

Effects of work environment on transfer of training: empirical evidence from Master of Business Administration programs in Vietnam

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Practical application of newly gained knowledge and skills, also referred to as transfer of training, is an issue of great concern in training issues generally and in Master of Business Administration (MBA) programs particularly. This empirical study examined the influence of the trainees' work environment on their transfer of training, taking into account the role of trainees' transfer strategies. The study was conducted on 167 trainees from eight MBA programs in Vietnam in 2007–2008. Path analysis and structural equation modeling were applied to examine the effects of potential factors on transfer of training. The results showed that work environment factors such as supervisory support, job autonomy and preferred support (support as needed by the trainee) were significantly associated with the training transfer. Additionally, trainee's use of transfer strategies mediated the work environment and training transfer relationship.

Introduction

A concern that training dollars are wasted because only some knowledge, skills and attitudes taught in training courses are actually transferred back to the workplace and put into use (e.g. Baldwin & Ford, 1988; Burke & Hutchins, 2007; Curry *et al.*, 1994) has

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been well documented. This problem, also referred to as transfer of training, has attracted attention from many researchers during the past decade.

It is generally agreed that the problem is related to training design, trainee characteristics and the work environment (Baldwin & Ford, 1988; Cheng & Hampson, 2008; Ford & Weissbein, 1997; Pugh & Bergin, 2006). Indeed, it has been shown that work environment factors are important for understanding the transfer process (e.g. Baldwin & Ford, 1988; Kirwan & Birchall, 2006; Rouiller & Goldstein, 1993; Tracey *et al.*, 1995). Nevertheless, work environment factors have been investigated less often than training design and trainee characteristics (Alvarez *et al.*, 2004; Baldwin & Ford, 1988; Holton *et al.*, 1997). Moreover, studies have shown contradictory findings about that. For example, some studies found that social support – an aspect of work environment – has an effect on transfer (e.g. Holton *et al.*, 2000; Olsen, 1998; Xiao, 1996). Other studies found nonsignificant relationships between a supportive environment and transfer of training (e.g. Rouiller & Goldstein, 1993; Tziner *et al.*, 1991; Van der Klink *et al.*, 2001). As a result, there is a dearth of empirical evidence of specific aspects of work environment influence on training transfer (Clarke, 2002). Therefore, a thorough study of training transfer from a work environment perspective might contribute to a better understanding of factors that affect it.

Additionally, Cheng and Hampson (2008, p. 335) suggest the need to explore the other essential but hidden variables related to the transfer process. In fact, learning in training does not automatically result in transfer. Trainees, therefore, should have intention to transfer. When re-entering the workplace after training, trainees have to cope with the dynamics of the workplace that might support or inhibit the use of learned knowledge and skills. Hence, it has been argued that, in order to apply successfully the acquired trained knowledge to the job, trainees need to use appropriate strategies to transfer learned skills and knowledge, i.e. a (training) transfer strategy (Burke & Baldwin, 1999). Research revealed that the use of transfer strategies is a crucial prerequisite for transfer (Burke, 1997; Ford & Weissbein, 1997; Machin & Fogarty, 2003). A number of studies suggested transfer strategies as the key mediators between influencing factors and transfer (e.g. Gollwitzer, 1999; Latham, 1997). Recent evidence has revealed the mediating role of transfer strategies in relation to transfer design and transfer (Pham *et al.*, 2011), and between trainees' motivation and transfer (Pham *et al.*, 2010). In these studies, the key players of transfer training strategy are seen as trainees, training providers and employers. For instance, trainees should actively plan to apply what they have learned; trainers should help trainees to formulate transfer strategies and be well prepared for transfer; and employers should facilitate trainees to transfer their training by informing them that transfer is valued by the organization, rewarding trainees for their training transfer, or by identifying organizational reasons behind the failure to transfer.

