasses structured learning activities, such as practice, instruction, and feedback, aimed at helping participants acquire the competencies needed to meet organizational goals or relevant job requirements. Moreover, training is often focused on practical application, enabling learners to effectively apply what they have learned in real work situations (Glance et al., 1997). Further, it can be delivered as a single time program or as part of ongoing professional development, helping employees adapt to new technologies, processes, or responsibilities. Importantly, training plays a vital role in improving individual and organizational performance by addressing skill gaps and promoting continuous learning.

E-Training

The concept of E-training, or electronic training, refers to the delivery of training and development programs through digital platforms and internet-based technologies. It facilitates organisations to provide structured learning experiences using tools such as learning management systems or as an abbreviation LMS, webinars, multimedia content, and interactive modules. The E-training

programme can be delivered asynchronously, allowing learners to progress at their own pace, or synchronously in real-time sessions. This has widely used for employee onboarding, compliance training, skill development, and continuous professional growth. Through offering flexibility, scalability, and cost-effectiveness, e-training supports personalized learning while enabling organizations to monitor and evaluate training outcomes efficiently. As digital transformation accelerates in the corporate environment e-training has become a vital component of modern corporate learning strategies.

E-Training Vs E-Learning

The two concepts of e-learning and e-training are similar ideas, but they differ in objective, audience, and context. The e-learning is the use of digital platforms to offer educational information, which is usually directed at students or independent learners seeking general or academic knowledge (Alam et al., 2021). This has extensively utilized in schools, colleges, and online education platforms, with an emphasis on theoretical comprehension and broad learning goals. In contrast, the concept e-training is a more specific form of e-learning designed for professional environments (Kaizer et al., 2020). The primary goal is to develop job relevant skills, enhance employee performance, and meet organizational needs. E-training programs are widely implemented in corporate environments to support activities such as employee onboarding, compliance training, and technical skill development. While both involve online learning methods, e-learning emphasizes education and academic growth, whereas e-training is focused on practical application and workforce development (Nicholson, 2005).

Sustainability of E-Training Programme

The ability of electronic training programs to be maintained and remain effective over the long term within an organization refers as sustainability of e-training (Alam et al., 2021). It encompasses designing and implementing e-training initiatives that not only deliver immediate learning outcomes but also support ongoing employee development, adapt to evolving technologies, promote inclusivity and well-being, and align with broader organizational and environmental goals (Piwowar-Sulej, 2021). Sustainable e-training warrants that resources, such as technology, time, and content, are used efficiently while nurturing a culture of continuous learning that advantages both employees and the organization over time (Piwowar-Sulej & Iqbal, 2025).

Review of Key Constructs

This section offers a comprehensive overview of the key constructions, providing detailed analyses to clarify their theoretical foundations and practical implications.

Sustainability of E-training programme

The concept of sustainability of supported by three pillars; economic, environment and social (Purvis et al., 2019). This paper is focuses on the sustainability of the e-training programme.

The sustainability of e-training programmes is critical to ensuring their long-term effectiveness, cost-efficiency, and adaptability to evolving learner needs. Sustainable e-training supports ongoing content updates and technological

innovation while promoting learner engagement and inclusivity, thereby enhancing knowledge retention and contributing to organizational development.

It also promotes environmental stewardship by minimising dependency on physical resources and travel (Smith & Jones, 2021). Recent studies emphasize that sustainable e-learning initiatives foster scalable, accessible, and eco-friendly training environments that are vital for both individual and organizational development in today's dynamic digital landscape (Smith & Jones, 2021).

E-training Quality

The success of an e-training programme is influenced by many factors, all of which contribute to its overall effectiveness. Learner quality is recognised as one of the most critical and relevant elements that different researchers have used in past studies to analyse the success of e-learning (Zareisaroukolaei et al., 2024). Moreover, the quality of lecturers significantly influences learner success, participation, attitude, and enthusiasm in e-learning systems (Tran, 2023).

