Chapter 8
Evaluation of Training Transfer Factors: The FET Model

Pilar Pineda-Herrero, Carla Quesada-Pallarès and Anna Ciraso-Calí

8.1 Theoretical Background

Over the last 3 decades, several authors have been working on developing mechanisms and instruments to measure the transfer of training to the workplace. Transfer of training is defined as the degree to which participants apply their knowledge, skills, and acquired attitudes in a context of training for work (Baldwin and Ford 1988); and it is a process which implies generalizability, application, and maintenance of new knowledge and skills (Ford and Weissbein 1997).

This is a core aspect in order to be able to rate the results of training in the workplace, and the implications of the cost/benefit relation for the organization. Training is supposed to be a "planned learning experience, designed to bring out permanent change in an individual's knowledge, attitudes, or skills" (Noe and Schmitt 1986, p. 497). Organizations invest significant resources in training, a priority area in the development of human resources, to update workers so that they are up to the standards required of them in the workplace, and to obtain efficacy indicators of this investment.

However, measuring the transfer of training in the workplace—direct evaluation—is not easy, and it dramatically increases the cost of training. Baldwin and Ford (1988) and Noe and Schmitt (1986) were the first to assert that, although measuring actual transfer was extremely expensive, there was a way to determine which factors hindered or facilitated employees when it came to applying what they had learned from training in the workplace. Detecting the barriers and facilitators to transfer of an organization allows us to predict whether there will be transfer or not, thus allowing the necessary corrections to be implemented. Thus, the factors

P. Pineda-Herrero (✉) · C. Quesada-Pallarès · A. Ciraso-Calí
Universitat Autònoma de Barcelona, Barcelona, Spain
e-mail: pilar.pineda@uab.es

C. Quesada-Pallarès
e-mail: carla.quesada@uab.cat

A. Ciraso-Calí
e-mail: anna.ciraso@uab.cat

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may act as predictors of transfer, allowing an indirect evaluation of the same (e.g., Baldwin and Ford 1988; Thayer and Teachout 1995; Holton et al. 2000; Burke and Hutchins 2007).

Nevertheless, there is little proof that these factors are indeed predictors of transfer. We believe that both the factors and transfer itself should be assessed, as well as establishing a causal model to learn about the role each of these factors plays in transfer.

We have, therefore, developed a model that integrates several theories related to transfer of training, adapted to the context of Spanish businesses. On one hand, we have included dimensions of factors in transfer: trainee, training, and organization, following Baldwin and Ford's (1988) scheme. On the other hand, we added the variable of achieved learning as a necessary result for transfer to take place, as there can be no transfer without learning (Kirkpatrick and Kirkpatrick 2006; Pineda 2010). Lastly, we included the transfer intention variable because, as Holton (2005) pointed out, based on the theory formulated by Ajzen (1991), the intent to act is the primary antecedent of action. In other words, for transfer to take place there must first be the intention to transfer.

The model we propose is called FET (Factors for the Evaluation of Transfer). We present the different constructs the model is made up of and the most relevant contributions from the literature that provides its theoretical and empirical groundwork[1].

8.1.1 Factors in Transfer

8.1.1.1 The Trainee Dimension

Training satisfaction defined as participants' reactions to a training program or action (Kirkpatrick and Kirkpatrick 2006) is one of the short-term results of training, and the first level of assessment in most models. Training satisfaction is also an intrinsic reward for the participant, and it can help transfer. Therefore, this variable has been amply studied related to the application of learning to the workplace (e.g., Thayer and Teachout 1995; Holton 1996, 2005), and it was already taken into account in the theoretical model by Noe and Schmitt (1986), that posits that training satisfaction also has an impact on the level of learning achieved by participants. At an empirical level, training satisfaction has proven to have a significant relation with transfer of training, even though the results are not always concordant. For instance, Tan et al. (2003) concluded that negative reactions from participants in training correlate positively with learning and turned out to be its best predictor ($\beta = 0.41$, $p < 0.01$). On the other hand, studies by Moreno (2009) provided empirical evidence that satisfaction with training has a significant positive influence on changes in workplace attitude. This confirms the results obtained by Alliger et al.

[1] We tried to report β and *p* coefficients; when the articles we used did not provide these statistical coefficients, we have reported the nearest one.

(1997) that proved that a combination of utility judgments—opinions from trainees on the applicability of the contents of training—and personal feelings about training are related significantly with transfer ($r = 0.21$).

One variable that has high technical and empirical support as a key factor in transfer is *motivation to transfer* (Baldwin and Ford 1988; Axtell et al. 1997; Holton 1996, 2005; Bates 2001; Chiaburu and Marinova 2005), which can be defined as the trainees' "desire to use the knowledge and skills mastered in the training program on the job" (Noe and Schmitt 1986, p. 503), and is influenced by trust in the use of new skills, expectations of improvement in job performance as a consequence of new skills, and the belief that learning helps to solve work-related problems and job demands (Noe 1986). Conceptually, it is included in the training motivation construct, defined by Tannenbaum and Yukl (1992) as the intensity and persistence of the efforts applied by trainees in learning-related activities before, during, and after training. Axtell et al. (1997) proved that motivation to transfer is a significant predictor of transfer in the model, even 1 year after the training action ($\beta = 0.48$, $p < 0.01$), along with relevance/usefulness, self-efficacy, management support, and autonomy. Nevertheless, other studies show that motivation to transfer only has a weak link with transfer (Wolfe et al. 1998; Burkolter et al. 2009).

