

PROFESSIONAL TRAINING EFFICIENCY: WORKPLACE INFLUENCE

FACTORS FOR THE TRANSFERENCE OF THE TRAINING

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1. INTRODUCTION

The markets globalization, the new ways of work organization, the changes of demographic characteristics of active workforce and the literacy problems have lead to new demands, not only on individuals but also in organizations as a way to keep the their competitive advantage. Professional training has an increasingly important role as a way for workers to reach the level of proficiency needed to satisfy all those demands by achieving the necessary knowledge to perform more complex jobs. Training has a double goal in contributing to both personal and professional development and, by this way, to improve their organizational performance (Velada & Caetano, 2007). The acknowledgement of the strategic importance of professional training has contributed for a heavy financial investment and effort done by the organizations to trains their workers. This is way organizations spend more and more time and effort in training activities as a way ease the training activities and competences transference related with jobs (cfr. Cascio, 2000; Noe, Hollenbeck; Gerhart & Wright, 2006).

2. INVESTIGATION PROBLEM, GOAL AND DESIGN

The great financial investment in years past has stressed the need to demonstrate that training has effectively contributed for the development of professional competences of the individuals and, therefore, to the organizations also (Salas & Cannon-Bowers, 2001). By doing large investments in training, organizations wait earnings from their employees in terms of performance, quality and productivity. Consequently it is more need to show some evidence that the investments that are being made in training are good (Cascio, 2000; Dowling & Welch, 2005), and is even more relevant that organizations are able to show that training is leading to a better performance and outputs. The learning that is reached in training is minor if it is not transferred to professional performance (Yamhill & McLean, 2001). To make this happen it is necessary that workers apply in their jobs what they have learned in training (Salas & Cannon-Bowers, 2001). The amount of what was transferred from training to their job, express the level of change the training made in their long term behaviors.

Given the importance of this transference to evaluate the training success, several studies have been made to appraise the factors that have influence in training transference (e.g. Bates, Holton, Seyler & Carvalho, 2000; Bates, Kauffeld, Holton, 2007; Brown, 2005, and all)

The empiric studies we've read, show lack of vision concerning some of the training transference predictors related with training conception, trainees individual characteristics and work environment. Some authors (e.g., Kavanagh, 1998, entre outros) report the existence of important lacks in the empiric studies on training transference.

In this way and attending the three dimensions that have influence in the training transference according to Holton (1996, 2005) – training conception, trainees individual characteristics and work environment – this study, through empiric analysis, wants to contribute to a better knowledge of Training Transference and how certain training conception, trainees individual characteristics and work environment related variables have influence in the training transference to the real work context.

We want to theoretically justify the variables that compose the following investigation drawing (Image 1) and also empirically test few hypotheses:

