VERSITA

Scientific Annals
of the „Alexandru Ioan Cuza" University of Iaşi
Economic Sciences
59 (2), 2012, 173-181
DOI 10.2478/v10316-012-0040-7

CONTINUOUS TRAINING POSSIBILITIES IN A COMPANY THROUGH BLENDED LEARNING

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Abstract

The compatibility of employees with the continuous training method is given by the correct identification of the employee's profile in order to offer the best method for assisting with job training. Over the years, efforts have been made to adapt on the job training to each employee's individual pace of assimilating information. In this context, the effort is targeted in view of adapting the information presentation so as to be assimilated quickly, with minimum efforts, so as to be used by the employees in their work. Our paper presents a 3-year study conducted to build up the profile of an employee who is "capable" to be trained by means of online training. In our opinion, a great part of the effort spent on continuous training will be reduced if the correct method for the assimilation of knowledge is identified and adapted to suit each employee the purpose of the organization to which they belong.

Keywords: association rules, correlation coefficient, blended learning, employee profile, learning organization.
JEL classification: A20, I21, C38

1. INTRODUCTION

In the learning organization, a postmodern approach of the organization, the competitive advantage derives from continuous training of both individuals and the group. The individual training does not guarantee organizational training, but without individual training, the organizational training cannot be achieved.

Continuous training (learning) is requested for the specialization in narrower fields of activity, obsolete knowledge in top fields, globalization, increase of information possibilities, creation of competences in new fields (Tuijnman, Boudard, 2002, Uscatu, 2003 quoted in Luban, 2005).

At present, organizations strive that human resources management keep pace with changes taking place in all fields of activity because of the expansion of the businesses in the virtual environment. The efforts consist of offering a continuous training method adequate to the human resource so that they are capable to optimally achieve their tasks.

The connection between the employment quality and continuous training has become clear, starting from the need of qualification required by the specialization and the technological progress and communication.

In the new society, where "speed" is an important characteristic, the term "education" is re-invented, being adapted continuously to the new collaborative instruments made available by the virtual environment. Its purpose is to supply highly qualified and specialized human resource to the labor market that maintains this characteristic during its existence.

2. LITERATURE REVIEW

In this context, the limits of learning concept are more and more extended, and although continuous training represents a very developed field in the European countries, in Romania, the number of persons that participate in training courses at the work place is still reduced (st10). The awareness of the importance of continuous training to promote a better cooperation between education and professional training structures and the business community, especially small and medium sized enterprises, is essential for any society, especially in our country. (st1).

Characteristics of the learning organization (st1):

a. to provide continuous learning opportunities;
b. to use the training to reach their goals;
c. to find the connection between individual and organizational performance.

In order to develop, the training organization also uses the development function of human resources that includes the training and specialized training of employees – whose purpose is to identify, appreciate and – by planned training – facilitate the development of key elements that allow individuals to perform duties related to present or future positions.

In time, three learning methods have been outlined – face to face, e-learning and last, but not least, blended learning.

Blended Learning is a very flexible learning concept developed to offer each student an advanced level of high technical knowledge. The system is based on face to face study assisted by trainer and online study (as individual study). Online study benefits of all characteristics of e-learning enriched with web 2.0 world.

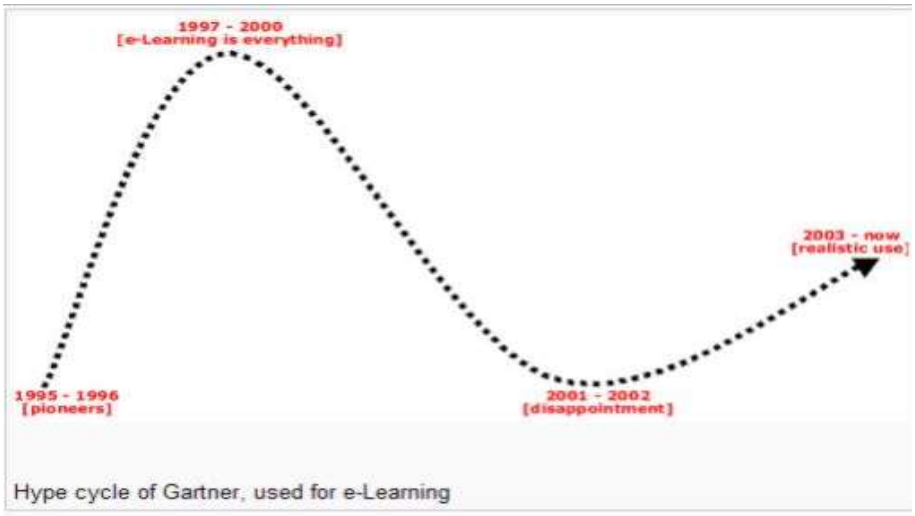
Web 2.0 may be described by the following characteristics: (st2)