In the trainee's dimension we can also find two variables that are closely related to each other: self-efficacy and the locus of control. *Self-efficacy* is defined as the "conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura 1977, p. 193); people with a high self-efficacy, according to the same author (1986), are more confident in their ability to carry out a task, and take on more ambitious challenges than people with a lower level of self-efficacy. Many researchers have proved that self-efficacy correlates positively with transfer of training as well as its generalization and maintenance: among them, we should point out contributions by Mathieu et al. (1993), Gaudine and Saks (2004), Machin and Fogarty (2004), Chiaburu and Marinova (2005), and Yamkovenko and Holton (2009). This variable can also constitute an indirect factor, mediated by other variables. Chiaburu and Marinova (2005) established that "training self-efficacy" (Noe and Wilk 1993) has a significant influence in pretraining motivation ($\beta = 0.34$, $p < 0.05$), which, in turn, affects skill transfer ($\beta = 0.24$, $p < 0.05$). Furthermore, self-efficacy is all the more important due to the fact that it is a characteristic of the trainee that can be influenced by giving him or her feedback on his or her performance, by establishing self-management strategies after training, and through the use of verbal self-guidance (Frayne and Geringer 2000; Kuchinke 2000; Brown and Morrissey 2004; Burke and Hutchins 2007), the whole being related to self-regulation strategies.

Finally, the *locus of control*, i.e., "the extent to which the individual is apt to make internal or external attributions regarding work outcomes" (Noe and Schmitt 1986, p. 501), is related to transfer both in theoretical models and empirical evidence. In the hypothetical model by Noe and Schmitt (1986), the locus of control influences the trainee when it comes to reacting to skill assessments, expectations on the relationship between effort and mastery of the skills learned in training, between efforts and the rewards resulting from successful training, and attitudes on work

and career. These variables, in turn, lead to stable behavioral changes. The meta-analysis carried out by Colquitt et al. (2000) also proves that people with an internal locus of control have a higher level of motivation ($\beta = -0.42$, $p < 0.05$), which turns out to be a predicting factor for transfer; furthermore, the internal locus of control per se also has a moderate predictive power in transfer ($\beta = -0.42$, $p < 0.05$) but with an opposite relationship: people with an external locus of control have higher levels of transfer.

8.1.1.2 The Training Dimension

The second dimension taken into account is the one regarding the training action in itself as well as its design. According to Kavanagh (1998), scientific literature on this dimension is in development, but some training methods and strategies geared towards the real application of training, which constitute *transfer design*, have emerged. One factor that can have an impact on transfer is the instructions given to trainees: Velada et al. (2007) suggest that, when the said instructions are relevant and similar to the ones given on the job, it is easier for transfer to take place. This is called *near transfer*, a term coined by Royer in 1979, "in which the stimulus is similar to the stimulus in the original learning condition" (Holladay and Quiñones 2003, p. 1095). In the study by Velada et al. (2007), the transfer-design construct was made up of items such as "examples about ways to use learning on the job," and "activities and exercises about how to apply learning"; obtaining a $\beta = 0.31$ ($p < 0.01$), which points to an average capacity to explain training transfer.

Another aspect of training design is the introduction of follow-up sessions, or other means of post-training intervention, as a strategy to favor transfer. Based on social cognitive theory, Tziner et al. (1991) proved that relapse prevention helps trainees to anticipate and overcome obstacles they may encounter when applying learning on the job as well as in applying transfer strategies. This concept can be applied both to post-training interventions and in guidelines provided by the trainer, during the training itself, on practical situations that can take place when applying the training. Even though it has a theoretical basis (Pineda 2010), there is no published empirical data to support this hypothesis.

When it comes to the contents of training actions, one relevant variable found throughout the scientific literature, albeit under different names, is *orientation towards job requirements,* defined as the trainees' perception of how training responds to their professional needs related to the workplace (Clark et al. 1993; Rouiller and Goldstein 1993; Tracey et al. 1995; Axtell et al. 1997; Ruona et al. 2002; Taylor et al. 2005). Lim and Morris (2006) demonstrated that the "job helpfulness of learning content" (p. 92), understood as the relation of the training contents with what participants need in their job, maintains a significant ($p < 0.01$) correlation with the application of learning ($r = 0.338$) when finishing training. Nonetheless, the correlation is not significant, related to the perception of transfer, 3 months after finishing training ($r = 0.245$, $p < 0.05$).

8.1.1.3 The Organization Dimension

In the workplace, one of the variables that appears related to the application of training throughout scientific literature is *manager's support to transfer* (Clarke 2002), understood as the manager's strategies to help the trainee transfer, as well as emotional support and resources that can help the application of learning on the job. The effects of the manager's role in transfer have emerged in both quantitative and qualitative empirical studies (Salas et al. 1999; Smith-Jentsch et al. 2001; Van der Klink et al. 2001; Awoniyi et al. 2002; Chiaburu and Marinova 2005). Facteau et al. (1995) examined the influence of two kinds of support: from top management and supervisors. Contrary to what was expected, the former did not display a significant relation to transfer; and the latter was related negatively ($\beta = -0.09$, $p < 0.05$). However, the meta-analysis by Colquitt et al. (2000) displayed a strong relationship between support from the supervisor and transfer ($r_c = 0.43$). Other studies, furthermore, showed the influence of this variable in motivation, thereby acting as a mediating variable towards transfer (Cohen 1990; Clark et al. 1993; Brinkerhoff and Montesino 1995; Gregoire et al. 1998).

Marx (1982) suggests that errors are most probable in the first phase of transfer that immediately follows training; this is why support from the manager in this phase may be particularly critical for skills to transfer, and for transfer to be maintained over time.

Peers' support to transfer is another variable that, in the organization's dimension, has proven to play a significant part in the transfer of training. It is defined as the degree to which peers in the workplace support the use of skills acquired in training on the job, including feedback to the trainee in transfer as well as setting learning objectives, among other aspects (Facteau et al. 1995; Xiao 1996; Chiaburu and Marinova 2005; Hawley and Barnard 2005). In some studies, support from peers has proved to have a more relevant impact than support from management: for instance, in Facteau et al. (1995), peer support obtained a $\beta = 0.21$ ($p < 0.05$), as in the meta-analysis by Colquitt et al. (2000), in which peer support was strongly related to transfer ($r_c = 0.84$). Along those lines, in the individual and organizational support model for transfer by Chiaburu and Marinova (2005), this variable was the only one with a significant direct relation ($\beta = 0.65$, $p < 0.05$) with transfer, whereas the other variables were mediated by pretraining motivation.