This implies that the instructor quality plays an important role in determining the quality of an e-training programme. Moreover, the content quality not only enhances the learning experience but also motivates learners to engage with online learning systems, ultimately increasing their satisfaction (Alam et al., 2021). Furthermore, information quality is an important element and is given significant consideration to determining e-Learning success (Al-Fraihat et al., 2020). System quality refers to the technological characteristics, performance, and usability of the system (DeLone and McLean, 1992). It focuses on the functionality, dependability, and usefulness of the e-learning platform or Learning Management System (LMS). High system quality enables trainers to access, use, and interact with the system efficiently without encountering technological problems.

Additionally, there is a considerable association between e-training infrastructure and approaches and employee performance (Selase & Avenorgbo, 2021). Institutional quality, including policies, administration, resources, and reputation ensure that training is given efficiently and in accordance with established standards. This indicates that institutional quality has a direct impact on the quality of the e-training programme. The success of an e-training programme is determined by the combined influence of learner quality, instructor competence, content and information quality, system performance, infrastructure, and institutional support.

Learning Organisations

Learning organizations are characterized by continuous learning, knowledge creation, and sharing within organizational frameworks (Rad & Bocoș, 2024). They emphasize the importance of intangible resources, particularly knowledge and human capital, as crucial factors for organizational success and adaptability (Kłak, 2021). The concept represents a shift from traditional staff development to organizational learning, focusing on collaborative learning and knowledge utilization (Eyo et al., 2022). Learning organizations face challenges in cultivating a supportive learning culture and integrating technology, but offer benefits such as improved performance and employee satisfaction. The absence of an adequate organizational learning culture can hinder competitiveness in today's globalized world (Okolie & Memeh, 2024). While the literature on learning organizations

is complex and sometimes confusing, there is a growing recognition of their importance in navigating the dynamic business landscape and ensuring long-term sustainability (Eyo et al., 2022); Okolie & Memeh, 2024).

Technology Self-efficacy

Technology self-efficacy refers to the personal impact of participating in a specific behaviour, especially within the context of education (Bandura, 1977). Technology self-efficacy is recommended to enhance and support roles in organizational creativity and innovation, significantly impacting the process. It refers to an individual's confidence in their ability to complete tasks or take specific actions in various situations (Ruth et al., 2024). Self-efficacy with technology significantly impacts the perceived usefulness (PU) and ease of use, which in turn affects learner's intention to effectively engage with online learning (Rahman et al., 2023).

The success of e-training programs has a significant impact on employees' self-efficacy, which refers to their belief in their own ability to execute tasks and achieve goals. Effective e-training programs equip employees with the necessary skills and knowledge, boosting their confidence in handling their responsibilities.

Attitudes toward technology mediate the relationship between technology self-efficacy and training effectiveness, while distance perceptions mediate the link between technology reliability and effectiveness (Cavanaugh et al., 2000).

According to Lin et al. (2019) the benefits of training presentation mode on training self-efficacy are moderated by technology self-efficacy, with those with low technology self-efficacy demonstrating less faith in video-based learning. Further, it shown that in online learning environments, perceived self-efficacy improves critical thinking abilities.

Moreover, Rahmawati, (2019) reported that self-efficacy mediates the relationship between perceived usefulness, perceived ease of use, and actual usage of e-learning systems.

Perceive Value of E-training

Recent studies have explored employee perceptions of e-training and its effectiveness in various organizational contexts. E-training has been found to positively impact employee experience and self-assessment, with infrastructure, organizational support, trainer abilities, and content design influencing perceived usefulness (S. Kumar & Kumar, 2023). Employees generally agree on the effectiveness of e-training in meeting job performance evaluation requirements, particularly in professional development (Altwijri & Aldosemani, 2022). The perceived value of training plays a crucial mediating role between training orientation, organizational support, and training satisfaction (To & Leung, 2023) .

