

Chapter 6

E-Learning for SMEs: Challenges, Potential and Impact

Asbjorn Rolstadas

Norwegian University of Science and Technology, Norway

Bjorn Andersen

Norwegian University of Science and Technology, Norway

Manuel Fradinho

Cyntelix, the Netherlands

ABSTRACT

SMEs have a special need to be able to collect knowhow from the global community and implement this as competence in the enterprise. E-Learning is an approach for competence development that can assist SMEs in creating a learning organization. There are different approaches to E-Learning. Amongst the most powerful ones is the application of serious games. The PRIME project conducted experiments with serious games in project business and in manufacturing. This has resulted in a set of guidelines for successful implementation of games in an organization. It is necessary to allow a learning curve and put emphasis on the social context to obtain effective learning. For delivery of E-Learning the hybrid learning model is recommended. SMEs are advised to develop E-Learning in cooperation with academic institutions, and to use real life cases and problems for assignments. Delivery should be based on proven technology when used in SMEs.

INTRODUCTION

The extended enterprise is being implemented worldwide using different e-business technology. To be on the competitive arena today requires cutting-edge competence not only on the products supplied, but also in all aspects of business operation and competence development. ICT is in

this respect an extremely powerful tool enabling enterprises to work globally and allowing creation of supply chains, enterprise networks, and learning communities. For SMEs this represents a challenge. SMEs have limited resources to drive this technology, but are at the same time dependent on access to the same technology. There is a special need to be able to collect knowhow from the global community and implement this as competence in the enterprise.

DOI: 10.4018/978-1-4666-1945-6.ch006

E-Learning is an approach for competence development that can assist SMEs in creating a learning organization. E-Learning allows learning at the time, place, and pace decided by the learner. It enables tailoring of learning content to the needs of the user and facilitates collaborative learning and access to expert teachers wherever they might be. Recent research from previous and on-going EU-projects (GEM, PRIME, and TARGET) has been able to demonstrate some of the power of E-Learning, or more correctly “technology-enhanced learning”. Some key research findings from these projects will be presented together with a case study on practical implementations of E-Learning solutions in industry.

The GEM project developed a framework of a curriculum for manufacturing strategy. The project included a study of different delivery methods. The PRIME project used serious games to train middle management in decision making. It was tested through demonstrators for repetitive manufacturing and for project based business. The TARGET project is ongoing and is studying different learning approaches based on concepts for technology-enhanced learning (TEL).

The objectives of this chapter is to discuss different E-Learning approaches that are relevant for SMEs based on research findings from the mentioned projects and to develop an agenda for future research for competence development in SMEs using advanced ICT. It indirectly explore how SMEs can exploit E-Business by discussing how innovative E-Learning approaches can be used to facilitate transfer of knowledge and building of experience. This new knowledge and experience can in turn be leveraged by SMEs to develop and experiment with E-Business strategies.

E-LEARNING BACKGROUND

There exists a number of questionnaire-based evaluation approaches for E-Learning (Sage, 2002, U.S.I.G., 2003, Carliner, 2002, Hughes, 2003).

They indicate four essential areas for evaluation (Schwesig, Rolstadås, and Thoben, 2005):

- E-Learning content - the preparation and the selection of content
- E-Learning approach - the instructional approach of the E-Learning course
- E-Learning delivery mechanism - the actual design of the learning environment
- Overall assessment- general questions, strengths and weaknesses, suggestions for improvement for the course

In this context, we will focus on E-Learning approach and delivery mechanisms.

E-Learning Approaches

Most SMEs are, in terms of organizational structure, fairly simply designed, with few departments or units. On the other hand, this means that typically employees are involved in more than one function or discipline required to run the company. In such integrated areas, decisions are taken that have a crucial influence on the competitiveness and profitability of a company. These decisions relate to questions like various strategic management tasks, product portfolio, product program, competitor strength, competition parameters, market segmentation, project planning, innovation management, process management, etc.

These integrated areas all require competences that go beyond the narrow technical competences that can be acquired easily and affordably through traditional courses or training. As complexity and dynamics in the internal and external specialization and collaborations increase, the need for training and competence development increases as well. In terms of competence development, organizations therefore have concrete needs that are not met well by traditional learning approaches:

- Reduce the time it takes an employee to acquire the necessary competences to do

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/learning-smes-challenges-potential-impact/69277

Related Content

Status of Six Sigma and Other Quality Initiatives in Foundries Across the Globe: A Critical Examination

Vinitkumar Kiritkumar Modi and Darshak A. Desai (2017). *International Journal of Applied Industrial Engineering* (pp. 65-84).

www.irma-international.org/article/status-of-six-sigma-and-other-quality-initiatives-in-foundries-across-the-globe/173696

Industry 4.0 Privacy and Security Protocol Issues in Internet of Things

Jayapandian N. (2021). *Research Anthology on Cross-Industry Challenges of Industry 4.0* (pp. 1853-1876).

www.irma-international.org/chapter/industry-40-privacy-and-security-protocol-issues-in-internet-of-things/276907

Two-Decision-Maker Conflict Resolution with Fuzzy Preferences

Mubarak S. Al-Mutairi (2014). *International Journal of Applied Industrial Engineering* (pp. 40-59).

www.irma-international.org/article/two-decision-maker-conflict-resolution-with-fuzzy-preferences/138308

Blockchain Technology Concept for Improving Supply Chain Traceability in the Ivory Market

Norman Gwangwava (2021). *International Journal of Applied Industrial Engineering* (pp. 1-14).

www.irma-international.org/article/blockchain-technology-concept-for-improving-supply-chain-traceability-in-the-ivory-market/287873

Quality and Environmental Management Systems in the Fashion Supply Chain

Chris K. Y. Lo (2013). *Industrial Engineering: Concepts, Methodologies, Tools, and Applications* (pp. 21-39).

www.irma-international.org/chapter/quality-environmental-management-systems-fashion/69274