Another variable in this dimension, which Burke and Hutchins (2008) believe to be "understudied," is *accountability* which is defined as the degree to which the learners are expected to use trained knowledge and skills on the job by the organization, culture, and/or management; and their perception of responsibility to do so (Yarnold et al. 1988; O'Leary-Kelly et al. 1994; Brinkerhoff and Montesino 1995; Kontoghiorghes 2004). Pineda and Quesada (2013) formulated a proposal for a factor model that includes, among others, the more personal dimension of accountability, understood as the perception of responsibility felt by the participant when it comes to demonstrating how his or her work has changed due to training. The results obtained display that accountability has a significant impact on transfer ($\beta = 0.048$, $p < 0.05$).

The last variable analyzed was *lack of possibilities to transfer*, understood as the lack of situations to put the training into practice, and the lack of resources necessary to apply it (Brinkerhoff and Montesino 1995; Clarke 2002; Gaudine and Saks 2004; Lim and Morris 2006). In a qualitative study by Clarke (2002), the lack of real opportunities to transfer was the main obstacle, according to participants in training, from obtaining good transfer results. More empirical evidence for this variable's relation with transfer is provided by the results obtained by Pineda and Quesada (2013), in which the predictive model proved that a lack of possibilities to transfer influenced transfer negatively ($\beta = -0.057$, $p < 0.01$).

8.1.2 Achieved Learning

Another variable included in the transfer-factor model is *achieved learning*, conceived as the degree of learning achieved by the trainee through the training process (Xiao 1996; Alliger et al. 1997). Both at an empirical and at a theoretical level, several authors consider learning to be a predicting factor for transfer, either directly or as a variable mediating between other variables (for instance, self-efficacy, commitment to the organization, trainees' expectations, behavioral intentions, satisfaction, etc.) and transfer (Noe 1988; Rouiller and Goldstein 1993; Thayer and Teachout 1995; Moreno 2009). In the model by Baldwin and Ford (1988), "learning and retention" was already considered a variable with direct effects on the conditions of transfer (generalization and maintenance), which was influenced in turn by the characteristics of the trainee, training design, and work environment. And studies such as the one by Rouiller and Goldstein (1993) proved that learning in training is significantly related to transfer behavior ($r = 0.28$, $p < 0.01$).

Colquitt et al. (2000), in their meta-analysis, found that achieved learning is correlated to transfer with moderate to large effects ($r_c = 0.38$ using declarative knowledge and $r_c = 0.69$ using skill acquisition); however, as it has been pointed out by Burke and Hutchins (2008), the teaching-learning methods that can ease retention, generalization, and application of learning to the workplace have not yet been explored in depth.

8.1.3 Intent to Transfer

The *intent to transfer* variable, generalized from the theory of planned behavior (Ajzen 1991), is defined as the trainee's disposition to transfer skills; in other words, how much effort he or she will carry out to transfer the learning back to the workplace (Griffeth et al. 2000; Kirschenbaum and Weisberg 2001; Machin and Fogarty 2003; Combs and Luthans 2007). Behavioral intentions linked to transfer are a relatively new concept (Yamkovenko and Holton 2009) that needs to be studied in

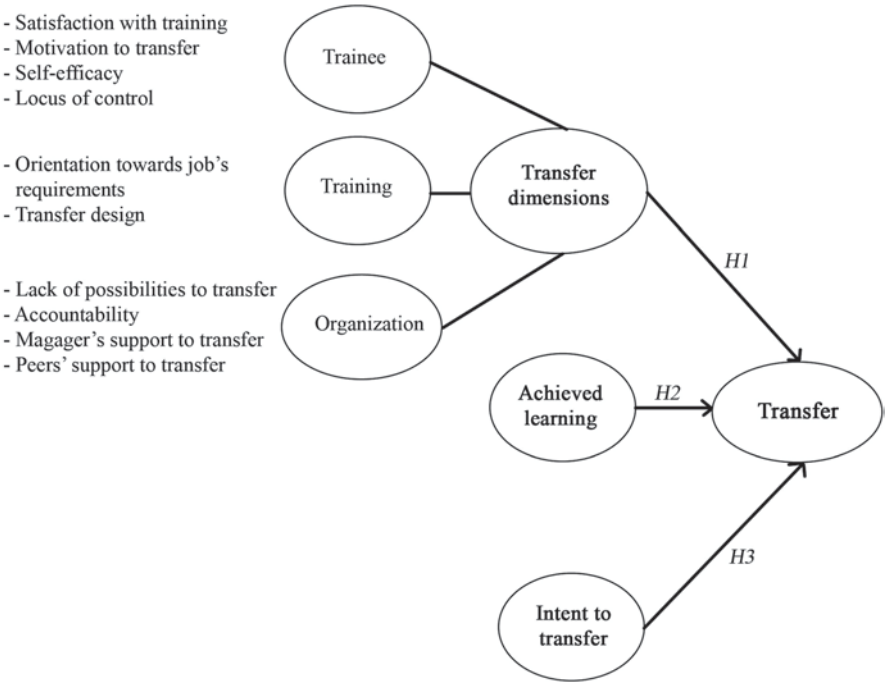

Fig. 8.1 Exemplification of the study hypotheses related to goal 2

depth to analyze its empirical validity. For now, we have not found any published studies that empirically analyze transfer intent as a predictor for transfer.

Now that we have presented the different variables that make up our model, we will develop the validation process to which it was submitted, as well as its predictive capacity.