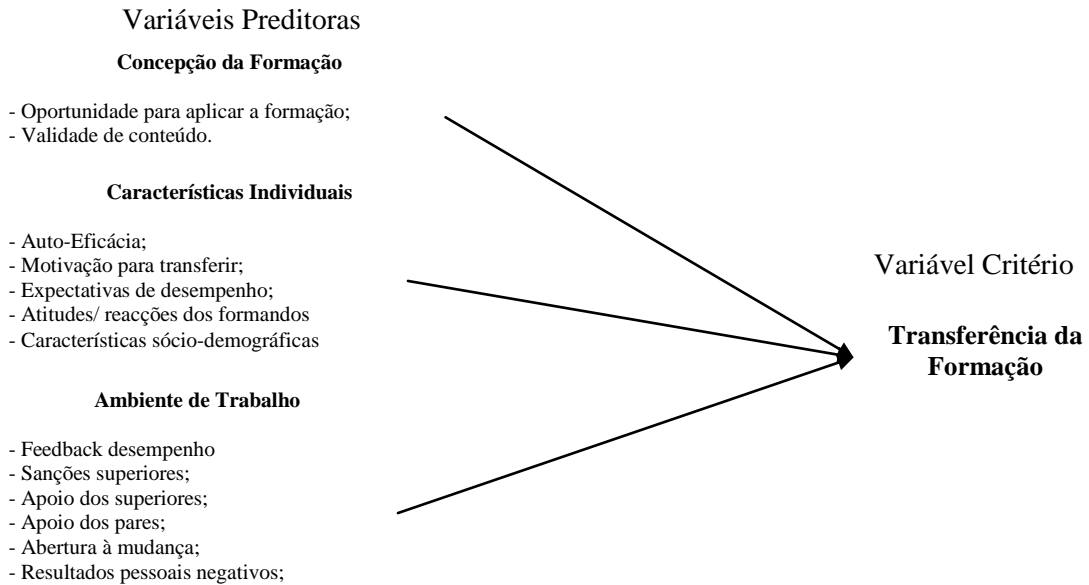


Figura 1. Esboço de investigação em estudo.

With this model we want to test the effect made by the training prior variables: Training Design – Opportunity to apply the content and content validity – Individual Characteristics – Self-efficiency, Motivation for Transference, Performance Expectations, Trainees Affective Reactions, Social and Demographic Characteristics – and Work Environment – Performance Feedback, Chiefs Sanctions, Chiefs Support, Openness to Change and Negative Personal Results – on the Training Formation variable criteria.

Influences from Training Design

Accordingly with the writings there are several Training Design related factors that have influence on the Training Transference. The Training Applying Opportunities are one of the Training Transference significant factors especially relevant (Ford, Quinones, Segó & Sorra, 1992),

De acordo com a literatura existem diversos factores relacionados com a Concepção da Formação influenciadores da Transferência da Formação. As Oportunidades para Aplicar a Formação constituem um dos factores particularmente relevantes na Transferência da Formação (Ford, Quinones, Sego & Sorra, 1992)

that have been neglected by the authors who study the Professional Training, because many studies believe that all trainees have the same opportunities to apply their training at work.

que tem sido descurado na literatura empírica que se debruça sobre Formação Profissional, uma vez que, muitos estudos neste domínio têm partido da crença de que todos os formandos encontram semelhantes oportunidades de aplicar a formação no trabalho.

The Opportunities to Apply the Training express or not, the existence of means and relevant tasks in the work place which allow the application of training (Holton & Baldwin, 2000),

To attempt testing what we believe, the following hypothesis were made:

Hypothesis 1: The Opportunities to Apply the Training are positively and significantly linked to Training Transference.

Despite the some authors' beliefs about the Content Validity importance in the Training Transference (e.g., Baldwin & Ford, 1988; Garavaglia, 1993), few have shown the relation between these two variables. Content Validity describe the judgment trainees do about

Validade de Conteúdo descreve o julgamento que os formandos fazem de que o conteúdo da formação reflecte os requisitos da função normalmente correlacionados com os conhecimentos e competências desenvolvidas na formação, bem como meios, equipamentos e auxiliares que sejam semelhantes aos utilizados e necessários no desempenho das funções. Desta forma, elaborou-se a seguinte hipótese:

Hypothesis 1: The trainee's perception about Content Validity is positive and significantly related with the Training Transference.

Personal Characteristics Influence in the Training transference

Besides Training Conception there are several Trainees' Individual Characteristics which can also influence the Training Transference process. The Performance Self-Efficiency is one of the more referred individual characteristics as being highly related with Training Transference (e.g., Colquitt, LePine & Noe, 2000; Ford *et al.*, 1998; Holladay & Quinones, 2003), indicating that trainees with higher levels of Self-efficiency are more willing to do the Training Transference to their workplace. The Performance Self-efficiency is the individual common belief that he can change his performance at his own discretion (Holton *et al.*, 2000). By this way when a trainee feels confident in his performance ability more easily will apply the training in his workplace. This leads to the following hypothesis

Hypothesis 3: The Performance Self-Efficiency is positive and significantly related with the Training Transference

Several essays have analyse the relation between the Trainees' Reactions and the Training Transference (e.g., Alliger, Tannenbaum, Bennett, Traver & Shotland, 1997; Faerman & Ban, 1993; Mathieu, Tannenbaum & Salas (1992); Ruona, Leimbach, Holton, & Bates, 2002). The trainees' reactions were initially defined as the emotional trainees' opinions about several training features, as the content, equipment and trainer (affective reactions) (Kirkpatrick, 1959).