However, it is still unclear to what extent transfer strategies play a role in the relation between work environment factors and transfer. Therefore, in order to better understand the relation between the trainee's work environment and transfer, this study sought to examine the role of transfer strategies in the relationship between work environment and transfer. We hypothesize that work environment affects trainee's use of transfer strategy which, in turn, influences transfer.

Conceptual framework

Work environment factors influencing transfer

Generally, research on work environment factors distinguishes three levels of related work environmental factors: (a) *general* environmental factors; (b) factors *generally related* to training; and (c) factors *specifically related* to training (e.g. Baldwin & Ford, 1988; Richey, 1992). According to Richey, these factors are considerably related to each other, as general environmental factors influence factors generally related to training which, in turn, affect the factors specifically related to training. Nijman *et al.* (2006) further considered three separate components of the influence of the work environ-

ment on transfer: (a) *general* characteristics of the work environment; (b) work environment (or transfer climate) that have a *specific* and intentional role regarding transfer; and (c) supervisor support, meaning the supervisor's behavior to optimize transfer. It should be emphasized that Nijman *et al.* (2006) considered supervisor as a separate component of the work environment, whereas it is seen as one of the features of the transfer climate in other studies (Holton *et al.*, 1997, 2000; Rouiller & Goldstein, 1993).

In this study, *general* work environment is viewed as different from *specific* work environment factors (transfer climate) to enhance transfer. This is consistent with other studies such as Ford *et al.* (1992), Lim and Johnson (2002), and Russ-Eft (2002). Examples of the *general work environment* factors are job autonomy, level of freedom, independence and discretion to employees in planning and determining the procedures to their job (Robbins, 2001), budget restrictions and coordination within organizations, overlapping work assignment, lenience for mistakes, lack of technical assistance (Lim & Johnson, 2002). Examples of *specific work environment* factors (transfer climate) are opportunities to use training content, peer and supervisor support, supervisor sanctions, positive and negative personal outcomes, and resistance to change (Holton *et al.*, 2000; Rouiller & Goldstein, 1993).

General work environment

One general work environment variable with some empirical support is job autonomy, found to influence transfer (e.g. Robbins, 2001) such that the more autonomous the work environment, the more effectively transfer occurs (Axtell & Maitlis, 1997).

Specific work environment (transfer climate)

Burke and Baldwin (1999) mention that characteristics of the work environment are factors that may facilitate or inhibit the use of trained skills, the so-called transfer climate. According to Nijman *et al.* (2006), the difference between general work environment and specific work environment (transfer climate) is that the latter is 'specifically and intentionally directed at the transfer of training' (p. 535). Prior studies have indicated the relevance of different components of the specific work environment factors such as supervisor support, opportunity to use, peer support, supervisor sanctions, positive and negative personal outcomes, and resistance to change (e.g. Holton *et al.*, 2000; Rouiller & Goldstein, 1993). Additionally, other studies have demonstrated that the extent to which trainees prefer support (Nijman, 2004) and have sufficient time and resources available also affect transfer outcomes (Noe & Schmitt, 1986; Russ-Eft, 2002).

Supervisor support, the extent to which supervisors reinforce and support employees to transfer their training, is an important work environment variable influencing training transfer. For example, Russ-Eft (2002) and Locke and Latham (2002) stated that supervisory support, such as setting goals with trainees and encouraging learning on the job, would facilitate transfer. Baldwin *et al.* (2009) emphasized the active participation in supervisor support, meaning supervisors not only need to state the importance of learning, but also should actively participate in training, e.g. setting learning goals and offering positive feedback. Moreover, previous studies have confirmed the positive relationship between supervisory support and transfer (Gilpin-Jackson & Bushe, 2007; Kontoghiorghes, 2001; Saks & Belcourt, 2006). When trainees perceive supportive supervisors, they believe that training will be useful and help them to perform their job effectively and be rewarded, thus suggesting a positive connection between supervisor and transfer (e.g. Cohen, 1990; Salas & Stagl, 2009). Recently, Blume *et al.* (2010) stated supervisor support emerged as one of the strongest predictors of training transfer.

