



Review

Research on e-learning in the workplace 2000–2012: A bibliometric analysis of the literature



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ABSTRACT

Research on e-learning in the workplace has proliferated over the past decade. Various topics on e-learning in workplace settings have emerged, showing the complex, dynamic and multi-disciplinary nature of the field. In this context, there is a need for an extensive, thematic overview of related studies for a better understanding of this broad domain. Using co-word analysis and text analysis methods, this study presents a bibliometric analysis of 324 articles on workplace e-learning published in academic journals and conference proceedings from 2000 to 2012. The results identify six research themes in the field, which are further categorized into four dimensions: e-learning for continuing education and professional development, e-learning in the healthcare sector (as one of the most prolific e-learning initiatives), use of social media for e-learning, and the integration of knowledge management with e-learning. By incorporating the analysis results with relevant reviews, this study offers a comprehensive picture and a holistic view of the workplace e-learning domain, and suggests directions for further work.

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1. Introduction

As a result of globalization and economic dynamics in recent decades, organizations are obliged to search for new ways to strengthen their competitive advantages. In this situation, improving workplace learning and human performance is crucial for sustainable development. Workplace learning is often depicted as informal learning that takes place without explicit teaching (Tynjälä, 2013). It refers to the continuous process of improving employee competence and performance through training, socialization, and development within an organizational context (Ford, Kozlowski, Kraiger, Salas, & Teachout, 1997). More recently, technology development and challenges in information-intensive and technology-oriented working life have led to new ways of learning and training through the adoption of e-learning or information and communication technologies. E-learning refers to the use of computer and network technologies, primarily over or through the Internet, to deliver information and instruction to individuals (Welsh, Wanberg, Brown, & Simmering, 2003). It encompasses a wide set of applications and processes such as computer-assisted learning, web-based training, virtual classrooms, and digital collaboration (ASTD., 2010). By virtue of its benefits in just-in-time delivery and cost efficiency, e-learning accounts for a significant proportion of corporate investment in training (Deeney, 2003).

Accordingly, the academic and professional literature on e-learning in the workplace has increased considerably in the past decade. A variety of topics and issues have been explored and discussed in various studies. E-learning has been investigated as “instructional medium” (Salas, Kosarzycki, Burke, Fiore, & Stone, 2002), “instructional strategy” (Klein, Noe, & Wang, 2006), “training method” (Burgess & Russell, 2003), “training technique,” or “learning environment” (DeRouin, Fritzsche, & Salas, 2005a). Some studies have reported the confusion with regard to the typology of e-learning in an organizational environment (Burgess & Russell, 2003). The vagueness in terminology, spanning technology, pedagogy and organization, reflects the complex, dynamic knowledge and the uncritical views and approaches in the domain (Servage, 2005). Moreover, research on e-learning in the workplace cuts across different disciplines including education; computer science; sociology; psychology and management, showing the multidisciplinary nature of the field. In this context, there is a need for a thematic overview of related studies for a comprehensive understanding of this broad and diverse research field. This study adopted a bibliometric approach to analyze 324 relevant articles published in academic journals and conference proceedings from 2000 to 2012, with the aim of discovering the major research themes and knowledge structure of the field.

2. Related reviews

A number of studies have reviewed the literature on e-learning in the workplace from different perspectives, including theoretical foundations; design principles; evaluation of e-learning programs; and implementation strategies. The earlier reviews on theoretical foundations emphasized the role of cognitive science and in particular, the cognitive information-processing model in the research and development of workplace e-learning environments (DeRouin, Fritzsche, & Salas 2005b; Salas et al. 2002). Tynjälä and Häkkinen (2005) reviewed the theoretical bases of e-learning at work from a broad perspective, and outlined the guiding theories from multiple disciplines, including adult learning; learning organization; cognitive sciences; and socio-cultural theories. In the same vein, Ludvigsen and Mørch (2010) claimed that the socio-cultural theory of learning, particularly its dialogical view of learning provides the foundation for a new generation of computer supported collaborative learning environments.

Pedagogical and technological design principles of workplace e-learning are also stressed in most reviews. DeRouin et al. (2005a) summarized the research-based guidelines on design for learner control or learning flexibility in workplace e-learning applications. Tynjälä and Häkkinen (2005) reviewed pedagogical challenges and theory-based guidelines for workplace e-learning design and claimed that there was a need to accommodate employees' personal needs and link personal learning to organizational contexts. In other reviews, a variety of design principles were formulated based on relevant learning theories or training design practices (e.g., Collis & Margaryan, 2005; Lee, 2010; Salas, DeRouin, & Littrell, 2005; Schreiber, 1998), most of which originated from either behavioristic or cognitive science models.

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