

## The ETF, a new tool for Evaluating Training Transfer in Spain

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### Abstract

In the context of the current economic crisis it is essential to provide effective training to employees as the key to enhance their employability and to improve the competitiveness of organizations. In Spain there are very few companies that assess transfer of training to the workplace, although this is the clearest measure of the effectiveness of training.

For years various authors have been working on models to assess the effectiveness of training (Kirkpatrick, 1969; Holton, 1996; Kraiger, 2002; Pineda, 2002; Russ-Eft and Preskill, 2005; and others), as well as to detect what factors facilitate or hinder the transfer process (from Noe in 1986 and Baldwin and Ford in 1988 to Holton in 1996 and Cheng and Ho in 2001). The key is to build a comprehensive and reliable instrument that measures the key factors that affect transfer. For this reason, Holton, Bates and Ruona (2000) developed the *Learning Transfer System Inventory* (LTSI) which consists of 16 factors and which has been validated by over 8,500 participants and in more than 7 languages, including Spanish.

In 2009, Pineda, Moreno, Quesada, Holton and Bates completed the translation and validation of the LTSI instrument within the Spanish context, with more than 1,000 participants from various companies and sectors. However, although there is a theoretical and practical justification for each of the factors, the results showed that some of the LTSI factors are not a priority within the Spanish context. As a result, an instrument was designed to measure the factors that determine the transfer of training in Hispanic organisations –ETF: Evaluación de la Transferencia de la Formación (Evaluation of Training Transfer) – that works from Holton's (1996, 2005) factor model and incorporates new factors specifically for the Hispanic cultural context. The instrument consists of 8 factors, integrated into 4 distinct constructs: participant factors, workplace factors, factors of the company / institution and training factors.

In this paper we present our ETF instrument as well as the results from the construct and criteria validation of the factors. In Spain the ETF was administered to a sample of 1,429 participants during continuous training funded by the Spanish government, namely the Fundación Tripartita de Formación para el Empleo<sup>1</sup>. The results allow for the validation of the instrument as well as an analysis of the factors that determine transfer in the Spanish context. The factors which most successfully facilitate transfer include accountability (4,16 over 5), satisfaction with training (4,07), and motivation to transfer (3,96). Similarly, the model has a significant relation with transfer and a medium-to-high predictive potential.

These findings allow us to validate the ETF and further explore what factors determine the transfer of training in the Spanish context as well as how to improve human resource

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<sup>1</sup> The Tripartite Foundation for Employment Training

and training policies to facilitate this process. The instrument validated in Spain can also be used in all Spanish counties.

### **Keywords**

Transfer of training; factors of transfer; LTSI; Spanish organizations; training evaluation; training efficiency.

## **1. Theoretical foundation**

Measuring the transfer of training is one of the major challenges for organizations seeking to provide effective training to their employees, in order to become more competitive in the marketplace. Various models exist to evaluate transfer of training and to identify factors that determine this (Kirkpatrick, 1969; Noe, 1986; Baldwin and Ford, 1988; Holton, 1996; Kraiger, 2002; Pineda, 2002; Russ-Eft and Preskill, 2005; Cheng and Ho, 2001) but the *Learning Transfer System Inventory* (LTSI) of Holton, Bates and Ruona (2000) stands out for its ability to measure, in a valid and reliable way, factors affecting transfer, and to propose measures that can optimize these.

In 2009 the research group GIPE carried out the first application of the LTSI in Spain, with the objective of determining the construct validity of each of the instrument's 16 factors, leading to the validation of the questionnaire in Spanish. Specifically, through our research we discovered that the combination of the 16 LTSI factors predicted around 50% of transfer of training to the workplace, in other words, what inhibits and facilitates transfer as identified by Holton, Bates and Ruona (2000) explains a component of the transfer achieved as a result of training. The analysis of these results and that of the Spanish data for each factor, as well as the qualitative information collected during the study, led us to intuit that some of the factors included in the LTSI are not a priority for the Spanish organizational context, despite being basic elements that affect transfer and that are both theoretically and practically justified. Therefore, we consider it necessary to adapt Holton's (1996, 2005) model of factors affecting transfer to the reality of Spanish organizations.

