Applying Blended Learning in ERP Training

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Abstract: Enterprise Resource Planning (ERP) systems are enterprise wide systems that, because of their integration, automate all of a company's business processes. They have rapidly become the de facto industry standard for replacement of legacy systems. There is evidence that the overwhelming majority of ERP implementations exceed their training budget and their time allocations. Organizations today are looking beyond automation of traditional training models to new approaches of knowledge transfer and performance support that are better aligned with business goals and deliver measurable results. In consequence, in this paper we have analyzed the training methods used in ERP implementation in order to provide a solution that could help us maximize the efficiency of an ERP training program. We proposed a framework for an ERPTraining system that can be integrated with an ERP system and which provides an ERP training management that is more personalized, effective and less expensive.

Key words: ERP systems, training methods, blended learning.

INTRODUCTION

ERP (Enterprise Resource Planning) systems are comprehensive packaged software solutions that aim for total integration of all business processes and functions. The vendors of fully integrated software offer software that is capable of processing all commercial functions of any company, no matter how large, diverse or geographically disparate the company's components may be. Moreover, the software is not limited to specific industry sectors: it can be configured for retail industries, mining companies, banks, airlines etc. The major ERP vendors are increasingly targeting small and medium sized enterprises (SMEs) to generate new sales. Vendors and users are also moving beyond core applications to extend ERP systems to support Web-based applications, e-commerce, customer-relationship management, and business planning. The growing demand for ERP applications has several reasons, for example, competitive pressures to become a low cost producer, expectations of revenue growth, ability to compete globally, and the desire to re-engineer the business to respond to market challenges. Benefits of a properly selected and implemented ERP system can lead to considerable reductions in inventory cost, raw material costs, lead-time for customers, production time, and production costs. Researchers (Shanks and Parr in 2000) defined ERP implementation as "the process of developing the initial business case and planning the project, configuring and implementing the packaged software, and subsequent improvements to business processes". ERP implementation is considerably different from any traditional information system implementation for many reasons [18]:

1. The integrated nature of ERP applications causes dramatic changes on work flow, organizational structure and on the way people do their jobs;
2. ERP systems are not built, but adopted and this involves a mix of business process reengineering and package customization;
3. ERP implementation is not just a technical exercise, but it is a socio-technical challenge as it poses new set of management procedures.

Many researchers have identified training as a critical success factors in the implementation of an ERP system because it is expensive, time consuming and it requires an accurate human resource management.

TRAINING IN ERP IMPLEMENTATIONS

By studying the academic literature we identified 26 training methods that can be used in an ERP implementation to support the training activity: Classroom instruction, Print-based material, e-Learning (asynchronous), Conference calls, Email, In person

mentoring tutoring, LMS (Learning management systems), Online assessment and testing, Online references, e-Learning (synchronous), Simulations, Portals, Video broadcasts, LCMS (Learning content management systems), KMS (Knowledge management systems), Instant messaging, Online mentoring tutoring, EPSS (Electronic performance support systems), Games, Communities of practice, Wikis, Virtual labs, Chat rooms, Mobile learning, Blogs and Podcasts. Each training method presents advantages and disadvantages when applying it into an ERP implementation. Many researchers stated that none of these training methods guarantees the success of a ERP training program.