E-training has been identified as a valuable alternative to face-to-face training, maximizing knowledge transfer and learning through technological advancements (Shirmila & R., 2022). However, it is important to consider employees' varying technological abilities and knowledge levels when implementing e-training programs (Altwijri & Aldosemani, 2022). Overall, well-designed e-training programs can enhance employees' knowledge, skills, and abilities in the digital workplace. According to Felix et al. (2023) improving the factors of e-learning

service quality will inculcate in employees a favourable value perception towards the organisations.

The studies have looked on the effect of sustainable training and employee perceptions in organisational success. Sustainable training and rewards significantly impact employees' sustainable behaviour, with perceived corporate sustainability responsibility acting as a mediator (Kang et al., 2022). Furthermore, employee training orientation and organizational support for training influence training satisfaction, mediated by perceived value of training (To & Leung, 2023). In the context of e-training, perceived ease of use, behavioural intention, and perceived usefulness have been found to impact e-learning effectiveness in IT companies (Shirmila & R., 2022). Moreover, Mohamad et al. (2023) suggest that sustainable environmental training impacts for knowledge transfer, with motivation to learn serving as a mediator. Sustainable e-training facilitates continuous content updates and technological innovation, while fostering learner engagement and inclusivity, ultimately enhancing knowledge retention and driving organizational development.

Conceptual Framework

This study suggests a conceptual framework to examine the factors influencing the sustainability of corporate e-training programs. E-training quality is treated as the independent variable, comprising key dimensions such as learner quality, instructor quality, information quality, system quality, and institutional quality. The dependent variable, sustainability of e-training programs, reflects how effectively these initiatives maintain inclusivity, adaptability, and long-term impact within organizations. In the suggested framework, perceived value of e-training functions as a mediating variable. It captures how learners and organizations assess the benefits and usefulness of e-training, explaining the mechanism through which e-training quality affects sustainability. High-quality e-training is expected to increase perceived value, which in turn enhances the sustainability of training programs.

Meanwhile, learning organizations act as a moderating variable, influencing the strength and direction of the relationship between e-training quality and sustainability. Organizations that actively promote continuous learning, knowledge sharing, and adaptability are likely to strengthen the positive impact of e-training quality on sustainable outcomes.

Additionally, technological self-efficacy remains a critical moderating factor, representing individuals' confidence in using digital training tools, which can also affect how e-training quality translates into sustainable program success.

Through this integrated framework, the study aims to explore how e-training quality, mediated by perceived value and moderated by learning organizations and technology self-efficacy, collectively shape the sustainability of corporate e-training programs across various organizational contexts.

Figure 1. Proposed conceptual model

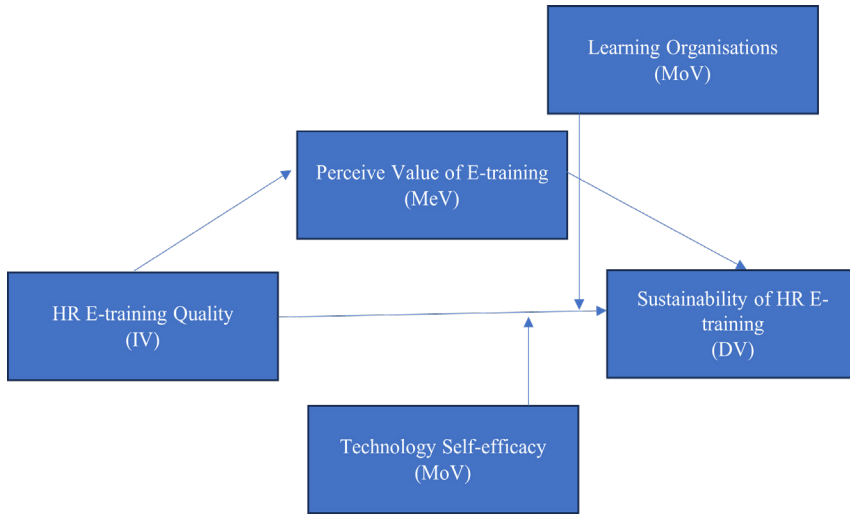

Figure 1 illustrates the proposed conceptual framework that outlines the relationships among e-training quality, perceived value, learning organizations, technology self-efficacy, and the sustainability of e-training programmes.