Opportunities to use training on the job is 'the extent to which a trainee is provided with or actively obtains work experiences relevant to the tasks for which he or she was trained' (Ford *et al.*, 1992, p. 512). Previous research indicated that transfer is limited when trainees have less opportunity for application (Lim & Morris, 2006). For instance, Clarke (2002) identified opportunity to perform skills on the job as the strongest factor

influencing transfer. Gilpin-Jackson and Bushe (2007) demonstrated that having adequate time for training transfer to take place is critical, otherwise, it prohibits transfer (Cromwell & Kolb, 2004). Burke and Hutchins (2007) confirm that trainees need opportunities to transfer. Moreover, other studies have shown the important role of these opportunities to transfer in terms of enhancing trainees' motivation to transfer (Mathieu *et al.*, 1993; Seyler *et al.*, 1998).

Peer support refers to the level to which peers' behavior produces reinforcement for trainees' transfer (Holton *et al.*, 1997; Nijman *et al.*, 2006). Especially, peer support has been reported as a factor that relates to other characteristics of the work environment. For example, positive peer support predicts opportunities to transfer (Quinones *et al.*, 1995) or colleagues' behavior was a stronger predictor of transfer than trainee's actual learning outcomes at the end of the training (Rouiller & Goldstein, 1993). Hawley and Barnard (2005) state that peer support through networks facilitated transfer. Blume *et al.* (2010) and Van den Bossche *et al.* (2010) emphasize that peer support should be made to increase transfer.

Preferred support relates to 'the level of support that can best be given, in order to achieve intended transfer outcomes' (Nijman, 2004, p. 95). According to him, transfer might be influenced by preferred support because it relates to trainee's motivation to transfer. In this study, preferred support was interpreted as a desire of trainees to have (more) support and help from others that facilitate transfer. We argue that the need of the trainee for support from supervisor and peers (beside the actual support given by them) is a work environment relevant predictor of transfer. In fact, trainees will logically transfer most when they get the specific help that they are looking for.

Personal outcomes – positive is 'the degree to which application of training on the job leads to positive outcomes or payoffs for the individual' (Holton *et al.*, 1997, p. 110). Trainees with positive personal outcomes from training will get higher salary and positions (Holton *et al.*, 1997) as well as positive performance evaluations (Facteau *et al.*, 1995). Concretely, verbal praise and promotion chances increase transfer (Xiao, 1996), and transfer rewards enhance trainees' motivation to learn (Cheng, 2000).

Personal outcomes – negative refers to the negative consequences for trainees if they are not using learned knowledge and skills on the job after training (Holton *et al.*, 2000). According to them, when not using new knowledge or skills on the job, trainees are under the pressure of negative outcomes, i.e. being criticized and overlooked for pay increases. However, Ruona *et al.* (2002) have revealed that perceiving personal outcomes – negative in turn leads to increased trainee motivation to transfer. Research on these negative consequences, nevertheless, has hardly been examined (Nijman *et al.*, 2006).

Sanctioning of transfer is defined as the extent to which individuals perceive negative responses from others when transferring training (Holton *et al.*, 1997, 2000). For example, it can be experiencing supervisors' indifference, even being seen as outrageous by others (Russ-Eft, 2002) when transferring training on the job. As a result, sanctions lead to reduced trainee motivation to transfer (Facteau *et al.*, 1995; Seyler *et al.*, 1998).

Resistance to change refers to 'the extent to which prevailing group norms are perceived by individuals to change the way they do things to change resist or discourage the use of skills and knowledge acquired in training' (Holton *et al.*, 2000). Coming back to the workplace from the training, trainees have to confront environmental and situational factors, that not only support but also that might challenge the transfer process. For example, they may have to experience the negative attitudes from their coworkers and/or from their organization (Nikandrou *et al.*, 2009; Taylor, 2000). In this study, resistance to change was seen as resistance of coworkers/peers either skeptical of new knowledge and skills of training or rather doing the work in the usual manner instead of applying new learning. Nijman *et al.* (2006) see resistance as opposite to openness when trainees transfer. Previous studies concretely indicated that coworkers' openness will increase trainee motivation to transfer (Ruona *et al.*, 2002) and transfer outcomes (Cheng, 2000).