The main writers (e.g., Ruona *et al.*, 2002) suggests, despite the reactions measures aren't often used in the organizational practice, they can be important trainees' capacity and motivation predictors.

By this way we hope that trainees who positively react to the training do the transference of the training content. Having this in mind, the following hypothesis was made:

Hypothesis 4: The Affective Reactions toward the trainer and its training action are significantly related with the Transference of the Formation;

Accordingly to Hoton (2006), the Performance Expectations

Segundo Holton (2006), as Expectativas de Desempenho consistem no sentimento intrínseco do indivíduo de que o esforço empreendido para a transferência das aprendizagens provoca alterações no desempenho das funções. Os indivíduos acreditam que utilizar competências e conhecimentos aprendidos na formação, melhora o seu desempenho e acreditam que o esforço de transferência afecta a sua produtividade e eficácia. Neste sentido, formulou-se a hipótese:

Hypothesis 5: The Performance Expectations are positively and significantly related with the Transference of the Training;

The Motivation for the transference express the trainees' desires to apply in they job context, what they have learned in the training (Noe, 1986). The learning of new ideas, techniques or behaviors during the training is a necessary but not a sufficient requirement to do this transference. Above all its imperative that the trainees want to transfer what they have learned (Yamhill & McLean, 2001). Having this in mind the following hypothesis was done:

Hypothesis 6: The Transfer Motivation is positively and significantly related with the Transference of the Training;

Some authors thought the was positively and significantly linked to the trainees' educational level, because this variable can be used as marker of their previous experience, learning motivation and mental ability (the last is strongly related with learning) (*cf.*, Tannenbaum, Mathieu, Salas & Cannon-Bowers, 1991). Several studies (*e.g.*, Gist, Rosen & Schwoerer, 1988; Martocchio & Webster, 1992) endorse the the negative relation between age and

learning. On the other hand, authors never did any prediction about the Seniority influence in training, because is not yet clear if seniority is beneficial for new content acquisition. Nevertheless the following hypothesis can be tested:

Hypothesis 7: The Social Demographic variables as scholary, Seniority (in a positive way) and Age (in a negative way) are significantly related with the Transference of the Training.

The workplace influence in the Transference of the Training

The influence of the workplace environment related variables in the transference of the training, have been less explored then the two other determinants: training conception and individual characteristics (*cfr.*, Alvarez, Salas, & Garofano, 2004). However some studies have shown the importance of the environmental factors as Performance Feedback, Peers Support, Supervisor Support, Sanctions (on the contrary), Openness to Change, and others, in the Transference of the Training process (*cfr.* Kavanagh & Brink, 2002, Tracey & Tews, 2005, and others). The Performance Feedback is one of the factors that authors have started to suggest (Hawley, 2005; Brinkerhoff & Montesino, 1995) that helps keeping, improving or changing the learned behaviors. The Performance Feedback is related to the return of the information done by members of the organization about the way the employee is doing his job (Holton *et al.*, 2000). Is a way to help workers to appoint if their doing the right behaviors to reach the proposed goals. This was the starting point for following hypothesis:

Hypothesis 8: The Feedback about the Trainees' performance after the training is positively and significantly related with the Transference of the Training.

