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Evaluating the efficacy of e-learning in Spain: a diagnosis of learning transfer factors affecting e-learning

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Abstract

E-learning is an important component of Continuous Training and companies grant e-learning a growing role in HRD. Nonetheless, assessing the quality of e-learning is not a common enough practice. Evaluating the efficacy of training should be a critical step in training planning, yet it is an isolated practice (ASTD 2009). This article presents the diagnosis of the learning transfer factors within Spanish companies, highlighting an important barrier to transfer: opportunity to transfer; participants in e-learning and blended training are not provided the resources and opportunities to apply learning. Also, the results show a higher level of satisfaction of the participants in blended training.

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Keywords: Learning transfer; e-learning efficacy; transfer factors.

1. Introduction

E-learning represents a stepping stone in Human Resources Development and the past few years have brought about an increased interest in on-line training. At an organizational level, the impact of such changes is enormous if we consider how technology affects learning and sharing dynamics, knowledge management and continuous training. In 2009, almost a third of all training in the EU was carried out by means of technology (ASTD 2009 report) and we expect e-learning will soon play an overwhelming role in the training industry (Welsh et al., 2003). For this reason, we reckon the discussion about the quality and the efficacy of e-learning is a vital issue at this point.

Despite the massive volume of money invested in e-learning, there is little data available on the results it generates for the companies. Although organizations believe e-learning is rentable, convenient and efficient, they do not have the data to prove it as 67% of organizations do not evaluate the efficiency of on-line training (ASTD 2009).

Moreover, estimates are that only 30- 40% of training (Holton, Bates & Ruona, 2000; Pineda, 2002) is actually used in regular work related tasks, which means that a significant part of the investment in training is lost. In addition, the tools and techniques available to assess training are insufficient and incomplete (Ramos, ASTD) which makes measuring training results both a costly and a complex endeavor.

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Several authors (Noe, 1986; Baldwin & Ford, 1988; Rouiller & Goldstein, 1993; Thayer & Teachout, 1995; Holton & Kirkpatrick, 1996; Burke & Hutchins, 2008) have investigated various alternatives throughout the last decades. Their studies were related with the factors which determine learning being applied to the work place. This approach allows companies to understand and intervene upon the variables that affect training efficacy since learning transfer is the main condition for training to produce results.

Nevertheless, the only worldwide validated model is Holton's "Learning Transfer System Inventory" (LTSI) (Holton, Bates, Ruona & Leimbach, 1998, 2000). The LTSI comprises 16 factors classified in three categories: motivation, personal capacity and work environment.

In 2009, the validation of the LTSI was carried out in Spain by Pineda, Moreno, Quesada, Holton and Bates. Although the instrument was validated, some of the LTSI factors were not completely adequate and did not fully apply in the Spanish context. In order to produce a more reliable instrument, Pineda, Quesada & Moreno (2010) developed the ETF "Evaluation of Training Transfer" model to evaluate the factors affecting training in Spanish companies. In addition, the ETF was designed to diagnose those factors affecting e-learning, as well as classroom training.

The ETF contemplates eight factors classified in four categories. First, the factors related to the participant, which are: satisfaction -the effect that the level of participant satisfaction has on learning transfer (Tannenbaum, Mathieu, Salas& Cannon-Bowers, 1991)-; acquired learning -the level of learning acquired which subsequently affects the degree of learning transfer (Alliger et al., 1997; Xiao, 1996)-; motivation to transfer -the desire, intensity and personal commitment to transfer the learning acquired in training to the work place (Axtell, Maitlis, & Yearta, 1997; Holton, Bates & Ruona, 2000)-; self-efficacy -the degree to which the participant feels confident of their success in applying learning (Chiaburu & Marinova, 2005; Ford, Smith, Weissbein, Gully, & Salas, 1998; Gaudine & Saks, 2004; Gist, 1989; Holton, Bates & Ruona, 2000)-; accountability perceived -the level of responsibility participants feel towards applying learning (DeMatteo, Dobbins & Lundby, 1994)-. Secondly, the factor related to the work place: opportunity to transfer -the opportunities presented to the participants to apply learning and the resources they dispose of to do so (Brinkerhoff & Montesino, 1995; Clarke, 2002; Gaudine & Saks, 2004; Lim & Morris, 2006)-. Thirdly, the factor related to the organization: organizational support -the wide variety of policies and actions a company implements in order to facilitate learning transfer (Holton, Bates & Ruona, 2000; Lim & Johnson, 2002; Richman-Hirshch, 2001)-. Finally, the factor related to the training program: transfer design -the degree to which the design of the courses enables and facilitates learning transfer as guidelines and indications given in order for the trainees (Ford & Kraiger, 1995; Holladay & Quinones, 2003; Lee and Kahnweiler, 2000; Warr & Allan, 1998)-.