- it includes a wide range of applications and services that use web as unitary and organized platform for communication;
- it is built based on an architecture that encourages active participation of users;
- it allows easy interaction between users that have the same interests;
- it offers users the possibility
    - to make a content, share it with others, namely, a stronger interactivity;
    - an experience much closer to the desktop applications, with intuitive, pleasant, programming and especially transparent graphic interfaces;
    - it facilitates the public access to data bases through API;

- it has the ability to connect between various applications or services and to aggregate data from various sources – RSS, blogs;

- it "speaks" about the socialization of information – a concept about applications and people; the appearance of collaborative wiki-like instruments, socialization platforms as MySpace, Hi5, LinkedIn or Second Life, blogs, structures for data and documents communication, bookmarks collections (as del.icio.us or digg), videos (YouTube) or images (flickr), etc.; (st2).

We chose to discuss about blended learning because of the following reasons:
Several studies reveal at present the failure of implementing the e-learning projects (st9) although it is acknowledged that after 2003, it was strongly refortified.



Source: [taken from (st9)- https://05dccde1-a-62cb3a1a-s-sites.googlegroups.com]

Figure no. 1 The failure of implementing the e-learning projects

In Romania, continuous training through e-learning platforms is still insufficiently developed. E-learning courses represent a secondary option for training providers and for employers - as it results from (st1). According to (st1), it was pointed out that the training performed based on e-learning platforms, although appreciated for the advantages it offers (reduced costs and flexibility), rather represents a secondary option for the representatives of training providers. The arguments offered refer to the lack of direct contact between the student and the trainer or between students, several technical limits and the fact that the e-learning system is not adequate for several courses that focus on communication and interactivity. (st1)

On the other hand, even those that praise e-learning (Siveco Romania) acknowledge that a book cannot be replaced by a computer. Another series of studies (st3) refer to the fact that students who attended blended learning courses during 3 years had better results than those who attended only face to face courses or only online courses.

In Romania, there are several implementations of blended learning systems for the training of adults (st7), (st8), possible because of the attraction of non-reimbursable structural funds.

This research is a generalization of the research described in article (Stanca et.al., 2011) in which we considered that the ergonomics of the teaching – learning method is given by the correct identification of the student profile to offer him the best learning method. Another interesting conclusion of the study was that for each group of identified students, we could make a profile according to which the adequate learning method could be recommended.

In specialist literature, the definition of a student profile to which an adequate learning method was offered, was approached by Hoffmann (2007), Rebelo (2007) and Cuayáhuitl (2010). They approached the topic from the methodological point of view of multimedia tools such as 2D and 3D instruments. They also discuss the possibility to give data / information structured so as to answer to the assimilation capacity of each individual in the new virtual environment. In Cluj higher education, the integration of collaborative technologies in the teaching – learning process is approached by Felea (2010) and Pop (2009). Starting from these works and taking into consideration the penetration level of the new instruments for learning process, we have conducted this study.

3. RESEARCH METHODOLOGY AND DISCUSSION

The first part of our study presents the reasons and purpose of the work, the second introduces the statistical analysis and the third describes the profile of an employee who is fit for blended learning for advanced training on the job.

3.1. Objectives of the research

In this research, we started from the following work hypotheses:

1. the choice of the advanced training method by the employees is influenced by the use of the Internet during the teaching – learning process in faculty;

2. employees who are in favor of self-paced learning fit perfectly the computer aided teaching – learning system;

3. employees in favor of mixed or traditional learning will not assimilate correctly the information by using the computer aided teaching – learning system.

In order to carry out this study, we had to identify the profile of the employee supposed to learn optimally in the virtual environment.

The research is based on the method of structured interview (Shahzard, 2010), using the questionnaire as instrument. In this research, the questionnaire was used to identify the profile of the employee that is best fit for the computer aided learning system.

In our study, we followed three phases:

1. an exploratory study,
2. an empirical study,
3. defining requirements / needs.

The purpose of the exploratory study was to check the challenging nature of the observations, opinions, suggestions and ideas presented in other studies by practitioners and theoreticians in this field. The study focused on collecting of ideas and suggestions of the specialists participating in the study, who were encouraged to express freely their ideas and opinions. At the end of this phase, we prepared a questionnaire that was administered during an oral interview. The collected answers, reworded by a specialist, were reformulated as items of the questionnaire. In empirical study phase we applied the questionnaire.