The peers and superiors support describes the level of their support and encouragement to use the training in the workplace (Holton *et al.*, 2000). The dominant writings suggest that the trainees do better the transference of the training when they realize

that their superiors and peers its respective application (e.g., Bates, Holton, Seyler & Carvalho, 2000; Colquitt *et al.*, 2000; Tracey & Tews, 2005, and others). The following hypothesis was made:

Hypothesis 9: The Superiors and Peers support is positively and significantly related with the Transference of the Training.

On the other hand the Sanctions of the Superiors describe the level of how the individual perceives the negative actions and reactions of their management, as a result of applying the training in the workplace. This kind of behavior is now being negatively related with the Transference of the Training, in a way that the bigger is the opposition shown by the management for the Transference of the Training, the lesser are the trainees' chances to use the training in the workplace (Bates *et al.*, 2000; Fleishman, 1955). Having this in mind, the following hypothesis was tested:

Hypothesis 10: The Sanctions of the Superiors are negatively and significantly related with the Transference of the Training.

The employees see if there was support from the superiors or not, and they can themselves identify personal positive results if applying what they have learned in the training (e.g. productivity increase, personal satisfaction, respect from his colleagues, salary increase or rewards, carrier prospects, etc) or personal negative results (e.g. reprimands. sanctions, penalties, etc.) (Holton, 2006). Accordingly to Wexley and Latham (2002), the higher is knowledge that they will get negative results if they don't apply what they have learned in the training, bigger is chance of transference of the training. Having this in mind the following hypothesis was made:

Hypothesis 11: The Personal Negative Results are negatively and significantly related with the Transference of the Formation;

The resistance/openness to change is another important contextual variable and also included by Holton (2006) in his model. It is expressed by a set of behaviors from the context participants,

which consists in the use of competences resistance or encouragement which can be positive for both the individual and the organization. The resistance/openness to change which implies the inhibition/acceptance to adopt new behaviors will have influence in the transference of the training (Ford *et al.*, 1992). The following hypothesis was tested:

Hypothesis 11: The Opening to change is positively and significantly related with the Transference of the Training

3. METHOD

3.1. Sample Characterization

The present study, with a longitudinal nature, was made with the collaboration of 28 gardening workers belonging to the same hotel company, which were the participants in three training sessions as following: Watering and Draining Systems; Lawn Maintenance in Gardens and Mower Machines Maintenance. Males were the majority (96%), which can only be explained by this profession history, and with a wide age range (older than 46 years old: 39,3%, between 25 and 34 years old: 35,7% and younger than 25 years old: 10.7%). Mainly they are single (49%) or married (29%) with a level of literacy between the 4th (36%) and the 9th grade (39%). None of the participants have a secondary or university course. The organization seniority “above 10 years” is 31%, between 3 and 4 years is 18% and between 5 and 6 years is 18%. The majority already had one or two training courses. Only 21% had two or more training courses and 4% never attended one. 96% attended the training by their organization appointment and the other 4% by their personal wish.

3.2. Data collection tools description

The adopted instruments for this investigation were the following: Participants Satisfaction Questionnaire about the Trainer Performance; Participants Satisfaction Questionnaire about the

Training Session; Participants Evaluation Questionnaire about Transference of the Formation Learning Transfer System Inventory (LTSI) and a questionnaire for evaluation from their immediate supervisor if the transference of the training was done

- Participants Satisfaction Questionnaire about the Training Session

To study the trainees' satisfaction about their training sessions, an IEFPP (Professional Training and Employment Institute) instrument of Training Actions Evaluation was used. On expectations, opinions and trainees' hot reactions about the training, the questionnaire have the following fields: (1) Action Content; (2) Training Venue; (3) Equipment; (4) Supporting documents; (5) Raw-materials; (6) Training Responsible Support; (7) Training Duration; (8) Expectations and Results; (9) Global Training Evaluation, with a open field for positive and negative training aspects. In each domain the answers were made over a four level Likert Scale: VL – Very Little; L – Little; E – Enough; V - Very