Use of transfer strategy

As mentioned above, reentering the workplace after training, trainees will have to cope with environmental and situational factors that not only support but also possibly inhibit the transfer process. Therefore, trainees need to apply appropriate strategies to training transfer.

Transfer strategies are cognitive and behavioral techniques including setting goals, analyzing work situations, overcoming difficulties, absorbing support, and seizing opportunities to use acquired knowledge and skills on the job (Noe *et al.*, 1990; cited in Roberson *et al.*, 2009).

There are several transfer strategies outlined in the literature, that can possibly be incorporated into training courses such as (1) trainees' situation (e.g. identifying situations at work to apply the trained skills); (2) trainees' thoughts/feelings (e.g. thoughts about support needed in order to use the trained skills; retaining self-confidence when experiencing resistance or burdens); (3) trainees' behavior (e.g. creating and maintaining a social network); and (4) consequences of trainees' behavior (e.g. being prepared to deal with skepticism of colleagues) (Burke & Baldwin, 1999). Researchers have consistently emphasized the need for better understanding of the role of use of transfer strategies by trainees (e.g. Ford & Weissbein, 1997; Machin & Fogarty, 2004). Although the evidence on transfer strategies is scarce, there are some encouraging results, for example the mediating role of transfer strategies in relation between transfer design and transfer (Pham *et al.*, 2011), and between trainees' motivation and transfer (Pham *et al.*, 2010). In both studies, the key players of transfer training strategy are seen as trainees (by active planning to apply what they have learned), employers (by facilitating trainees to transfer, such as informing trainees that transfer is valued by the organization, rewarding trainees for their transfer, and so on).

Transfer of training

Many practitioners and researchers refer to Kirkpatrick's (1998) taxonomy to evaluate training effects. Kirkpatrick discerns four 'levels': (1) how trainees felt about training; (2) whether or not they have learned anything; (3) whether or not learning was transferred to the job or the extent of behavior and capability improvement and implementation/application; and (4) effects on the business or environment. Here, we focus on the third level by questioning if the application of the trained knowledge, skills and attitudes in the workplace improves the performance of the job tasks as well as the work performance in general. In this respect, Xiao (1996) refers to the improvement of the productivity efficiency of the employee through training. Additionally, DeSimone *et al.* (2002) claim that training programs aim at opportunities to enhance necessary skills to handle current and future jobs. This implies training programs do not only aim at enhancing current assignment quality and work performance but also support trainees in competence development to cope with the future.

Given the results of the aforementioned studies and following Nijman *et al.*'s (2006) empirical study, the conceptual framework of study will be as depicted in Figure 1.

For general work environment factors in transfer, we will explore the influence of *job autonomy*. For specific work environment factors, we will identify the role of trainees' *opportunities to use training on the job; supervisor and peer support; preferred support; perceived positive and negative personal outcomes; sanctioning of transfer; and resistance to change*.

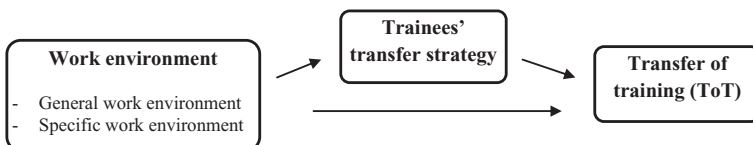


Figure 1: Conceptual framework.

Research question and hypotheses

The study aims at understanding how a trainee's transfer is influenced by work environment factors. Moreover, we study the contribution of trainees' use of transfer strategies.

The following research question is raised: 'To what extent do work environment factors, taking into account the role of the trainees' transfer strategies, contribute to transferring newly acquired knowledge, skills and attitudes on the job?' Two hypotheses were tested:

Hypothesis 1: Work environment factors are positively related to the extent of transfer training.