The research objectives we identify are:

1. Create a model of factors affecting transfer of training in the Hispanic context.
2. Establish construct validity for the transfer factors that make up the model.
3. Diagnose transfer of training in Spain, in particular in companies implementing publicly funded training.

In this article we only present the results related to objectives 1 and 2, leaving objective 3 for subsequent publications.

The first step towards meeting these objectives is to identify the factors that determine transfer of training in the Hispanic context. From our experience with the implementation of the LTSI in Spain, as well as after reviewing and analyzing the contributions of other authors, we propose the following model of factors affecting transfer (Table 1).

[Table 1]

The first factor, *satisfaction with training*, refers to the effect that the reaction of participants to the training activity has on the transfer of training. Some authors show that there is a direct positive relationship between satisfaction and transfer (Tannenbaum, Mathieu, Salas and Cannon-Bowers, 1991), however, other authors suggest that this relationship is very weak (Alliger, Tannenbaum, Bennett, Traver and Shotland, 1997; Tan, Hall and Boyce, 2003; Warr, Alan and Birdi, 1999). From our point of view, we understand that the dissatisfaction of the participant may prevent the training from being implemented, while satisfaction can result in training being applied.

The factor *learning acquired* refers to the effect of the degree to which the participant acquired learning, with the subsequent application of this learning to their work. We believe, therefore, that the suitability and adequacy of learning acquired by the participant determines transfer. This factor has been verified by Xiao (1996) and Alliger et al. (1997).

The *motivation to transfer* refers to the desire, intent and personal involvement that the participant feels regarding the implementation of new learning, acquired through training, to the workplace. This factor directly and positively affects transfer (Axtell, Maitlis, and Yearta, 1997, Holton, Bates, Ruona, 2000).

*Self-efficacy* refers to a participant's perception about his/her chances of success with regards to implementing the training, which positively affects transfer. Several authors stress the importance of this factor as a driver for the effectiveness of training (Chiaburu and Marinova, 2005; Ford, Smith, Weissbein, Gully, and Salas, 1998; Gaudine and Saks, 2004; Gist, 1989; Holton, Bates, Ruona, 2000; Latham and Frayne, 1989; Mathieu, Tannenbaum, and Salas, 1992; Saks, 1995; Stevens and Gist, 1997, Tannenbaum, Mathieu, Salas and Cannon-Bowers, 1991).

Another factor included here is *accountability*, understood as the sense of responsibility felt by the participant to demonstrate his/her work, in other words, to what extent a person feels accountable for their own actions, either to themselves, to their boss or superior, or to the company / institution (DeMatteo, Dobbins and Lundby, 1994). Research conducted on this factor shows that employees with a greater sense of accountability are more effective (Frink, O'leary-Kelly, and Martocchio, 1994; Yarnold et al, 1988), and it is for this reason that we believe that this personal factor of the participant can impede or catalyze the process of implementing training in the workplace.

With regards to the key factor that can affect transfer in the workplace, this relates to *scope for application* and refers to the available options for putting training into practice. Some authors have termed this factor the opportunity for implementation (Brinkerhoff and Montesino, 1995; Clarke, 2002; Gaudine and Saks, 2004; Lim and Morris, 2006), however, we believe that it is necessary to amplify its meaning to also include the availability of necessary resources for application.