- Participants Satisfaction Questionnaire about the Trainer Performance

Like the first questionnaire, this one is also used by the IEFPP. Reports the trainees' opinion about their trainer performance over the training session and have the following fields: (1) Subject expertise; (2) Suitable Adopted Methods; (3) Language Clarity; (4) Commitment; (5) Relationship with the Trainees; (6) Assiduity; (7) Punctuality. A 4 points scale was used in every field as follows: 1 – Very little; 2 – Little; 3 – Enough; 4 - Very

- Learning Transfer System Inventory (LTSI)

The LTSI was developed by Holton (2000), validated for the Portuguese population by Velada (2007) and will be applied to evaluate the learning's transference capacity done during the real context work training.

Based over an 5 points Likert scale (1 – Totally disagree; 2 – Disagree; 3 – Nor agree or disagree; 4 – Agree; 5 – Totally agree) which can be rearranged in the more generic categories already mentioned in the literature revision: trainees characteristics, training design, willing to learn, motivation for transference e context characteristics.

Dimensões LTSI
Prontidão para aprender
Capacidade pessoal para transferir
Apoio pares
Apoio superiores
Design da formação
Motivação para transferir
Resultados pessoais negativos
Oportunidade para usar conteúdo da formação
Validade conteúdo
Resultados pessoais positivos
Sanções superiores
Desempenho – expectativas de resultados
Abertura à mudança
Auto-eficácia
Transferência – expectativas de desempenho
Desempenho/coaching

Table 1. The 16 dimensions which compose the *Learning Transfer System Inventory – LTSI* (Holton et al., 2000)

- Supervisors questionnaires

To complement the information gathered among the trainees, a 18 questions LTSI based questionnaire with a 5 points Likert scale was used (1 – totally disagree; 2 – Disagree; 3 – Nor agree or disagree; 4 – Agree; 5 – Totally agree), to evaluate the supervisor opinion about their subordinates' transference of the training for the real context workplace. In this sense some questions about his performance in terms of support and trainee's sanction

were made. Three more questions were added related with the change of behavior of the trainees: “My subordinate changed his way of working since he came back from training”

3.3 Collecting Data Procedures

Because it was a longitudinal study, the designing of present investigation was made in three moments:

In the first evaluation moment, warm reactions from the trainees about the training were evaluated. To do so, at the end of the training two Satisfaction questionnaires were applied: one to evaluate the training; other the trainer; At a second moment, roughly a month after the end of the training, the Holton's (2000) self-answer inventory LTSI was applied, to evaluate the transference factors from training to real work context done by trainees.

Lastly, also a month after the training, questionnaire was applied to the supervisors.

3.4. Variables Operationalization

In this study the variables are operationalized as follows:

The Training Design variable, is operationalized via the following LTSI indicators: **content validity** – “The cases and situation practiced during the training were very similar to the ones I face at work” ($\alpha=0,73$); and the opportunity to apply the training – “The situations I'll face at work will allow me to apply what I have learned at training” ($\alpha=,73$).

The individual characteristics, are operationalized via the following LTSI indicators: **transference motivation** – “After the training I couldn't wait to go back to work and to apply what I've learned” ($\alpha=,65$); **self-effectiveness** – “I'm confident about my capacity to use at work what I've learned” ($\alpha=0,71$); **performance and results expectations** – “Every time I put some effort to improve my performance I am rewarded” ($\alpha=,70$); **transference effort and performance expectations** – “The

bigger the effort to learn, better is my performance at work" ($\alpha=0,78$). The **affective reactions related with training and trainers** are operationalized via the trainees' satisfaction questionnaires indicators about training ($\alpha=0,71$) and trainer ($\alpha=0,72$).