8.2 Method

We have set three goals in this paper: (1) to test the theoretical model we propose, based on the three dimensions of transfer: trainee, training, and organization, and on two independent scales—achieved learning and intent to transfer; (2) to assess the predictive level of the variables that make up the dimensions and scales on training transfer; and (3) to establish which model has the greatest predictive power on transfer—transfer dimensions, scale of achieved learning, or scale of intent to transfer.

Related to goal 2, we have postulated three hypotheses (Fig. 8.1):

Table 8.1 Profile of the trainees in the study

Profile variables	Trainees' distribution according to their responses
Sex	Men: 32 %
	Women: 68 %
Age	Mean: 43.62 (Standard Deviation: 7.75)
Professional position	Manager: 3 %
	Middle manager: 17 %
	Technician: 35 %
	Skilled worker: 34 %
	Unskilled worker: 13 %
Training content	Technical: 35 %
	Law: 32 %
	Social skills: 33 %
Training modality	Classroom: 55 %
	E-learning: 45 %

H1: The 10 variables that make up the dimensions of transfer—trainee, training, and organization—are factors that significantly predict transfer of training.

H2: The scale of achieved learning predicts transfer of training in a statistically significant manner.

H3: The scale of intent to transfer significantly predicts transfer of training.

Likewise, related to goal 3, we have formulated the following hypothesis:

H4: The 10 variables that make up the dimensions of transfer have a greater predictive capacity on transfer compared to the scale of achieved learning and the scale of intent to transfer.

In order to provide an answer to the goals and hypotheses we have formulated, we used a quantitative methodology with a longitudinal design, with two time measures: when finishing training (t_1), and 2 months and a half after finishing training (t_2). We will now go into more detail on the methodological aspects of this study.

8.2.1 Sample

We used a nonprobabilistic multistage sampling procedure (Hernández et al. 2008), since different criteria selected according to the characteristics of the study were used: content of training (three content areas were identified: technological, legal, and social skills), timing of training (training done during the next 3 months), and type of training (classroom and e-learning). We obtained a sample of 1,527 trainees and, based on the volume of participation of these organizations in the previous year (57,111 people), we obtained a margin of error of 2.47 % ($Z^2{}_a = 1.96$). Table 8.1 presents the distribution of the surveyed trainees according to some profile variables.

Since we carried out a longitudinal study, we administered a second instrument two-and-a-half months after training to the trainees who responded to the first instrument. Out of the 1,527 trainees (t_1), 74.78 % responded to the deferred instrument (t_2, $n = 1{,}142$).

8.2.2 Measures

In the study, we used different kinds of measures according to their different purposes and always from the trainee's perspective, that is, a self-report survey.

Dimensions Related to Transfer Factors In order to determine which factors influence transfer of training, we constructed 10 variables that covered the most relevant aspects pointed out in the theory and literature of related sectors (see theoretical foundation). These variables are grouped in three dimensions—trainee, training, and organization—and are rated with a five-point Likert scale (1: strongly disagree, 5: strongly agree), administered at the end of the training program. These variables are:

- Accountability: This one belongs to the organization transfer dimension, and it is used to explore the degree in which trainees inform their managers on the uses that have resulted from the learning acquired in training. It is made up of five items, such as "My boss asks me for evidence of the application of training."
- Lack of possibilities to transfer: This one belongs to the organization transfer dimension. It is meant to identify whether or not there are any options to put the training to use and whether or not the resources required to transfer are available in the trainee's work environment. It is made up of four reverse items, such as "My daily workload does not allow me to apply the training to my job."
- Locus of control: This one belongs to the trainee transfer dimension, and it is meant to determine the degree to which the trainee establishes causal relations between his or her behavior in training and the transfer carried out. It is made up of six items, such as "Success in the application of training depends on me."
- Manager's support to transfer: This variable belongs to the organization transfer dimension. Its goal is to identify the level of support trainees get from their managers to transfer. It is made up of five items, such as "My boss promotes changes based on training."
- Motivation to transfer: It belongs to the trainee transfer dimension, and its goal is to explore about which degree trainees desire and have the will to apply the knowledge acquired during training on the job. It is made up of four items, such as "I usually want to put what I have learned in training in practice."
- Orientation towards job requirements: This variable belongs to the training-transfer dimension. It is used to assess trainees' perceptions on whether or not the training responds to their professional and workplace needs. It is made up of five items, such as "Training allows me to attain goals in my job."
- Peers' support to transfer: This one is a part of the organization transfer dimension; it is used to learn about the degree of support trainees get from their coworkers in order to transfer what they have learnt in training to their job. It contains five items. "My coworkers object to changes in the way I work due to training" is an example of the items in this variable that, specifically, is formulated negatively.
- Satisfaction with training: This variable belongs to the participant transfer dimension and its goal is to identify trainees' degree of satisfaction with the training they have carried out. It is made up of five items, such as "I am happy with the training I have done."

- Self-efficacy: This variable belongs to the trainee transfer dimension. It is meant to allow us to learn about trainees' perception of their chances of success when transferring what they have learned in training. This variable contains five items, such as "When I follow a training course, I feel that I am capable of putting it to use."
- Transfer design: This one is a part of the training transfer dimension. It is used to assess whether participants believe that the training is geared towards real applicability. This variable is made up of six items, such as "I was given examples that were close to my job situation in training," and "After I have finished training, the trainer is available to help me apply it."

Achieved Learning Scale The goal of this scale is to measure the level of learning that trainees achieved through a training process. According to the theoretical revision presented in this paper, learning is a result of training, which plays a key role to allow the transfer process to take place. It is made up of five items rated on a Likert scale (1: strongly disagree, 5: strongly agree) and is administered at the end of training. One example of an item in this scale is: "I have developed new skills in training."

Intent to Transfer Scale The goal of this scale is to identify the trainees' degree of willingness to transfer what they have learned to their jobs. It is made up of four items, rated on a 5-point Likert scale (1: strongly disagree, 5: strongly agree), administered at the end of training. "I want to apply what I have learned in training to my job" is one of the items that exemplifies this scale.