The organization or company factor that can strongly interfere with transfer is the *organisational support for transfer*. It is a broad factor that includes the various strategies that a company or institution displays with regards to facilitating transfer, and which are determined according to the consideration given by the organization to transfer. This factor has been explored and subdivided into various factors. For

example, Holton, Bates and Ruona (2000) indicate that the consequences – positive or negative - which the participant faces with regards to applying training affects transfer. Another factor highlighted as a catalyst or a barrier with regards to transfer is the existence of strategies to accompany it, such as resources and the implementation of follow-up activities (Lim and Johnson, 2002). The impact of the work environment on the workplace has also been identified as a determinant of transfer (Colquitt, LePine, and Noe, 2000; Richman-Hirshch, 2001). Finally, another factor which forms part of this category and is also prioritized, is support from colleagues (Chiaburu and Marinova, 2005) or superiors (Brinkerhoff and Montesino, 1995; Broad and Newstrom, 1992; Burke and Baldwin, 1999; Clarke, 2002; Foxon, 1997), seen as essential for transfer to occur. Nonetheless, we chose to construct a factor that indicates the participant's perceptions about the organisational support available to him/her to assist transfer of training, which can consist of a combination of different elements.

Lastly, the eighth factor is the *transfer design*, a factor relative to the training activity. It refers to how the training activity is directed towards its real applicability. Other authors have worked with two aspects related to this factor, such as: the similarity of the teaching-learning activities and professional performance in the workplace (Ford and Kraiger, 1995; Holladay and Quinones, 2003; Warr and Allan, 1998), or the existence of guidelines for transfer during the training (Lee and Kahnweiler, 2000).

It is clear that we focus on linking the factors presented here to specific training actions so that their evaluation can further explain the degree of transfer achieved, with the exception of the *accountability* factor. Unlike all the other factors, we believe that this factor should not be linked to training activities, as it is a general factor that concerns the participant's professional conduct.

## 2. Methodology

Following the identification of the 8 most important factors in the Hispanic context, we designed an instrument to measure the transfer of training climate: the ETF or Evaluation of Training Transfer. The instrument consists of 40 items in a Likert scale of 5 points (1 = strongly disagree, 5 = strongly agree). Each of the 8 factors was evaluated by means of the response of participants attending training to five items per factor.

The settings for the testing of the questionnaire are companies located all over Spain that participated in the Demand for Training Initiative in the exercises of 2007 and 2008, obtaining funding from the Tripartite Foundation. A total of 1.044 valid questionnaires were collected from employees who had completed publicly funded training, following a random stratified multi-stage design. The stratification variables of the sample are: Size, Economic and Territory Sector, Educational level, Sex and Age. The margin of sampling error is  $\pm 3,03\%$ , with a confidence level of 95% where  $p = q = 50$  and  $k = 1,96$ ).

Responses to surveys are anonymous and were conducted using telephonic surveying, assisted by a computer (CATI). The questionnaires collected were emptied into a matrix and subsequently analysed with the SPSS programme. We performed a *construct validation* of the factors that influence transfer of training, with the intention of scientifically confirming their ability to measure what they intend to measure. The

construct validity of these factors is analyzed by the retention of an Eigen value greater than or equal to the unit, and factor loadings equal to or greater than 0,40.

### 3. Results

The analyzed factors emerge from the theoretical model proposed; however, some items need to be revised as they have less acceptable factor loadings based on the fixed criteria (see Table 2). Item 16 of the construct “organizational support for transfer” has a factor loading slightly lower than 4 points. The same applies to item 24 –of the factor “transfer design” - and with items 33 and 35 - of the factor “self-efficacy”. For these four items, it was decided to keep them in their respective constructs, but flag them in order to consider them for future applications of these measurement scales.

However, in the factor analysis 2 items with factor loadings well below the required level were detected: item 25 – of the factor “transfer design” - that states “*my application after training was tracked*”, and item 40 – of the factor “accountability” - which refers to “*I am required to show evidence of my progress at work*”. These two items should be removed as they do not contribute to the validity of their respective constructs. Moreover, item 25 appears to be correlated, with a low factor loading, with the factor “organizational support” with which it does not belong.

[Table 2]

The implementation of the ETF allows for not only its validation, but also a diagnosis of the conditions of transfer in the selected sample of companies in which the questionnaire was implemented. Figure 3 shows the factors that facilitate / inhibit transfer of publicly funded training in Spain. The factors that act as barriers to transfer are highlighted in red, the factors which moderately facilitate transfer are highlighted in yellow, while factors which effectively facilitate transfer are highlighted in green.