Identified Research Gaps

Although numerous studies assess e-training quality dimensions (e.g., system, information, instructional quality), there is limited research connecting these directly to sustainability outcomes such as equity, long-term development, and environmental awareness. This represents a major conceptual gap, as noted in broader learning-for-sustainability literature (Feeney et al., 2023).

Much of the existing research on blended learning sustainability is focused on higher education, with few longitudinal, quantitative studies in complete corporate or organizational contexts (Omanyo & Ndiege, 2024). Further, they suggest there is a contextual gap where lack of research has been conduct in the developing countries worldwide (Omanyo & Ndiege, 2024). Also, Trávníčková & Maršíková (2023) suggest that future exploration of training in the context of sustainability is required.

Although theory stresses that learning organizations, characterized by continuous knowledge creation, sharing, and adaptation, can enhance sustainable training outcomes, there is minimal empirical work validating this role within e-training contexts (Piwowar-Sulej & Iqbal, 2025).

Most existing studies are conceptual or focused in higher education rather than in corporate environment. According to Razali & Jamil (2023) organizational learning processes are important for embedding sustainability in business models; however, they stop short of linking these processes to the sustainability of training programmes.

Relationships Among Concepts

This section explains how the concepts are interconnected, highlighting their relationships, dependencies, and interactions to provide a clearer, deeper understanding of the overall framework.

E-training quality and the sustainability of e-training programme

The quality and sustainability of e-training programs are influenced by several interconnected factors. Information system quality and perceived usefulness positively affect user satisfaction, which in turn promotes sustainable e-learning (Panyahuti et al., 2024). The system's ease of use, system quality, and supervisor support contribute to online training continuance intention, both directly and through the mediation of learning experience quality (Aruan et al., 2024). Furthermore, critical success factors for enhancing e-learning sustainability include organizational infrastructure, efficient technology, appropriate course design, and stakeholder training (Ahmad et al., 2018). Moreover, user satisfaction, influenced by ease of use and course content, is a key determinant of continuance intention for e-training (Garg & Sharma, 2020). Taken together, the findings emphasize that user-friendly systems, robust content, and strong organizational support are essential for the sustained effectiveness and longevity of e-training programs.

Perceived value of e-training mediating role between the e-training programme quality and the sustainability of the e-training programme

Evidence shows that the sustainability of e-training programs depends on perceived value, satisfaction, and system quality. Perceived value has been shown to impact continuance intention, with satisfaction acting as a mediator in this relationship (Nugroho et al., 2019). The quality of the e-learning experience, encompassing usability, quality, and value, plays a crucial role in determining user satisfaction and continuance intention (Chiu et al., 2005). System ease of use, system quality, and supervisor support positively influence online training continuance intention, both directly and through the mediation of learning experience quality (Aruan et al., 2024). Additionally, well-designed online training programs can enhance employees' knowledge, skills, and abilities in the digital world (Shirmila & R., 2022). These findings highlight the importance of designing user-friendly, high-quality e-training systems that deliver value to participants, supported by organizational factors such as supervisor backing, to ensure the sustainability of e-training programs.

Learning organisations as a moderating variable

Evidence highlights the significant role of learning organizations in supporting the long-term sustainability and overall effectiveness of e-learning initiatives. Critical success factors for sustainable e-learning implementation include organizational infrastructure readiness, appropriate course design , efficient technology, and stakeholder training (Ahmad et al., 2018). Recent studies highlight the interconnectedness of learning organizations, sustainability, and e-training continuance. Learning organizations play a crucial role in promoting sustainable practices and outcomes in various sectors, including tourism (Showkat & Nagina, 2024). Hotels, as learning organizations, can develop their potential through collective learning and innovative employee training focused on sustainability

(Velazquez et al., 2011). The concept of sustainable learning organizations combines principles of sustainability with organizational learning to promote economic growth without negatively impacting the environment or communities (Velazquez et al., 2011). However, the effectiveness of e-learning programs can be moderated by individual personality traits. Openness to experience and extraversion have been found to interact with learner control in e-learning environments, with individuals higher in these traits performing better with greater learner control, while those lower in these traits benefit from less learner control (Orvis et al., 2010).