Deferred Transfer Scale The transfer scale was designed to identify the degree of application of skills acquired in training by the trainees. For this purpose, we administered this scale by e-mail two-and-a-half months after the end of training (t_2) to trainees who had responded to the earlier scales (t_1), granting a margin of 2 weeks to complete the survey. It is made up of five items to be rated on a 5-point Likert scale (1: strongly disagree, 5: strongly agree), with statements on the perceived degree of application of learning, changes in professional attitude as a consequence of learning, improvements in performance, and attaining professional goals. For example: "I have applied the skills I acquired through training to my job."

8.2.3 Validation Procedure

In order to provide an answer to the goals and hypotheses formulated in this paper, we carried out two levels of validation: a field validation of the scales and a pilot test.

In the first place, we designed the scales to collect information and carried out a reliability and validation process. In order to assess the comprehension of the scales and detect possible differences in the interpretation of the items, we conducted a field validation (Martín 2004). To this end, we applied the survey to a sample of seven people with characteristics similar to those of its target population; the

Table 8.2 Cronbach's alpha coefficients in the pilot test

Dimension/Scale	Variable	Cronbach's alpha value
Trainee transfer dimension	Satisfaction with training	0.961
	Motivation to transfer	0.789
	Self-efficacy	0.716
	Locus of control	0.783
Training transfer dimension	Transfer design	0.651
	Orientation towards job requirements	0.722
Organization transfer dimension	Lack of possibilities to transfer	0.666
	Accountability	0.362
	Manager's support to transfer	0.838
	Peers' support to transfer	0.878
Learning achieved scale	Achieved learning	0.738
Intent to transfer scale	Intent to transfer	0.796

criterion to be included in this validation phase was that they should have recently attended a continuing training program.

In this process, we administered the scales and a guided interview to each subject on an individual and face-to-face basis. Throughout this process, we measured the global amount of time taken to answer the scales, the general level of difficulty, the capacity to reformulate items or to provide examples from their work experience, the level of comprehension of the items, the need to read the items several times, and the level of difficulty involved in answering the items. Each assessment interview lasted approximately an hour and a half.

On average, participants took 9.30 min, with a standard deviation of 3.62 min, to answer the scales; this confirmed our previous estimations. All the interviewees considered that the scales, as a whole, were easy to answer.

The main comprehension problems were found in the *orientation towards job requirements* (four items) and *transfer design* (three items) variables. Other variables that caused misunderstandings were *lack of possibilities to transfer* (two items) and *satisfaction with training* (two items), as well as the *achieved learning* scale (two items). The criteria we followed to reformulate an item were: that it had not been understood by more than two people; that it could give rise to misunderstandings; words that create more confusion; and items that were not easy to answer. As a whole, we modified 24 out of 59 items, a modification of 40 % of all items.

Secondly, we applied a pilot test to a group of 15 subjects who had undertaken training similar to that of the subjects selected for the study sample—we do not include these cases in this study. We administered the survey in the same conditions as in its real application, and studied the internal consistency of the collected data.

As can be seen in Table 8.2, almost all variables have a reliability that varies between 0.7 and 0.9; in these cases, according to Nunnally (1978), the variable has a sufficient or good reliability. Nonetheless, in the case of *lack of possibilities to transfer* and *transfer design* variables (0.6 and 0.7, respectively) we can state that the alpha coefficient is acceptable (Pfeiffer et al. 1976), keeping in mind that both variables are not meant to assist decision-making on specific subjects.

The variable with most reliability problems is *accountability* (.362), whose internal consistency could be improved by eliminating certain items. Nevertheless, we decided not to do so in this phase of the study for a number of reasons. Firstly, we should keep the complexity of the construct in mind. As Morales Vallejo (2006) argues, complex definitions necessarily require more differentiated and less related questions, which in turn imply a lower internal consistency. Furthermore, the field validation revealed that these items were properly understood, so the low internal consistency could be due to other reasons. Finally, and due to the fact that our sample was small, we considered that these were temporary results and that their internal consistency should be tested against a larger sample.

Based on the results of the validation process, we began the study with the previously revised tools.

8.2.4 Data Analysis

In order to analyze the data from the field survey, we subjected all the variables to a validity and reliability analysis to determine both their factorial structure and their internal consistency. Furthermore, we carried out a descriptive and predictive analysis in order to test the hypotheses we formulated.

We carried out the analyses separately according to the: *transfer dimensions, achieved learning scale, intent to transfer scale,* and *deferred transfer scale.*

We performed an *Exploratory Factor Analysis* [EFA]. The use of this analysis rather than a Confirmatory Factor Analysis is justified by the fact that the measures are new; since, this was the first time these variables were created, we needed to carry out a construct validation of the measures, ensuring that the theoretical model we had initially formulated was congruent with the variables we used. According to Hancock and Mueller (2010), an EFA is used for situations in which the variables to be analyzed have either been developed very recently or have not previously been analyzed together, or when the theoretical foundations of the factor analysis model are weak.

In order to develop it, we used the Maximum Likelihood method—being more robust—as well as the Promax method for an oblique factor rotation—since the constructs are related—and the combination of the KMO test with eigenvalues greater than one and a Cattell screeplot as the criteria to determine the number of factors (Conway and Huffcut 2003; Fabrigar et al. 1999).

We used Cronbach's alpha to assess the internal consistency of the different scales or factors after we identified their factorial structure. Finally, we carried out multiple regression tests on the *transfer dimensions, learning achieved scale*, and *intent to transfer scale* variables as being independent from the *deferred transfer scale*, which acts as a dependent variable. We thus tested the predictive capacity of the model's three independent variables.

In order to carry out the different statistical analyses, we used the SPSS v.17 Inc. statistics program.