The objective of this paper is to diagnose the factors affecting learning transfer of e-learning programs in various Spanish companies.

2. Methodology

In this article we present the results of the study *Evaluación de la Iniciativa de Formación de Demanda. Ejercicio 2007 y 2008* (Pineda, P., 2010). This study consisted of a phone survey administered to 1,044 participants in various training programs carried out during 2007 and 2008. The participants were employees of various Spanish companies who had attended training financed from public funds, pertaining to five distinct economic sectors (commercial 15,61%, construction 9,87%, hospitality 6,61%, industry 22,41% and services 44,54%).

The sample had the following traits: the margin of the sampling error was ± 3,03%, it had a confidence level of 95% where p = q = 50 and k = 1,96 and, depending on each variable, was distributed as follows. 56% were male and 44% female. 38% of the participants were aged between 30 and 39; 25% were aged below 30; 24% aged between 40 and 49 and 13% older than 50.

Depending on the training method, 63% of the respondents had participated in classroom training, 15% had undertaken distance training, 15% had participated in blended training (classroom and e-learning) and 7% had participated in e-learning. In this article we analyze the results of the participants in blended and e-learning, comparing the results in terms of the factors mentioned below.

The questionnaire consisted of 19 variables, three of which addressed learning transfer factors, assessed by means of 40 items on a Likert scale from 1 to 5 (1 completely disagree – 5 totally agree).

Once the questionnaires were collected, we analyzed the results through the SPSS statistical pack. We first carried out a construct validation of the eight learning transfer factors by means of an exploratory factorial analysis

by the retention of an Eigen value greater than or equal to the unit, and factor loadings equal to or greater than 0,40. Afterwards, we carried out the descriptive and multivariate analysis of each factor (MANOVA).

3. Results

On a first level of the multivariate analysis of the factors we noticed no significant differences between the learning transfer factors and the chosen descriptive variables (gender and age of the participant). The sector variable however shows significant differences in terms of organizational support to transfer learning, as the healthcare and tourism sectors score significantly higher than the rest of the factors. In addition, the data shows that learning transfer conditions are more favorable in blended training than in e-learning, generating higher levels of satisfaction and a more elevated self efficacy.

Below, we analyze the results with the aim of obtaining a learning transfer diagnosis. In figure 1 we display the results of the evaluated factors in the case of e-learning. As we can observe, the factors are shown according to their role in the diagnosis. If a factor scored lower than 3 (on a scale to 5) it is displayed in red which means the certain factor acts as a barrier to transfer. If the factor scored between 3 and 3,99 it is considered to be a weak catalyst of transfer (yellow) and lastly, if a factor scored a value equal to or higher than 4 it is considered to act as a strong facilitator of learning transfer (green).

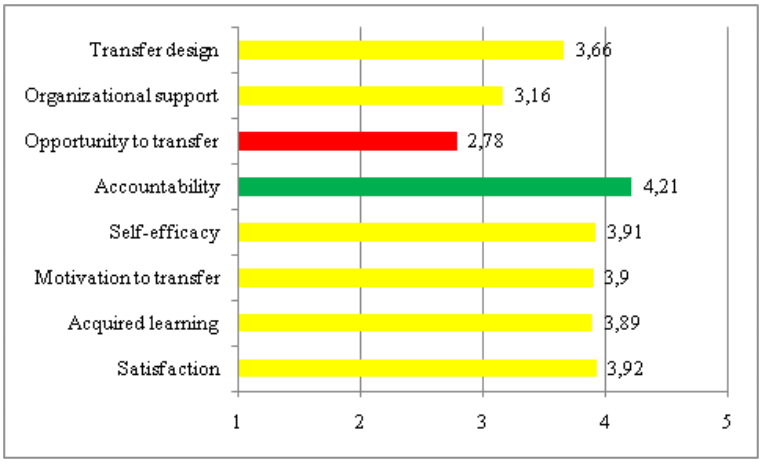

Figure 1. Learning transfer factors in e-learning

There is only one factor acting as a strong facilitator to learning transfer: accountability. Nonetheless, there is only one factor acting as a barrier to transfer: opportunity to transfer. This means that trainees perceive they do not dispose of enough resources so as to be able to apply new learning to their work place. This is the factor which should be most strengthened in the Spanish companies in the case of e-learning.