Hypothesis 2: The effect of work environment factors on the training transfer effects is mediated by trainee's transfer strategies.

Method and research design

Participants

Participants were MBA students enrolled in eight different MBA programs, provided by core universities in Vietnam (Appendix A). These participants were combining a job with an MBA study, and about 50 per cent of them were managers. Most participants were administered a self-report questionnaire during class sessions. The rest were answered by email.

Data were collected at the end of the MBA program (T1) and again three months later after the MBA program ended (T2). A total of 167 MBA students participated in this study at T1 and of those, 126 participated at T2. The majority of the sample was male ($n = 102$; 61%). The average age was 32.

Also, supervisory ratings of transfer (with the same questionnaire, either self-report or by email) were also collected from a total of 33 trainees' supervisors at T2 to avoid the potential acquiescent bias from self-report data (e.g. Velada & Caetano, 2007).

Setting

The study was conducted in the setting of MBA programs in Vietnam. The MBA setting provides a good opportunity to study transfer of training due to the following rationale.

First, MBAs are booming in the era of the global business environment. It has been one of the most popular official business training programs in the world, with the number of MBA students graduating each year increasing across the globe. This brings us to the question of how the knowledge and skills obtained by MBA trainees are transferred into their work.

Second, MBAs are professionally oriented and focus on the development of professional competence (Mintzberg, 2004). They aim to improve the functional and managerial competencies of trainees (Camuffo *et al.*, 2006). Most MBA participants are professionals, working while taking the MBA, so they can instantly apply what they have been learning to their workplace. Moreover, they are (already or potential) managers. Thus, they may have greater opportunities to make use of their newly acquired skills and knowledge in a real job setting. Therefore, the possibilities these training programs offer trainees to transfer are of utmost importance for the trainees.

Third, MBAs provide not only academic knowledge but also practical preparation for trainees, 'a highly analytical approach to managerial problem solving, and the ability to approach new problems in a structured fashion' (Cameron, 2005, p. 14). Thus, the question is if and under what conditions MBA programs really reach these high ambitions.

Fourth, the cost of MBA programs is quite high, about \$132,600 for a participant including living cost, course fees, books, PC, loss of earnings while studying, etc. (Jacobs, 2011). Therefore, there is a need to emphasize the importance on transferable knowledge and skills among MBA graduates to make effective use of what they or their boss/organization have invested in.

Fifth, although costly, MBA qualification produces both economic benefits and career success to MBA trainees. An MBA degree is standardized as a precondition for management position. For example, MBA graduates command a salary two or more times bigger than those who are non-MBA graduates (Cameron, 2005), or MBA graduates receive more promotions than those who did not receive an MBA degree (Herrington, 2010; Inderrieden *et al.*, 2006).

Finally, MBA programs are a major industry and, due to the generalization of accreditation schemes, are now more and more standardized across countries and offering curriculums that are very comparable. They therefore meet the demands of a globalized economy. However, the competition for MBA programs around the globe has been increasing. Therefore, transfer of training will be an important selling point for training providers, telling the business community their credentials, which in turn increase their market value, thus maintaining competitive advantages.

All of the above make the MBA context different from a training transfer point of view and become an important issue in business education.

There are several studies about transfer of training taken from MBA programs. For example, the empirical study of Legge *et al.* (2010) on corporate MBAs finds that transfer depends on the facilitation of organizations and the interactions between individuals. They indicate key factors that limit transfer from MBA to organization, such as individual objectives (self-interest in keeping gained knowledge to himself/herself and in seeking for another job), and organizational objectives (lack of support from boss and/or avoid running a risk). Moreover, Pham *et al.* (2011) and Pham *et al.* (2010) have revealed the relation between MBA training design and transfer, and MBA trainee's motivation and transfer respectively, taking account of the mediating role of transfer strategies. However, it is still unclear to what extent transfer strategies influence the relations among work environment factors and transfer, especially with the MBA programs. Therefore, further research into the role of transfer strategy and its interaction with work environment factors influencing transfer is needed to fully understand the transfer issue.