The evaluation of the context characteristics are made by the following LTSI indicators: **peers support** – my colleagues are receptive when I try to apply at work new techniques or skills" ($\alpha=0,71$); **managers support** – "Goals settled by my manager uphold to apply at work what I have learned in training" ($\alpha=0,62$); **performance and coaching feedback** – "When my performance is not what it should be, my co-workers help me to improved it" ($\alpha=0,69$); **personal negative results** – "If I don't apply what I have learned at training I will be admonished" ($\alpha=0,66$); **managers sanctions** - *Most likely this training will be criticized by my manager as soon I get back to work" ($\alpha=0,88$); **openness to change resistance** – "Experienced workers from my team laugh every time someone try to apply what they have learned at training" ($\alpha=0,61$).

Lastly, the transference of the training variable is operationalized through the changing behavior supervisors' questionnaires: "My subordinate applies different working techniques since he came back from training", "My subordinate changed his way of working since e came back from training" and "My subordinate changed his way of management his work since he came back from training" (*Cronbach's Alpha* = 0,81)

3.5. Analisis Procedure

Statistical Package for the Social Sciences (SPSS) v. 17.0 was used. To define the way dependent variables measures included in the hypothesized model influenced the transference of the training variable criteria, a Multiple Linear Regression analysis procedure was used

4.CONCLUSION, DISCUSSION AND RESULTS DISPLAY

Given the variables set in this study, we wanted to evaluate their role as determinants in the Transference of the Training. For that purpose the Transference of the Training variable was defined as the dependant variable and the constructs that are part of the Training Design, Individual Characteristics and Work Environment dimensions, as independent variables. The most important results for the hypothesis shown will be discussed.

In table 1, the results of multiple regression analysis are shown and the figures show their statistical significance.

When related with Individual Characteristics, the Training Design variables such as Self-Efficiency, Motivation for Transference, Performance Expectations, Trainer Affective Reactions, Training Affective Reactions, Age, Education and Workers Seniority, explain 95% of the Transference of the Training variability. The main contribution is given by Trainer Affective Reactions ($\beta= +0,51$, $p=0,00$), Age ($\beta=-0,57$, $p=0,02$), and Education ($\beta=-0,71$, $p=0,00$) dimensions.

In what the Work Environment is concerning, the Feedback about Performance, Managers Support, Peers Support, Openness to Change and Personal Negative Results explain 48% the Transference of the Training variability. The main contribution is given by the Managers Sanctions ($\beta=-0,71$, $p=0,01$), and Openness to Change ($\beta= 0,47$, $p=0,05$) variables.

The part of Transference of the Training index variability that is explained by each set of variables, appraised via R^2 , allows to see that of all studied variables, Education and Managers Sanctions are Transference of the Training main determinants.

The association patterns evaluation results among all studied variables (predictive and criteria) allow highlight the following:

Tabela 1: Resultados da Análise de Regressão Linear Múltipla.

Variáveis	Transferência da Formação					
	β	t	p	R^2	F	P
Concepção da Formação						
Oportunidade para usar conteúdo da formação	+0,29	+1,12	0,27	0,06	0,81	
Validade de conteúdo	-0,08	-0,31	0,76			
Características Individuais						
Auto-Eficácia	-0,36	-1,04	0,31	0,59	3,43	0,01
Motivação para transferir	+0,16	+0,82	0,42			
Expectativas de desempenho	+0,43	+1,03	0,32			
Reacções afectivas do formador	+0,51	+3,37	0,00			
Reacções afectivas acção	+0,06	+0,36	0,72			
Idade	-0,57	-2,56	0,02			
Escolaridade	-0,71	-3,48	0,00			
Antiguidade na Empresa	-0,11	-0,52	0,61			
Ambiente de Trabalho						
Feedback sobre desempenho	+0,03	+0,14	0,89	0,48	3,19	0,02
Sanções Superiores	- 0,71	-2,88	0,01			
Apoio dos Superiores	+0,19	+0,85	0,41			
Apoio dos Pares	+0,20	+1,22	0,24			
Abertura à Mudança	+0,47	+2,10	0,05			
Resultados Pessoais Negativos	-0,29r	-1,48	0,16			