Table no. 1 No and type of participants

Type of study	Method	Number of participants	Type of participants	No. of participants
Exploratory study	Interview	8	Psychologists Researchers	4 4
Study validation	Questionnaires	84	Employees	84

The questionnaire was applied on a sample of 84 employees of an IT company (65 male and 15 female), eager to use the learning instruments specific for blended learning method. Within this learning method, the communication between trainer and employee was done by means of web collaborative tools (such as the wiki). In line with the objectives of the study, a question was introduced to collect information about the employees' access to the Internet during their university studies.

Based on the criterion of graduation year, we divided the employees into two groups. The cut-off point was 2004 because during this year Romanian Internet network became largely accessible to population by the decrease in price and the development of several Internet service providers. Prior to this moment, the Internet could be accessed mostly in public institutions and in internet cafés (successful business for that period).

In the first group, we included the employees who graduated before 2004.

Their graduation profile is: economics (67%), respectively computer science (33%). Out of these, during their studies, the employees used the Internet for information / documentation purposes as follows: 70% used the internet only at school and 10% also had access at home.

Within this group, 43% had previously used the internet in computer aided learning while the others did not use it at all. However, we noticed that the interviewed persons' major reason for choosing computer aided education (92%) was the possibility of combining work with advanced training. Only 48% want a learning platform to be introduced in their company to allow them to assimilate information at their own pace.

Within this group, the persons in favor of classic advanced training represent 20%, the persons in favor of computer aided advanced training represent 62% while the rest want a combination of traditional advanced training with computer aided training, more exactly to have periodical meetings with the trainer.

The profile of the persons adept of mixed advanced training as a method of assimilating information fit for advanced training at their own pace is: high school graduates of science profile, computer science specialization, internet access at faculty and at home. During faculty, 15% used the Internet for documentation in the learning process and prefer to combine the traditional advanced training with computer aided training, more exactly, to meet the trainer periodically.

The second group consisted of employees who graduated faculty after 2004.

Their graduation profile is: economics (30%), respectively computer science (70%). In this group, 100% of the employees used the Internet during faculty for information/ documentation. 40% of the employees used the internet for documentation / information both at faculty and at home, and 8% used the internet for documentation / information at home, faculty and job.

Within this group, 73% used the Internet in computer aided learning system while the others did not use it at all or their answer was not conclusive. However, we may notice that

the major reason of choosing computer aided learning (81%) is the possibility of advanced training at the job. Only 54% want a learning platform to be introduced in their company to allow them to assimilate information at their own pace. Within this group, the persons in favor of classic training represent 16%, the persons in favor of computer aided advanced training represent 58% and the others want a combination of traditional advanced training with computer aided training, namely: 26% want that their training to be achieved exclusively on an e-learning platform / Internet to assimilate information at their own pace.

The profile of the person adept of mixed advanced training as a method of assimilating information fit for advanced training at their own pace is: high school graduate of science profile, computer science specialization, internet access at faculty, home and job. They used the Internet and computer during their learning process of minimum 15% and maximum 50% and the entire advanced training process should be achieved on on-line platform.

The remarkable conclusions of this questionnaire were:

Fifty percent of the respondents made the correct choice of the advanced training to satisfy their own aspirations. Very importantly, this study suggests that there is only a small number of respondents who associate correctly the advanced training form with the possibility of adapting the teaching and learning process to their own pace. Their profile is: graduates of science high school, average knowledge of computer science, use of the Internet and computer during learning process, in the favor of completely computer aided learning. In the sample studied, this rule (support 10% confidence 66%).

In 2011, the questionnaire was applied to a sample of 84 persons (support 74% confidence 85%). In 2012, the questionnaire was applied to a sample of 84 persons (support 80% confidence 98%). Consequently, we may say that what in 2011 did not seem a rule of association (Witten, 2005) between graduate school and the use of computer in faculty during the learning process, would determine the individuals to choose computer aided advanced training. However, as a result of an analysis of data collected for several years, it seems that it has been demonstrated that it is a serious rule of association and identification of the profile of the employee that approaches a platform implementing blended learning in the computer aided learning process.

We did not need to review the questionnaire because all items were validated. To estimate the accuracy of the questionnaire, based on the data gathered, we made the following statistical analyses:

• split – half method – calculating the accuracy coefficient of the entire test, we obtained value $r = 0.84$ and confidence $p < 0.001$;

• internal consistency analysis method – we calculated the internal consistency coefficient of Cronbach (0.90), which reveals a unitary structure of the instrument used;

• test – re-test method – it was made after one year, respectively 4, $r=0.78$, $p<0.01$, which reveals the stability in time of the questionnaire.