All factors show positive scores, indicating that in the context of publicly-funded training, the conditions accompanying transfer are adequate to ensure that transfer occurs, however, the situation is not entirely optimal.

According to the training participants, the most facilitating factors are: accountability (4,16) and satisfaction with training (4,07); followed closely by the motivation to transfer (3,96). Surprisingly, the least valued factor is organisational support for transfer (3,29), followed by the scope for application (3,72); both factors should have received the maximum score as they depend entirely on the company/institution and they are the most interested in ensuring that training is applied. The standard deviation is around half a point in all cases.

[Figure 3]

A multivariate analysis of variance (MANOVA) was performed to determine the effect of the two categories of the variable ‘gender’ - man and woman - on the eight factors that make up our model of factors affecting transfer. No significant differences were found between gender and the dependent measures, Wilks’  $\Lambda = .99$ ,  $F(8,997) = 1.01$ ,  $p = .43$ ,  $\eta^2 = .01$ . Thus, gender does not determine a different context from conditions that affect transfer, which is very positive. To extend this analysis and review each catalyst /

barrier in particular, we performed an analysis of variance (ANOVA) for each dependent variable using the Bonferroni method, at the level of .006. We showed that none of the factors presented different results according to gender.

We performed a multivariate analysis of variance (MANOVA) to examine whether our model of barriers / catalysts of transfer varied significantly according to the age of the participant. The general test performed was not significant, Wilks'  $\Lambda = .97$ ,  $F(24, 2886) = 1.39$ ,  $p = .10$ ,  $\eta^2 = .01$ . This means that the age variable does not produce changes in conditions affecting transfer as a whole, depending on whether one considers an older or younger participant.

Following this line of analysis, a multivariate analysis of variance (MANOVA) was performed to test whether the context of factors affecting transfer is different depending on the size of the company. The general test results obtained were not significant according to the established criteria, Wilks'  $\Lambda = .96$ ,  $F(24, 2886) = 1.64$ ,  $p = .03$ ,  $\eta^2 = .01$ . Thus, we note that the variable "size of company" is not key to differentiating between companies with a more or less favourable context for transfer.

We hypothesized that the differences between the sectors with regard to the scores obtained through our model of factors affecting transfer are statistically significant.

We performed a multivariate analysis of variance (MANOVA), and found that our hypothesis is true, Wilks'  $\Lambda = .95$ ,  $F(40, 4331) = 1.41$ ,  $p < .05$ , although the power of the sector variable is not very strong,  $\eta^2 = .01$ , and explains only 1% of the variance of the factor model. Nevertheless, we can affirm that some sectors present conditions for transfer that are more favourable than others. Below we explore which factors and sectors show significant differences and how this enables us to assert that there are contexts which give rise to distinct types of transfer.

The analysis conducted to explore among which factors significant differences are found with respect to the variable "sector", is the ANOVA test, using the Bonferroni method, at the level of .006. The analysis, carried out to determine among which sectors differences can be found, consisted of the post hoc analysis of the ANOVA univariate with pairwise comparisons analyzed at the level of .006 divided by 4 or 002. In table 4 we present the mean and standard deviation of the factors that facilitate / inhibit training according to company / institution sector.

The only ANOVA which was significant following the established criteria was for the factor "organizational support for transfer",  $F(5, 1000) = 3.45$ ,  $p < .006$ ,  $\eta^2 = .02$ . As a result of finding non homogenous statistical variances, we used the Dunnett *C* test to conclude that the differences are found between the hospitality and construction sector. The participants from the hospitality sector value that they have greater organizational support for transfer than participants in the construction sector, with a difference of .4 points.