8.3 Results

8.3.1 Validity and Reliability of the Transfer Dimensions

We explored all of the items in the transfer dimensions using the Maximum Likelihood method. We began the analysis with an orthogonal Varimax factor rotation, an eigenvalue greater than one, and setting the minimum value for coefficients to .30. Bartlett's sphericity test and the KMO suggested that the model was adequate and that it could be analyzed (KMO = 0.940 and Bartlett's significance $p < 0.05$). The screeplot graph revealed an appropriate amount of factors to obtain a cleaner matrix, setting the objective between 7 and 9 factors.

With the first analysis, the results we obtained displayed a confused distribution of item coefficients in the factors. We, therefore, carried out the appropriate analyses, alternating the rotation type (Varimax or Promax) with an eigenvalue greater than one. The only item that we had to remove, due to its low correlation coefficient (< 0.30) with the emerging factors, was item 4: "Thanks to the training, I can develop my professional career."

The KMO test results (0.939) and Bartlett's sphericity test results ($p < 0.05$) in the transfer dimensions' EFA revealed that we could carry on with the model's analysis. One more time, the screeplot graph pointed to a number between 7 and 9. We carried out the analysis again, with a Promax rotation and without setting factors.

Finally, a model of 8 factors emerged, which explained the 50.73 % variance. In Table 8.3, we show the composition of the emerged factors.

The first factor, consisting of eight items, included the "satisfaction with training" variable and three items of the "transfer design" variable that specifically referred to the trainer's role. Therefore, the factor was labeled *satisfaction with training*, which had to do with the trainee's reaction to training and to the trainer's role.

Factor 2 consisted of eight items; six of them belonged to "accountability" and two to "manager's support for transfer." Due to the formulation of these two items, and based on theoretical criteria, we decided to keep the name *accountability* for this factor, which refers to the degree to which the organization, specifically the employee's manager, requires evidence of the training transfer's results.

Factor 3, consisting of seven items, included *orientation towards job requirements* from which it took its name, and three "transfer design" items, which referred to the similarity with or closeness to the workplace to materials, tasks, and examples of training. Therefore, this factor can be defined as the link between training and the job's specific needs.

Factor 4 consisted of ten items, which pertained to the variables "lack of application" (four items), "locus of control" (three items), "self-efficacy" (two items), and "peers' support or transfer." It was labeled *environment opportunities for application*, since it referred to those elements perceived as external to the participant—e.g., resources for applying learning, workload, difficult and unexpected events, third-party interventions—which may influence the capacity to transfer the acquired skills during training to the workplace.

Table 8.3 Composition of transfer factors

Items	[a]Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
i6	0.882							
i1	0.873							
i25	0.871							
i13	0.818							
i20	0.776							
i14	0.596							
i49	0.522							
i7	0.368							
i58		0.818						
i50		0.806						
i33		0.690						
i43		0.656						
i45		0.534						0.365
i52		0.519						0.329
i17		0.327						
i39			0.872					
i30			0.844					
i35			0.790					
i36			0.678					
i12			0.644					
i57			0.606					
i22			0.356					
i21				0.633				
i31				0.595				
i41				0.574				
i19				0.573				
i46				0.549				
i15				0.540				
i32				0.528				
i59				0.487				
i47				0.458				
i3				0.438				
i29					0.875			
i28					0.753			
i53					0.747			
i44					0.486			
i2					0.427			
i56						0.826		
i37						0.808		
i16						0.740		
i27						0.360		
i8						0.338		
i26							0.790	
i5							0.698	
i54							0.657	

Table 8.3 (continued)

Items	[a]Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
i42							0.654	
i23								0.895
i10								0.761

[a] 1: Satisfaction with training, 2: accountability, 3: orientation towards job requirements, 4: environment opportunities for application, 5: motivation for transfer, 6: internal locus of control; 7: peers' support for transfer; 8: manager's support for transfer

Table 8.4 Descriptive and reliability analysis of the emerged factors

Items	[a]Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Mean	4.12	2.60	3.44	3.50	4.27	3.59	3.32	3.42
SD[b]	.66	.77	.74	.64	.49	.77	.71	.92
% VE[c]	22.92%	9.16%	6.27%	3.62%	2.90%	2.24%	1.77%	1.85%
α[d]	.901	.862	.880	.800	.807	.815	.815	.891
N[e]	1,526	1,525	1,526	1,525	1,526	1,526	1,525	1,526

[a] 1: Satisfaction with training, 2: accountability, 3: orientation towards job requirements, 4: environment opportunities for application, 5: motivation for transfer, 6: internal locus of control; 7: peers' support for transfer, 8: manager's support for transfer
[b] Standard deviation
[c] Variance explained from extraction sums of squared loadings
[d] Cronbach's alpha value, based on standardized items
[e] Sample

Factor 5, called *motivation for transfer*, included four items of the corresponding variable and one item of "self-efficacy." This factor refers to the wish, effort, and personal involvement of the trainee in applying learning in the workplace.

Factor 6 consisted of five items of "locus of control" and "self-efficacy." It was called *internal locus of control*, since it defined a tendency of the trainee to perceive his/her own control of transfer and the capacity for converting the training results into concrete benefits.

Finally, factors 7 and 8 consisted of four and three items respectively. They were composed of *peers' support for transfer* and *manager's support for transfer* and they kept their same denominations.

Table 8.4 presents explained variance percentage, descriptive analysis, and Cronbach's alpha coefficient for each factor in the model. Analysis of the reliability of the factors was conducted by calculating a Cronbach's alpha, whose value tells us the degree of internal consistency of the instrument; we also calculated this for all the factors as a whole ($n = 1{,}493$), obtaining a value of 0.927.

We did not need to delete any items from the factors. Furthermore, we can state that all resulting coefficients were considered satisfactory, following the criteria of Nunnally (1978), i.e., the analyzed scales are reliable by themselves and have good internal consistency.