eLearning Guild research has made a comprehensive study in 2008 (by interrogating 3000 respondents), regarding the trends in using the above mentioned training methods for corporative training. The results are depicted in Figure 1 and are proving that traditional training methods are still widely used compared with the computer based training methods. The study used the following rates: (a) 5 points: widely used; (b) 4 points: often used; (c) 3 points: used; (d) 2 points: less used; (e)1 points: rarely used; (f) 0 points: not used;
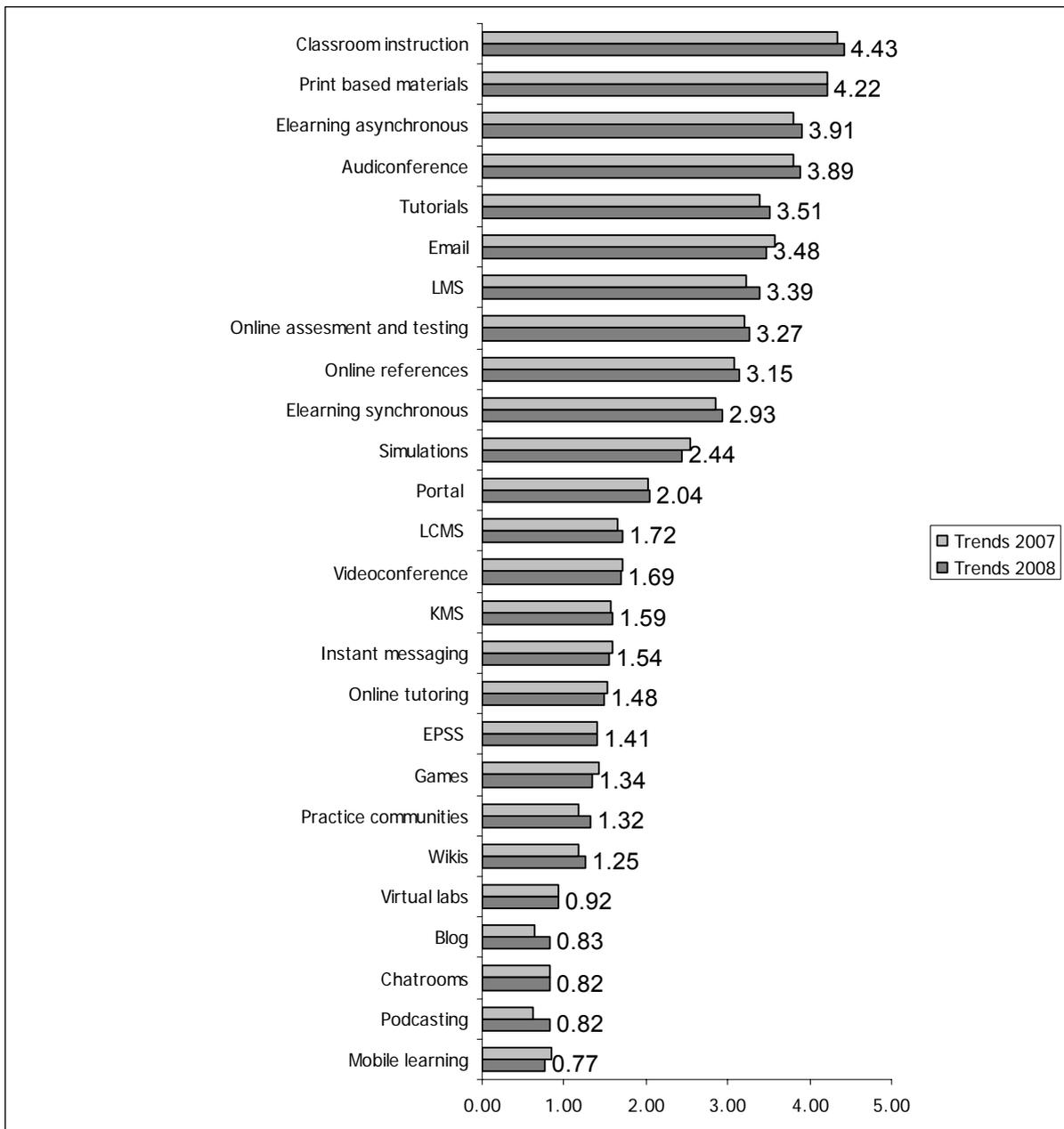

Fig.8. Trends in training methods based on the eLearning Guild Research study

KOLB'S LEARNING STYLE INVENTORY

Nowadays most researchers favor the idea of personalized training. In consequence we choose to focus on Kolb's model (Figure 2) as the concept of individual learning style proliferated by Kolb seems to be extensively applied in theoretical and empirical studies. Kolb's Learning Style Inventory (KLSI) includes four learning styles [7]: (1) *converger,* who can be classified as someone who wants to solve a problem and who relies heavily upon hypothetical-deductive reasoning to focus on specific problems; (2) *diverger,* who can be classified as someone who solves problems by viewing situations from many perspectives and who relies heavily upon brainstorming and generation of ideas; (3) *assimilato*r who can be classified as someone who solves problems by inductive reasoning and has the ability to create theoretical models; (4) *accommodator* who can be classified as someone who solves problems by carrying out plans and experiments and adapting to specific immediate circumstances.
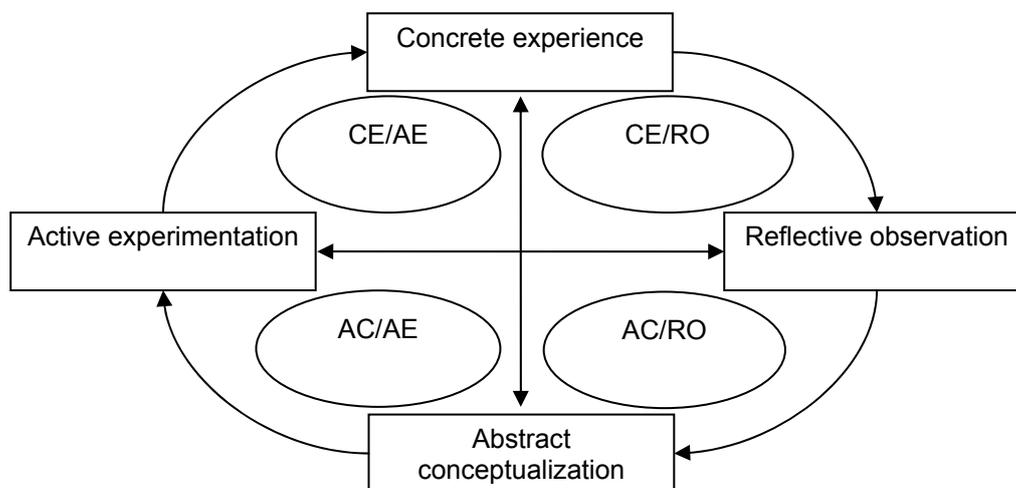