Conversely, the remaining factors do not differ significantly according to sector, including: Satisfaction with training,  $F(5,1000) = 3.13, p = .008$ ; Learning acquired,  $F(5,1000) = 1.31, p = .26$ ; Lack of scope for application,  $F(5,1000) = 1.10, p = .36$ ; Transfer design,  $F(5,1000) = 2.86, p = .014$ ; Motivation to transfer,  $F(5,1000) = 2.82, p = .016$ ; Self-efficacy,  $F(5,1000) = 1.68, p = .14$ ; Accountability,  $F(5,1000) = .89, p = .49$ .

[Table 4]

We also want to observe whether training activities with different characteristics have different conditions for transfer. We conducted MANOVA tests using method of training as an independent variable, in other words, whether it is face-to-face, distance or mixed training.

Table 5 contains the mean and standard deviations of the factors that facilitate / inhibit training according to the type of training. The mean differences are statistically significant, Wilks'  $\Lambda = .92, F(24,2877) = 3.40, p < .01, \eta^2 = .03$ , where the variable "type" explains 3% of the variance of the conditions affecting transfer.

We performed follow-up ANOVA tests to check which factors are responsible for the differences, using the Bonferroni method, at the level of .006. Furthermore, we applied pairwise comparisons with Dunnett C, at the level of .002, to establish amongst which categories the differences are to be found.

Satisfaction with training,  $F(3,999) = 17.42, p < .01, \eta^2 = .05$ , is higher in face-to-face training than in distance training - with a difference of 35 points - and e-learning- with a difference of 23 points. In addition, mixed training also generates more satisfaction than distance training - with a difference of 28 points. This underlines that the satisfaction rate is, by itself, explained by the variable "type of training" by 5%.

Face-to-face training activities generated .17 points more learning than distance training,  $F(3,999) = 4.09, p < .01, \eta^2 = .01$ .

Face-to-face training has a more favourable transfer design than distance training,  $F(3,999) = 10.56, p < .01, \eta^2 = .03$ .

The self-efficacy factor has scores that differ according to the type of training,  $F(3,999) = 5.43$ ,  $p < .01$ ,  $\eta^2 = .02$ . The face-to-face or mixed training participants have a higher self-efficacy than the distance training participants.

The remaining factors do not differ according to “type”: Lack of scope for application,  $F(3,999) = 2.07$ ,  $p = .10$ ; Organisational support for transfer,  $F(3,999) = 3.06$ ,  $p = .03$ ; Motivation to transfer,  $F(3,999) = 3.22$ ,  $p = .02$ ; Accountability,  $F(3,999) = 2.35$ ,  $p = .07$ .

[Table 5]

These results indicate that improvements should be made to distance training in order to generate more learning and to provide a more suitable transfer design. In this way the effectiveness of this type of training, which is increasingly being used by businesses, will increase.

#### **4. Conclusion**

The results of the implementation of the LTSI in Spain have shown the usefulness of a transfer factor model more suited to this context. In light of this, the ETF was created and applied to a sample of employees who attended publicly-funded training. The ETF has been validated and the 8 transfer factors which make it up emerge from the theoretical model proposed. However, in the factor analysis two items emerge with factor loadings well below the required level, which makes it necessary to eliminate them. These items belong to the factors “transfer design” and “accountability” respectively. Another 4 items appear with factor loadings slightly below 4 points and will be reviewed in future applications of the ETF. Thereby, by introducing the abovementioned amendments the ETF is validated and can now proceed to be implemented in order to diagnose the conditions of training transfer present in organizations.

The factors that facilitate the transfer of training in Spain are accountability, satisfaction with training and the motivation to transfer. Therefore, a trainee with a high level of accountability, who is satisfied with the training offered and motivated to transfer, is likely to apply what they have learnt in the workplace. The implementation of the ETF indicates that there are no barriers regarding transfer, since no factor emerged with a score below 3 points. However, factors appear which can clearly be improved in order to facilitate transfer, such as scope for implementation of training and organizational support provided to the employees in order for them to transfer the training. These factors, since they depend directly on the organization, can be improved by introducing specific strategies. Management could develop transfer plans with their employees to systematize their support to employees in the process of transferring. Another strategy could be to enhance managements feeling of responsibility for the transfer of training of their employees by creating incentive systems for them. The other weak factor – scope for application - can be improved by ensuring that all resources and tools that participants need to implement training are available immediately after training, and by assigning specific tasks after training that require the participant to use what s/he has learned.