Measures

All measures were based on instruments validated in previous studies.

To measure work environment factors, we used (1) Nijman *et al.*'s (2006) questionnaires, which contain 17 items for measuring specific work environment factors (transfer climate); (2) four items for measuring general work environment (job autonomy); and (3), Xiao's (1996) questionnaire, which comprises six items for measuring supervisor support (sample item and resultant factors are presented in Appendix B).

To explain correlations among observed variables with hypothetical variables and to examine the structure of the data in the Vietnamese MBA context, a confirmatory factor analysis (CFA) was conducted. The adequacy of the models was assessed using EQS (Bentler, 2002). Models were all tested with standardized coefficients obtained from the maximum likelihood method of estimation. The values of the fit indices indicate a good fit to the data (chi-square/degrees of freedom (d.f.) = 2.6; Tucker-Lewis index (TLI) = 0.87; comparative fit index (CFI) = 0.90; root mean square error of approximation (RMSEA) = 0.09). The results of CFA revealed that work environment can be explained by five factors: *sanctioning transfer*, *peer support*, *preferred support*, *supervisor support* and *job autonomy* (sample item and resultant factors are presented in Appendix B). These five factors are consistent with previous studies, such as Colquitt *et al.* (2000) and Holton *et al.* (2000). Based on the results from the CFA, we used these five factors to test the aforementioned hypotheses.

To measure the transfer strategy, we used Burke and Baldwin's (1999) measure. As this instrument has been validated in many studies in comparable settings, including Pham *et al.* (2010, 2011), so with this study, we did not conduct a factor analysis on the data for this instrument. The α is high for our sample (0.88) and therefore confirms prior validation studies.

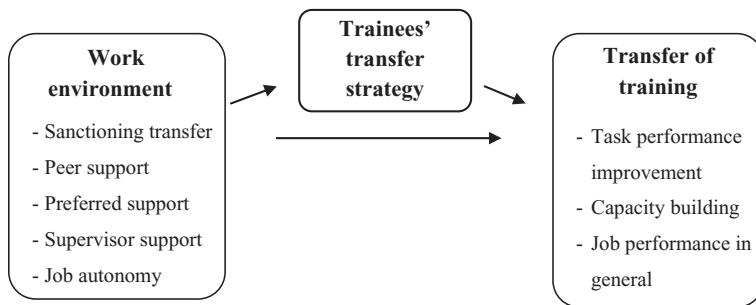


Figure 2: Research model.

To measure transfer, Xiao's (1996) measure was used. The results revealed three factors: (1) task performance improvement, $C\alpha = 0.90$; (2) capacity building, $C\alpha = 0.92$; and (3) job performance in general, $C\alpha = 86$.

The research model in this study is shown in Figure 2.

Procedure

The original questionnaires were translated into Vietnamese. Then the Vietnamese versions were translated back to English to assure the consistency of meaning.

At T1, we measured (a) demographic variables; (b) trainees' perception of work environment variables; and (c) trainees' use of training transfer strategies.

At T2, we measured (d) trainees' perception of the work environment again; and (e) perception of trainees and supervisors of transfer. Age, gender, years of work experience, job position, reasons for pursuing the MBA course and the source of MBA fees served as control variables.

In this study, transfer strategy was placed at the center of the research model explaining output measure is transfer. Transfer strategy is considered to be a mediation variable of the transfer process (transfer strategy is explained by several input variables, for example as supervisor support, job autonomy and preferred support, which influences transfer strategies) and not an output variable. Therefore, it does not make sense to measure transfer strategies at T2. Also, MBA participants are managers. Therefore, they have power in using and maintaining transfer strategy. That explains why in this study, *transfer strategies were measured at T1*.

Moreover, MBA trainees already have experience of the work environment. However, in the training process, the influences of content of training, the training methods and training design as well as interactions between the trainers and the trainees, and between trainees, will influence these trainees' perceptions. As a result, these interactions can influence their perception of the work environment. Thus, it is relevant to *measure trainees' perception of work environment both at T1 and T2*.