The rest of the factors act as weak catalysts to transfer and should be acted upon in order to ensure the transfer of e-learning to work place. These factors are: satisfaction with the training, level of acquired learning, transfer design, motivation to transfer self efficacy and organizational support which has a lower score. According to this diagnosis, these factors should be improved so as to transform them in strong facilitators of transfer.

In figure 2 we display the results of the transfer factors with respect to blended training. The color code is the same as for e-learning, which implies that two factors act as strong facilitators: satisfaction with training and accountability -which is present in e-learning as well-. The obstacle to transfer is the same as in the case of e-learning: opportunity to transfer. Surely, this factor acts as a barrier across the various training methods and should be improved in all cases.

Finally, we observe that blended training also has a series of weak catalysts to training, which should be strengthened. These factors are: level of acquired learning, organizational support, transfer design, motivation to transfer and self-efficacy. These are almost the same factors we encountered in the case of e-learning, but in the case of blended training we notice a more elevated level of satisfaction, which acts as a strong facilitator to transfer.

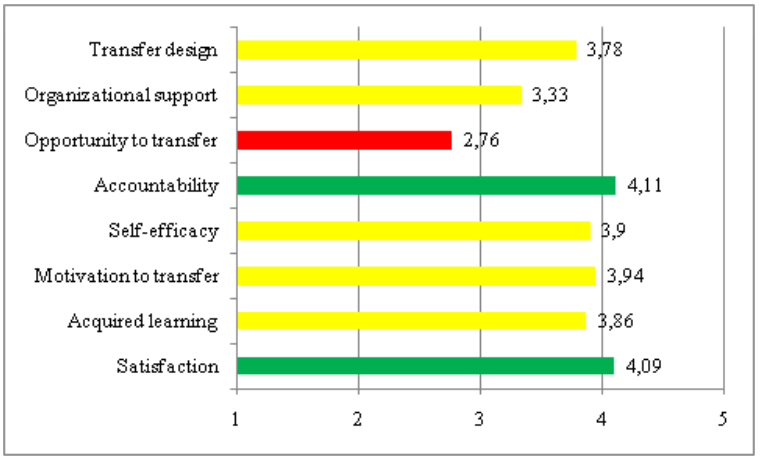

Figure 2. Learning transfer factors in blended training

4. Conclusions and prospective

The results obtained after diagnosing the e-learning and blended training carried out in several Spanish companies show that it is necessary to improve the various elements that determine their efficacy. In both training methods, there is a clear obstacle to surpass: transfer opportunity. This result may seem incoherent, as one might assume that when a worker is sent out to training, that is because they need it and is expected to use that certain skill. Nonetheless, the reality is that some companies do not follow this logic: in many cases the trainee does not dispose of the necessary resources, the time or the opportunity to apply what they learned, and this is the main reason why both blended and e-learning fail to fully generate positive results for the company. An explanation to this phenomenon is that companies once having invested in the necessary technology consider e-learning to be an opportunity of growth given to employees. And since the subsequent costs of e-learning are low, the trainees are not conditioned to immediately apply learning.

Nevertheless, there is a key facilitator to transfer in both the case of e-learning and blended training: accountability perceived, the responsibility a worker perceives so as to transfer learning in order to monetize the investment made in him/her by the company. Investigations show that employees with a higher sense of accountability are more efficient (Frink, O'leary-Kelly & Martocchio, 1994). For that reason, accountability perceived and high levels of motivation (3.90 and 3.94 out of 5), could be the engine of transfer in many organizations, so long as the above mentioned barrier is surpassed, which means trainees must be provided with opportunities to apply learning.

The data shows that the transfer diagnosis of the two training methods is similar except for one aspect: blended training generated a higher level of satisfaction than e-learning, acting as a facilitator to transfer. From this result one can deduce that classroom training is positively valued by the participants and makes this training method more efficient than e-learning. In other words, the transfer climate is better. This is highly interesting because it provides the guidelines for companies to use blended training for training that has more strategic purposes, as applicability is higher. On the other hand, companies should use e-learning in those scenarios when learning transfer is not such a critical condition.

In a nutshell, the diagnosis of the learning transfer factors is a useful tool to understand the elements which improve and strengthen the efficacy of training (Holton, 2005; Burke & Hutchins, 2008). This study provides relevant information concerning continuous training, such as which the most adequate training method is in each context, depending on the levels of efficacy required and the resources available.

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