Technology self-efficacy as a moderating variable.

Recent studies highlight the role of technology self-efficacy as a moderating variable in various contexts. Kulviwat et al. (2014) found that technology self-efficacy partially moderated the impact of training presentation modes on training self-efficacy, with lower technology self-efficacy leading to reduced confidence in learning through advanced modes like videos. Also, Kulviwat et al. (2014) demonstrated that self-efficacy influences cognitive perceptions and emotional responses, shaping attitudes toward technology adoption. Further, Itasanmi & Ajani (2023) explored technology self-efficacy among Open Distance Learning students, revealing a strong positive influence on digital literacy, although gender did not significantly moderate this relationship. The research papers explore various aspects of technology self-efficacy and e-training sustainability. Technology self-efficacy partially moderates the effects of training presentation mode on training, with individuals low in technology self-efficacy showing less confidence in electronic-based learning (Saville & Foster, 2021) These findings highlight the complex interplay between technology self-efficacy and various factors affecting e-training sustainability.

Discussion

The sustainability of an e-training program matters because it ensures the program remains effective, accessible, and relevant over time without exhausting resources. A sustainable e-training program can adapt to evolving technologies, learner needs, and organizational goals, providing consistent value without requiring constant redevelopment. Moreover, it also supports scalability, allowing more learners to benefit without a proportional increase in cost (Allen & Seaman, 2017). Importantly, the quality of the e-training program directly impacts its sustainability. Additionally, high-quality content engages learners, improves outcomes, and builds trust in the program, which encourages continued use and investment (Laurillard, 2013). Well-designed training also reduces the need for frequent renovations, making updates more manageable and cost-effective. Moreover, maintaining high quality not only enhances learning effectiveness but also contributes to the long-term success and sustainability of the programme.

Current conceptualizations of sustainable e-training programs exhibit significant strengths, particularly in their integration of multidisciplinary perspectives. By integrating established frameworks such as the Information Systems Success (ISS) Model, Social Cognitive Theory (Bandura, 1977), and sustainability science, the literature provides a well-rounded theoretical foundation for understanding the quality dimensions of e-training. The careful identification of essential quality factors, including learner, instructor, information, system, and institutional

quality, offers a structured and nuanced approach to assessing the effectiveness of e-training programs. Moreover, the integration of moderating and mediating variables within the framework, alongside its connection of quality dimensions to sustainability outcomes, significantly augments the model's explanatory capacity. Nonetheless, these conceptualizations exhibit certain weaknesses, most notably the absence of empirical testing, which restricts the framework's practical relevance and confirmatory support. In addition, the models fall short in addressing differences across organizational and cultural settings, which may meaningfully shape e-training outcomes. Finally, although grounding the framework in established theories offers substantial theoretical depth, it may simultaneously limit innovation by neglecting newer or context-specific models that could provide novel insights into the evolving landscape of corporate e-training.

According to Piwowar-Sulej & Iqbal (2025) there is a lack of consensus on how to define and measure the sustainability of e-training. Whether emphasis should be placed on environmental considerations, long-term knowledge retention, learner well-being, or organizational cohesion. This ambiguity complicates efforts to design universally applicable sustainability indicators. The adoption of new technologies may be hindered by reluctance among both staff and instructors, posing a challenge to the successful implementation of e-training initiatives. These discussions highlight the necessity for further empirical research and theoretical development to address these important, yet insufficiently explored, aspects of sustainable e-training.

A significant gap in the conceptual literature is the limited integration of e-training quality models with broader corporate sustainability frameworks. Moreover, most studies focus on immediate training outcomes rather than long-term sustainability. There is a lack of sufficient research examining how industry, organizational culture, and geographic context shape the effectiveness of sustainable e-training. Furthermore, the interrelationships among quality dimensions, for instance, how system quality may influence instructor or learner effectiveness, remain insufficiently explored, leaving the conceptual framework fragmented and incomplete.