The multivariate analysis of variance showed no significant differences amongst the transfer factors with regards to the variables considered: the trainee's gender, age and size of the company. However, significant differences were observed in the transfer factors with regards to the activity sector and the type of training. The organisation's transfer support is significantly higher in the hospitality sector than in other sectors, which means that one could analyze the good practice that takes place in this sector and extend it to other sectors, thus improving this factor and the training effectiveness.

The results of multivariate analysis of variance showed that the transfer conditions are more favourable in face-to-face training than in distance training, as the former generates more satisfaction, more learning, self-efficacy is higher and the transfer design is more appropriate. Considering that distance learning is very often used in organizations, these factors should be improved to increase the effectiveness of this type of training. Learning and the transfer design depend directly on the training technician who develops the material from a distance and the support provided to the trainee. The introduction of specific strategies to improve learning and to guide transfer in distance training can significantly improve these factors and thereby increase the effectiveness of this type training so widespread today.

These results are the first step towards creating a model of training transfer factors in the Hispanic context, but can serve as the basis for applying the ETF in other similar contexts at a European level. We intend to further investigate the predictive ability of the model on the actual transfer that training generates. If the ETF can predict transfer, it will provide an alternative and operational measure for the direct evaluation of transfer in the workplace, which is often costly and difficult to perform. This is our next challenge.

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Table 4. Mean and standard deviation of the factors which facilitate/inhibit training according to sector

	Sector											
	Agriculture		Trade		Construction		Hospitality		Industry		Service	
	M	DT	M	DT	M	DT	M	DT	M	DT	M	DT
Satisfaction with training	4.12	0.52	4.06	0.60	3.92	0.66	4.27	0.48	4.06	0.50	4.08	0.57
Learning acquired	3.94	0.28	3.88	0.57	3.83	0.51	4.03	0.65	3.89	0.49	3.93	0.59
Lack of scope for application	2.20	0.68	2.38	0.67	2.24	0.73	2.19	0.64	2.25	0.67	2.27	0.69
Organisational support for transfer	3.46	0.50	3.33	0.62	3.13	0.75	3.53	0.59	3.29	0.62	3.28	0.64
Transfer design	3.83	0.35	3.81	0.59	3.62	0.79	3.92	0.62	3.88	0.55	3.81	0.63
Motivation to transfer	3.98	0.18	3.95	0.51	3.79	0.70	4.09	0.50	3.98	0.52	3.96	0.56
Self-efficacy	4.00	0.33	3.92	0.49	3.78	0.60	3.98	0.40	3.90	0.50	3.88	0.51
Accountability	4.30	0.47	4.17	0.43	4.15	0.50	4.27	0.53	4.15	0.43	4.15	0.53

Table 5. Mean and standard deviation of factors that facilitate/inhibit training according to type of training

	Type of training							
	Face-to-face		Distance		Mixed		E-learning	
	M	DT	M	DT	M	DT	M	DT
Satisfaction with training	4.14	0.54	3.80	0.68	4.09	0.47	3.92	0.50
Learning acquired	3.95	0.55	3.78	0.58	3.86	0.59	3.89	0.54
Lack of scope for application	2.26	0.67	2.40	0.73	2.24	0.66	2.22	0.65
Organisational support for transfer	3.32	0.62	3.18	0.71	3.33	0.65	3.16	0.72
Transfer design	3.89	0.57	3.60	0.72	3.78	0.60	3.66	0.76
Motivation to transfer	3.99	0.53	3.85	0.68	3.94	0.49	3.90	0.62
Self-efficacy	3.91	0.49	3.73	0.62	3.90	0.41	3.91	0.53
Accountability	4.19	0.47	4.09	0.53	4.11	0.50	4.21	0.50