Figure 9. Kolb's learning styles (adapted after [1]).

An additional note should be made about Kolb's learning cycles as the KLSI also measures learning cycle preference. Kolb defined four learning cycles which are tied into the learning styles [4]: (1) concrete experience (CE): where learning from feelings or reactions to experience influence your learning; (2) reflective observation (RO): where learning from watching and listening influence your learning; (3) active conceptualization (AC): where learning from thinking or analyzing problems in a systematic method influence your learning; (4) active experimentation (AE): where learning by doing or results driven influence your learning.

Many researchers [16], [13], [14] stated that there is a connection between the individual learning style proliferated by Kolb and the training methods, thus we propose that the training methods should be delivered in accordance to the training style.

In ERP implementations it is likely to encounter users with all four learning styles Kolb described. Applying training methods that are not correlated with the individual learning styles will probably be rejected by the ERP systems users.

In consequence, we consider that the Blended Learning theory (that can be described as a learning program where more than one delivery method is being used with the objective of optimizing the learning outcome and cost of program delivery) it is the best approach in an ERP training implementation. Blended Learning focuses on optimizing achievement of learning objectives by applying the "right" learning technologies in order to match the "right" personal learning style and to transfer the "right" skills to the "right" person at the "right" time [8].

ERP TRAINING SYSTEM FRAMEWORK

Starting from the concepts and observations presented above, we have designed a framework for an ERPTraining system that will help us apply the concept of blended learning in an ERP implementation environment. This module is based on a training delivery method that favorites the training process personalization and also delivers the right knowledge in real time for the ERP user. In Figure 3 we present the framework adapted to the SFA (Sales Force Automation) module of a Romanian ERP system.
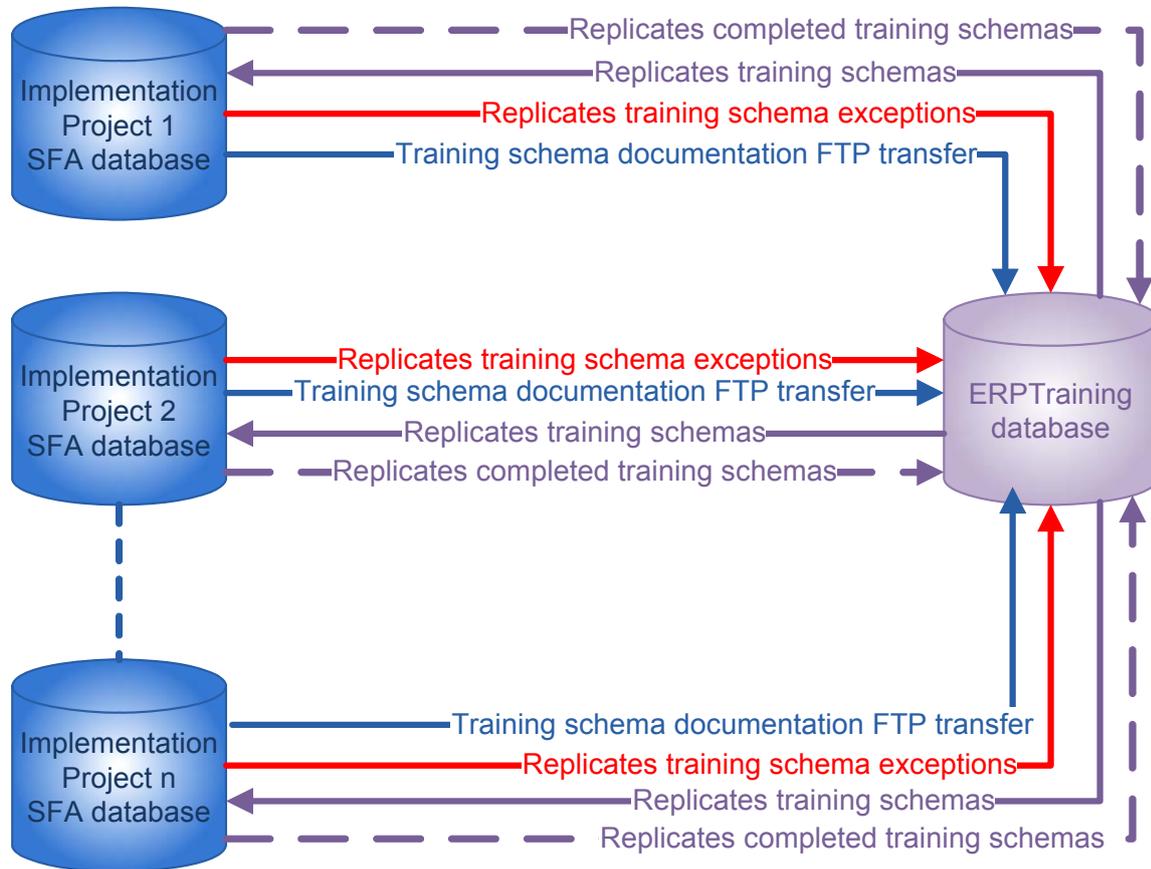
Figure 10. The ERPTraining system framework