The study results partly confirm Hypothesis #6 (H6): The Affective Reactions to Trainer and Training are positively and significantly related with the Transference of the Training ($r=0,42$, $p<0,05$), the same way the affective reaction to trainer are positively and significantly related with criteria variables. It suggests when the satisfaction to trainer increases, also increases the transference of the training. This hypothesis confirms the affective reactions influence in the transference of the training, and is also supported by other studies (Alliger *et al.*, 1997; Cheng & Ho, 1998; Mathieu *et al.*, 1992). However the Affective Reactions to Training didn't have a significant relation with the Transference of the Training ($r=-0,001$, $p=0,94$), reason why this hypothesis is only partly confirmed.

What hypothesis #7 (H7) is concerned: The social-demographic variables: Education, Seniority (in a positive sense) and Age (in a negative sense) are significantly related with the transference of the Training, only the Education variable have shown a significant co-relation ($r=-0,34$, $p<0,05$) and also shows the predictive effect of the Transference of the Training. This result also shows the Literacy as learning facilitator and his work environment extension.

Hypothesis #10: The Managers Sanctions are negatively and significantly related with the Transference of the Formation. This association is moderated ($r=-0,49$, $p<0,01$), pointing out that every time managers sanctions decreases, increases the transference of the training. And is supported by Bates *et al.* (2000) actual writings in the way that they endorse the bigger is management opposition, lesser is the chance for employees to use the training is their workplace. As a consequence of this work, we suggest the management not to oppose to their subordinates participation in training and subsequent application of what they have learned, and to be more involved in a possible change adopting specific behaviors to support the transference. For this reason is even more important for the managers to actively participate in this process in order to motivate and involve their employees to attend training sessions related with their jobs, as well encourage them to incorporate in their jobs what they have learn or to discuss the subjects thought in those trainings.

Hypothesis #11 (H11): The personal negative results are negatively and significantly related with the Transference of the Training, is a valid hypothesis because the correlations results point out to a significant and negative correlation between these variables, with a moderated force ($r=-0,46$, $p=0,05$). However the regression results don't show the personal results predictive effects in the Transference of the Training. These results are not alike with the ones obtained by Wexley e Latham (2002) who states "the more is the trainees' knowledge that they will have negative evaluations if they don't apply what they have learned in training, greater is the chance to do the Transference of the Training".

All together these results suggest if organizations want to increase the level of transference of the training, they should pay attention to some aspects related with the training, mainly the trainees' characteristics and organizational factors.

Although we didn't find a common association to all factors, namely the Training Design level, we advise organizations to increase the training and the transference of the competences related with employees' performance.

At individual level, the obtained results suggest some actions to be worked by organizations to help workers with the transference of the training to their workplace. For example, managers and training responsible should often monitor their employees' training satisfaction level and to appoint for new training sessions when necessary to reinforce their satisfaction level.

Even if the trainees have the appropriated personal characteristics for learning, such as high education, satisfaction with the training and trainer, the transference may not occur if the work environment where the transference is going to take place is not favorable. For that reason organizations should promote work environments that support the application of what workers learned at training. On other words, trainees should feel that they will be supported and not coerced for not applying what they learned at training or they will not be targets for negative reactions. A way of reaching this result is to create a work ambience in which workers understand the importance of

training for the organizational living and for trainees to become productive members of the organization (Baldwin & Ford, 1988; Tracey *et al.*, 2001).

This measurement is important for trainees and trainers, and for both human resources managers and general managers, showing the need to adequate the training actions to the needs, and to adopt straightforward measures for transference of the training for the workplace.

The results of this study have potential important implications for future investigation and practice. In general, the results show the empiric evidence of Baldwin and Ford's (1988) and Holton's (2005) theoretical models, suggesting that the transference of the training is influenced by trainees' characteristics and contextual factors. The transference of the training most contributing category is the individual trainees' characteristics. This study supports Baldwin e Ford's (1988) theory and empiric studies that states for training to be transferred for workplace, is necessary the training content to be hold back in time.