Table 8.5 Composition of the achieved learning factor

Items	Achieved learning factor
i51	0.766
i40	0.756
i34	0.755
i11	0.705
i24	0.556
Mean	4.11
SD[a]	0.62
N[b]	1,518
α[c]	0.835

[a] Standard deviation
[b] Sample
[c] Cronbach's alpha value, based on standardized items

8.3.2 Validity and Reliability of the "Achieved Learning" Scale

We carried out an EFA in the *achieved learning* scale, whose goal was to assess the level of learning the trainee had achieved through the training process. We used the Maximum Likelihood method, oblique (Promax) rotation, and Eigenvalues greater than one. We obtained one factor model that explained the 50.72% variance (Bartlett $p < 0.05$ and KMO = 0.818).

We obtained a satisfactory (0.835) Cronbach's alpha coefficient from the reliability test. The factor's composition is displayed in Table 8.5, along with the main statistics.

8.3.3 Validity and Reliability of the "Intent to Transfer" Scale

We also carried out an EFA on the *intent to transfer* scale (the trainee's degree of predisposition to apply what they have learned in their workplace training); we used the Maximum Likelihood method, an oblique Promax rotation and eigenvalues greater than one. Bartlett's significance value ($p < 0.05$) and the KMO (0.792) indicated that the model could be analyzed. This finally explained the 56.65% variance and was made up of a single factor whose composition is displayed in Table 8.6, with an alpha coefficient that shows a good internal consistency (0.839).

8.3.4 Validity and Reliability of the "Deferred Transfer" Scale

Finally, we analyzed the model that emerged from the EFA in the *deferred transfer* scale, which we define as the trainees' transfer level what they have learned in their jobs. We used the Maximum Likelihood method, oblique Promax rotation, and we did not set factors. After checking the Bartlett's significance ($p < 0.05$) and KMO (0.856) values, we found a single factor model that contained the five items

Table 8.6 Composition of the intent to transfer factor

Items	Intent to transfer factor
i48	0.793
i9	0.751
i55	0.738
i18	0.727
Mean	4.11
SD[a]	0.62
N[b]	1,521
α[c]	0.839

[a] Standard deviation
[b] Sample
[c] Cronbach's alpha value, based on standardized items

Table 8.7 Composition of the deferred transfer factor

Items	Deferred transfer factor
i3	0.845
i5	0.813
i1	0.784
i4	0.778
i2	0.756
Mean	3.42
SD[a]	0.72
N[b]	1,148
α[c]	0.894

[a] Standard deviation
[b] Sample
[c] Cronbach's alpha value, based on standardized items

introduced in the analysis, which explained the 63.31 % variance. The alpha value (0.894) points to a good reliability (see Table 8.7).

8.3.5 Predictive Power of the FET Model

We used regression to check the predictive power of the transfer factors and the *achieved learning* and *intent to transfer* on the transfer of training (goal 2). Before carrying out any statistical regression tests, we verified that none of the assumptions of the regression were infringed.

First, we performed a multiple regression of all *transfer factors* towards the deferred transfer. A model emerged which explained 32.9 % of the variance, but we found that three factors were not significant: *motivation to transfer*, *peer's support*, and *manager's support*. Excluding these factors, we obtained a model with an adjusted R^2 of 0.328, as shown in Table 8.8. This implies that the developed model can explain almost 33 % of the variance of the transfer with five transfer factors. This percentage can be considered appropriate in social sciences; in the absence of similar studies in our context, it is assumed that the R^2 obtained indicates a large effect, following the advice of Cohen (1988).

Table 8.8 Multiple regressions towards deferred transfer

Independent variables	B[a]	SE B[b]	ß[c]
(Constant)	0.642	0.145	
Satisfaction with training	0.169	0.031	0.156**
Accountability	0.082	0.026	0.084**
Orientation towards job requirements	0.315	0.031	0.329**
Environment opportunities	0.099	0.030	0.086**
Internal locus of control	0.121	0.028	0.131**

[a] Unstandardized coefficient
[b] Standard error
[c] Standardized coefficient
*$p<0.05$; **$p<0.01$

Secondly, we carried out the simple regression test of the *achieved learning and intent to transfer* towards the *deferred transfer*, using the latter as a dependent variable.

The results of both regressions show that *achieved learning* predicts 13.5% of transfer (ß=0.369, $p<0.01$); whereas *intent to transfer* predicts 15.9% of transfer (ß=0.399, $p<0.01$). In this case, results show that *intent to transfer* predicts transfer 2.4% more than *achieved learning*.

In order to test hypothesis 4, we obtained the general model presented below by integrating the models and the results of simple regressions. In Fig. 8.2, we did not focus on dimensions, being theoretical groupings. Rather, we focused on the factors that emerged empirically.

Figure 8.2 indicates that the greater R^2 is obtained by transfer factors as a whole, revealing a greater predictive capacity on transfer compared to *achieved learning* or *intent to transfer*. It is observed that the factor that has a higher coefficient, and therefore a greater weight, is the *orientation towards job requirements* factor. However, due to the fact that we performed a multiple regression with five transfer factors, *orientation towards job requirements* has sense if we take into account the others transfer factors; it means, we need to keep in mind that the *orientation towards job requirements* has the greatest weight because it is related to the other four transfer factors: *satisfaction with training, accountability, environment opportunities for the application,* and *internal locus of control*.

8.4 Discussion

The chief goal of this study was to test the theoretical model for factors in transfer of training, based on extant scientific literature and based on three dimensions: trainee, training, and transfer. The results presented throughout this paper show that our final model has construct validity, and that the instrument we created and refined allows us to reliably assess factors in transfer.