The ERPTraining system is design to offer the subsequent functionalities:

− Automatically evaluate the individual learning style of each user by applying Kolb's Learning Style Inventory;

− Automatically deliver a training method adapted to the user's role and individual learning style;

− Allow the ERP training project manager to define any training method and attach to it training schemas for each business process users should be able to understand;

− Allow the user to automatically view the training schema documentation (made by a consultant and sent via FTP transfer) which will guide him in order to properly select the fix and variables parameters and introduce data in the ERP system in a correct manner; a training schema provides a standard that the user should follow while introducing a specific business process data in the ERP system. A training schema is defined by fix and variables parameters. The fix ones represents a mandatory selection that a user should make while introducing data and a variable parameter depend on the selection of one or more fix parameters or other constraints stipulated for a certain business process.

− While the user is operating the ERP system will automatically detect any exceptions from the training schema the user is generating while introducing data; any

document the user is processing will be validated in the ERP system only if the data was introduced in the ERP system according to the training schema standard, otherwise the document will be invalidated and the user will be informed about the mistakes he made;

– Allow the exceptions from the training schemas to be replicated from the ERP system database to the ERPTraining database using a replication system;

– Allow the real time monitoring of the cost and time it takes a consultant to teach an user (for example, if the user wants to participate in tutorial sessions) or the cost and time a user needs to be trained to use a certain command of the ERP system;

– Provide the ERP training manager and the organization's management with reports and indicators that show the advances made in the training process in real time.

If implemented, this system will offer a series of relevant quantitative measures:

– Indicators and reports for the organization's management members, that will help them:

o Have a clearer evidence of the personnel professional quality and efficiency;

o Apply training methods adapted to the individual learning styles of the employees;

o Notice if the personnel manifests resistance in approaching new business processes;

o Justify in real time the time and the costs for training each employee to use the ERP system;

o Justify in real time the time and the cost for the entire ERP implementation project;

– Indicators and reports for the ERP training team and project manager, that will help them to:

o Monitor each consultant daily activities;

o Identify the level of experience each consultant has in a certain domain;

o Notice possible inaccuracies in the consultants professional training;

o Compare the level of professional training of consultants;

o Identify domains in which the company requires additional expertise;

o Identify possible improvements in the user training process;

o Identify possible improvements in the ergonomics or functionalities of the ERP system;

o Properly evaluate the time and costs for new ERP implementation projects based on previous experience;

CONCLUSIONS AND FUTURE WORK

The ERPTraining system framework demonstrates a real possibility of introducing new features on how to achieve a better knowledge transfer in an ERP implementation environment. The system proposes a significantly improved alternative for monitoring the training activity in an ERP implementation environment, which creates added value for both organizations involved in the implementation process. As future work we propose to design, develop and implement an ERPTraining system adapted to a Romanian ERP system for SMEs.

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