Implication

This conceptual review advances theoretical understanding by articulating a comprehensive framework that connects e-training quality dimensions with sustainability constructs, addressing a nexus that has been largely overlooked in existing scholarship. By amalgamating perspectives from the Information Systems Success (ISS) Model, Social Cognitive Theory, and sustainability science, the study effectively bridges traditionally separate theoretical domains. This interdisciplinary integration offers a deeper and more nuanced understanding of how technological, human, and institutional factors interact to shape the sustainability of corporate training initiatives. Furthermore, the framework emphasizes that long-term training effectiveness is influenced not only by system and content quality but also by learner and instructor characteristics, institutional support, and broader contextual factors. Moreover, incorporating mediating variables such as perceived value, alongside moderating factors like organizational learning culture and technology self-efficacy, introduces critical dynamics that enhance the model's

explanatory power.

These enhancements provide a foundation for a more nuanced theory development in the domains of organizational learning, digital human resource development, and strategic talent management.

Future Research

The review highlights several promising avenues for future research. First, it underscores the necessity of empirically validating the proposed conceptual framework across organizations of varying sizes, sectors, and cultural contexts to evaluate its generalisability.

Second, future research should employ longitudinal designs to investigate the enduring effects of e-training quality on multiple dimensions of sustainability outcomes over time.

Third, researchers are encouraged to explore the interaction effects among various quality dimensions, such as system, instructor, and learner quality and their joint impact on employee engagement and knowledge retention.

Lastly, integrating emerging technologies, such as artificial intelligence, adaptive learning systems, and immersive platforms like virtual reality/augmented reality, could substantially enhance the framework's relevance and applicability in contemporary corporate learning environments.

Limitations

While presenting a comprehensive conceptual framework, this study has several limitations that warrant acknowledgment.

Limited Scope of Sustainability Dimensions

Although the paper integrates several sustainability components such as equal training opportunities, employee well-being, and environmental orientation, it may not encompass the full range of sustainability concerns relevant across diverse corporate contexts. Broader factors, including cultural context, legal frameworks, and socio-political influences on sustainable HR practices, are not fully examined. This limitation constrains the depth of sustainability analysis and underscores the need for future research to adopt a more holistic perspective.

Generalization Across Diverse Organizational Contexts

The proposed framework is conceptualized at a high level, which may limit its applicability across diverse organizational contexts. Organizations vary considerably in size, industry, technological infrastructure, and workforce characteristics. Such contextual differences could affect the relevance and effectiveness of specific e-training quality and sustainability dimensions, indicating that the model may need to be adapted for different organizational environments.

Rapid Technological Advancements

Given the rapid evolution of digital technologies, the proposed framework may risk becoming outdated without continual revision. Emerging tools, including artificial intelligence, virtual reality, and adaptive learning systems, are transforming e-training methodologies. Consequently, ongoing technological advancements

may introduce new quality indicators or alter existing dimensions, necessitating iterative updates to the conceptual model.

Conclusion

This conceptual review makes a significant contribution to the literature on corporate e-training by proposing a comprehensive, integrative framework that connects e-training quality dimensions with sustainability outcomes. By amalgamating insights from established theoretical models, such as the Information Systems Success (ISS) Model and Social Cognitive Theory, with principles from sustainability science, the study provides a nuanced understanding of the factors influencing the long-term effectiveness and resilience of corporate training initiatives. Furthermore, the framework highlights the importance of key quality indicators, such as learner engagement, instructor competence, system functionality, and institutional support, in promoting sustainable e-training practices. Additionally, the framework incorporates key mediating and moderating variables, including perceived training value, organizational learning culture, and technological self-efficacy. Future research should focus on operationalizing and empirically testing the framework across diverse organizational settings and industries to evaluate its applicability and guide evidence-based e-training strategies.

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