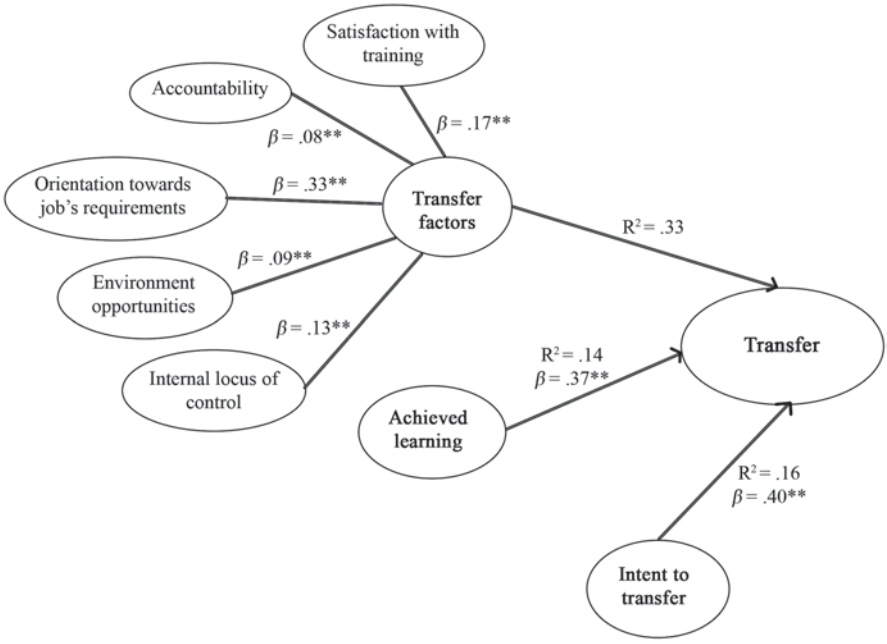

Fig. 8.2 The FET empirical model

Nevertheless, the grouping of factors and the relations they maintain with variables in the model show some contradictions with the hypotheses we formulated. It is emphasized that all variables in the questionnaire were reflected in the model, although two of them were distributed on factors different than expected. The loss of the "self-efficacy" variable and the absorption of the "transfer design" construct by a part of two factors confirmed results already obtained in previous studies (Pineda and Quesada 2013).

As we have shown, "transfer design" did not emerge as an autonomous factor from the exploratory factor analysis. Rather, the items that composed this variable were distributed into the *satisfaction with training* and *orientation towards job requirements* factors. One of the possible explanations for this phenomenon might stem from the difficulty for trainees to identify the more pedagogical elements of training; this difficulty was already highlighted in the instrument's field validation phase. Another explanation could be that the variable was divided into two aspects of training design, separated from the trainee's perspective: on one hand, that which is perceived more directly as tasks specifically associated with the trainer (guidelines, availability to coach, and guide trainees in the application of knowledge), and, on the other hand, the more visible aspects of the training action, related to the con-

tents and activities (exercises, examples, materials, and closeness to the trainee's job situation). The first aspect was related to *satisfaction with the training* and trainer, whereas the second was grouped with *orientation towards job requirements*. In order to gain a more detailed understanding of why the "training design" variable did not emerge as a factor, it would be interesting to study the specific role of training design in transfer from another, perhaps qualitative methodological point of view.

Likewise, the final structure of the factors lost self-efficacy, due to the fact that it did not emerge in the factor analysis either. The items that made up this variable were spread in the *environment opportunities for the application* (the perceived personal capacity to apply training, due to the difficulties in the job environment); *motivation to transfer*; and *internal locus of control*. In this case, it would also be interesting to explore this variable more in depth, perhaps by revising the items it is made up of and reformulating some of them. We propose following the model by Bandura (1977), differentiating efficacy expectations and outcome expectations within self-efficacy, due to the fact that the trainee's perception of the work environment may impact these two dimensions differently.

The second goal of this study, to verify the variables' predictive level on transfer of training, was partially achieved. Even though not all of the theoretical variables we formulated could significantly predict transfer of training (H1), the model made up from the *satisfaction with training*, *accountability*, *orientation towards job requirements*, *environment opportunities for the application*, and *internal locus of control* factors did predict transfer significantly. The factors that turned out not to have a significant relation with transfer were *peers' support, manager's support*, and *motivation to transfer*. This last factor should be studied in more detail in order to learn why it did not emerge as a statistically significant factor in spite of its theoretical basis. In any case, we should point out that there is still some discrepancy in the scientific literature on the role of motivation in transfer of learning, and that empirical evidence so far is unclear, as suggested by some meta-analyses (Gegenfurtner et al. 2009; Gegenfurtner 2011). The concept of motivation to transfer might possibly need to be defined more accurately and set into a more robust structural framework.

To answer our third and last goal, results have shown that *achieved learning* and *intent to transfer* also predict transfer of training significantly (H2 and H3). However, the transfer factor model has turned out to have more predictive capacity for transfer than *achieved learning* and *intent to transfer*, confirming hypothesis 4 of this paper. Therefore, these scales could be excluded from future applications of the FET model, in order to make the survey smoother without any loss in its capacity for analysis.

The FET instrument now presents several possibilities for development to further our knowledge of factors in transfer of training. In order to explore this tool's diagnostic and predictive capacity in depth, we are currently carrying out another application of the instrument to perform a Confirmatory Factor Analysis (Pineda et al. 2013) and, with it, to apply Structural Equation Modeling with a strongly validated model. This will, furthermore, allow us to investigate the possible action of some factors as mediating variables, as it might be the case with motivation, considering its lack of statistical significance on transfer. Likewise, since the FET

model has been developed in the context of Spain, it will be interesting to test its generalization to other European contexts, due to their cultural similarity and the closeness of their working environments.

We would like to use the FET model and future studies to further the creation of an alternative, reliable, valid measure of transfer in training that is viable and accessible to all organizations. Our aim is to provide a streamlined and simple instrument that can be used by organizations to indirectly rate transfer of training, thus avoiding the difficulties involved in direct rating. These technical, economic, and ethical difficulties prevent many professionals in the field of training from evaluating results of training, in order to make sound, well-founded decisions. We hope that the FET model will help them for this purpose.

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