Starting from these results of the questionnaire, we focused on the activities of those who wanted to perform the advanced training process on their own, on the pages of a collaborative web platform of a company, for example a wiki. The purpose of this action is to monitor the pages that these employees use to create a web application to offer personalized content, which is continuously adapted. The characteristic of such an application is determined by its capacity to anticipate the needs of the employees and to offer the information and content they need, in the form they want. The purpose of such application is to reorganize the information according to the previous behavior of the employee, so that to display the information in the order and form wanted.

According to the basic principles of an advanced training act, the normal order of accessing the pages of a wiki is: trainer material, practical examples / case studies, bibliography and other resources. Starting with this idea, we monitored the behavior of employees during the last year of study in wiki and the results were:

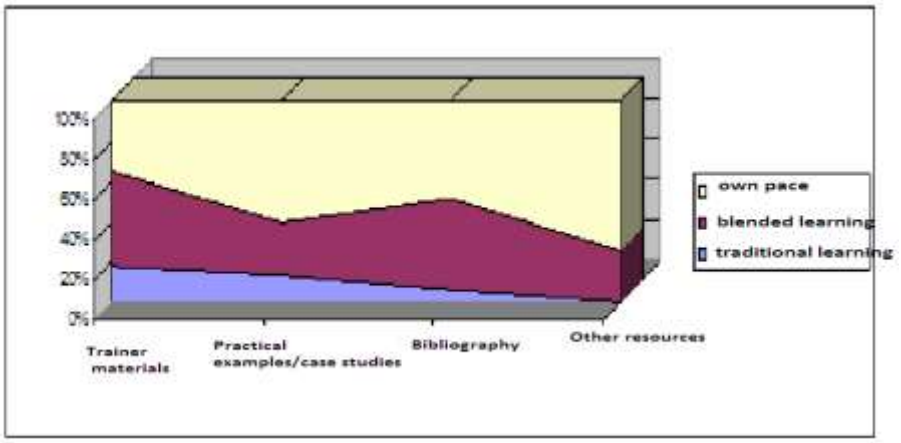


Figure no. 2 Number of hours spent accessing course pages

In this study, we have analyzed if there is a correlation between the number of hours spent accessing the pages according to the basic principles of the advanced training act and we reached the following conclusion:

in the group of the employees in the favor of their own pace of learning, we calculated the Bavaris – Pearson correlation coefficient (Drugan, Tigan, 2005) and we obtained r=0.77, which means a good correlation, with high degree of association, interpreted according to the interpretation given by Colton (1974);

in the group of the employees in the favor of traditional learning, we calculated the Bavaris-Pearson correlation coefficient and we obtained r=0.45, which means a weak correlation, weak association degree, interpreted according to the interpretation given by (Colton ,1974) quoted in (Drugan, Tigan, 2005);

in the group of employees in the favor of traditional leaning combined with the classic learning, we calculated the Bavaris-Pearson correlation coefficient, and we obtained r=0.56, which means a good correlation, average association degree, interpreted according to the interpretation given by (Colton, 1974) quoted in (Drugan, Tigan, 2005).

Because of the fact that, in the case of the number of hours spent accessing the pages, p-value is $0.04<0.05$, the analysis made according to the number of hours is statistically significant, so maybe the number of hours spent on the wiki pages is determined through a linear regression model in the studied groups.

4. CONCLUSIONS

Following the statistical study, we obtained that the determination of the profile of the employee who will assimilate the information during the computer aided learning process is achieved based on a rule of association between the faculty profile, use of internet in the faculty during the documentation / information process. Following the research made over

the years, it seems that it has been demonstrated that it is a serious rule of association and identification of the profile of the employee who is in the favor of combined advanced training. For these individuals, the number of hours spent on the pages of the site is a linear regression model with their profile. The algorithm for accessing the pages is in accordance with the principles of the advanced training act. During the study, we tried to make a profile of the employee who uses in the advanced training process a collaborative platform so that to adapt the information in his own leaning / assimilation rhythm.

In agreement with leading international research which focuses mainly on psycho-pedagogical factors, we proposed taking into account individual peculiarities: prior knowledge, learning style, needs and motivation. So, in this study, we took into consideration employees having knowledge in the field of computer science to make the profile, but in the future, we would like to extend the study on the segment of companies focused on other fields of activity.

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