On the methodological point of view, the use of different tools allowed a better understanding of the way how the transference of the training is done and to detect a set of variables able to influence a training action.

Another contribution n came from the use of a valid instrument which allowed good metric qualities (the LTSI) with a practical use at training centers, and also at organizations who can collect valid data for evaluation of training efficiency in real work context.

. However, this investigation put forward some limitations which can be the starting point for further investigations, mainly because the sample had few participants which can produce some skewed data.

Another limitation could be seen by the enlargement to other variables of the studied model, for example pre-formative, that could have shown bigger results diversity and abundance.

Nowadays and specially in Portugal, the Transference of the Training is not a so well studied subject, and any new study will be welcomed by investigators and human resources professionals.

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5. BIBLIOGRAPHIC REFERENCES

- Brown, T. C. (2005). Effectiveness of distal and proximal goals as transfer-of-training interventions: A field experiment. *Human Resource Development Quarterly*, 16 (3), 369-387.
- Holton, E. F. III, Bates, R. A., & Ruona, W. E. A. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly*, 11 (4),333-360.
- Holton, E. F. III. (1996). The flawed four-level evaluation model. *Human Resource Quarterly*, 7, 5-21.
- Kavanagh, M. J. (1998). Transfer of training: A multi-stage model designed for practical use by organizations. In C. Scholz, & J. Zentes. *Strategisches Euro-Management* (pp. 301-321). Stuttgart: Schaffer-Poeschel.
- Kirkpatrick, D. (1959). Techniques for evaluating training programs. *Journal of ASTD*, 13(11), 3-9.
- Martocchio, J. J., & Webster, J. (1992). Effects of feedback and cognitive playfulness on performance in microcomputer software training. *Personnel Psychology*, 45, 553-578.
- Mathieu, J. E., Tannenbaum, S. I. & Salas, E. (1992). Influences of individual and situational characteristics on measures of training effectiveness. *Academy of Management Journal*,35, 828-847.
- Noe, R. A., Hollenbeck, J. R., Gerhart, B. & Wright, P. M. (2006). *Human resource management. Gaining a competitive advantage* (5^a ed.). New York: McGraw-Hill Irwin.
- Ruona, W. E. A., Leimbach, M., Holton, E. F. III, & Bates, R. (2002). The relationship between learner utility reactions and predicted learning transfer among trainees.*International Journal of Training and Development*, 6 (4), 218-228.

- Salas, E. & Cannon-Bowers, J. A. (2001). The science of training: A decade of progress. *Annual Review of Psychology*, 52, 471-499
- Tannenbaum, S. I., Mathieu, J. E.; Salas, E., & Cannon-Bowers, J. A. (1991). Meeting trainees' expectations: The influence of training fulfillment on the development of commitment, self-efficacy, and motivation. *Journal of Applied Psychology*, 76 (6), 759- 769.
- Tracey, J. B. & Tews, M. J. (2005). Construct validity of a general training climate scale. *Organizational Research Methods*, 8 (4), 353-374.
- Tracey, J. B., Hinkin, T. R., Tannenbaum, S. & Mathieu, J. E. (2001). The influence of individual characteristics and the work environment on varying levels of training outcomes. *Human Resource Development Quarterly*, 12 (1), 5-23.
- Velada, A. R. (2007). Avaliação da Eficácia da Formação Profissional: Factores que afectam a transferência *da formação para o local de trabalho*. Tese de Doutoramento em Psicologia Social e das Organizações, especialidade em Comportamento organizacional, ISCTE.
- Velada, R. & Caetano. (2007). Training Transfer: he mediating role of perception of learning. *Journal of European Industrial Training*, 31 (4), 283-296.
- Yamhill, S. & McLean, G. N. (2001). Theories supporting transfer of training. *Human Resource Development Quarterly*, 12 (2), 195-208.