Additionally, transfer is changed by time (Awoniyi *et al.*, 2002). Especially, the period after training is considered the most important in facilitating positive transfer (Wexley & Baldwin, 1986). Alliger *et al.* (1997, p. 355) noted: 'By gathering reaction data one, three, or six months after training, trainees will have experienced whether the training was in fact useful, and should be in a better position to judge the utility of the training'. In fact, at the end of the training, trainees usually do not fully master the newly learned knowledge and skills. 'They need to practice and learn more in their job context to internalize what they have learned' (Vermeulen, 2002, p. 369). *Therefore, transfer was measured at T2, three months after training*.

Methods of analysis

To test whether or not work environment variables influence transfer, and whether or not the participants' transfer strategies contribute to transfer, we used path analysis via EQS version 6.0 (Bentler, 2002).

Results

Descriptive statistics, Pearson correlations and internal consistencies of the variables are presented in Table 1. The results revealed that:

1. Most of the work environment variables (both at the end of the training and three months after the training) were significantly associated with transfer, but this was not the case for peer support and job autonomy at the end of training.
2. The strong significant correlations of these work environment factors with transfer did not only appear at the end of training (E) but also three months after the training (A). Even correlations of work environment factors three months after training with transfer were found to be stronger at the end of the training. For example, correlation with task performance improvement of preferred A, $r = 0.468$, whereas for preferred E, it was $r = 0.359$. Similarly, correlations of Sup. A and Sup. E with job performance in general were $r = 0.706$ and $r = 0.355$, respectively.
3. Most of the work environment variables were significantly associated with the transfer strategies. This is clearly not the case for both sanctioning transfer and job autonomy three months after training.
4. The transfer strategies was related to the transfer (task performance improvement, capacity building and general job performance) with $r = 0.463$, $r = 0.276$ and $r = 0.380$, respectively.

Additionally, the results of regression analysis showed that the control variables such as age, gender, years of work experience, job position, reason for pursuing the MBA and the source of MBA fees had no significant effects on transfer. Therefore, we did not include these control variables in the path analysis.

As mentioned above, this study measured transfer by both trainees' own evaluation and their supervisors' evaluations to avoid bias and to achieve comparability. An independent sample *t*-test was conducted to compare the training transfer score for trainees and that of their supervisors. The results reveal that there is no significant difference in scores between trainees and their supervisors in terms of three perspectives of training transfer (task performance improvement, capacity building and general job performance): $t(150) = 1.58$, $P = 12$; $t(151) = 1.71$, $P = 0.09$; $t(151) = 1.81$, $P = 0.07$, respectively). Also, in terms of the effect size for independent sample *t*-test (Cohen, 1988), the magnitude of the differences in means (in terms of above three perspectives of training transfer) is very small ($\theta^2 = 0.016$; 0.019 and 0.021, respectively). In summary, the nonsignificant difference in scores between trainees and their supervisors in terms of transfer provided evidence of no self-report bias effect.

Testing the model

As recommended by Anderson and Gerbing (1988), the present model was compared with several competing models. The 'best fitting' model was achieved having the following goodness of fit indices (chi-square = 47; d.f. = 25; $P = 0.005$; TLI = 0.87; RMSEA = 0.10). The results are as presented in Figure 3 (only significant relations are shown).

Figure 3 indicates the following results:

1. Trainees' perceptions of work environment (including preferred support, supervisor support and job autonomy) at the end of the course (E) were significantly related to their perceptions three months later (A) ($\beta = 0.33$, 0.54 and 0.40, respectively).
2. Trainee's perceptions of work environment posttraining (preferred support A, job autonomy A and especially supervisor support A) affected transfer directly and indirectly. For example, 50 per cent of the variance in job performance in general (item example is 'In general, I think this training course has helped me increase my work performance') were directly predicted by supervisor support A ($\beta = 0.71$). Forty-two per cent of the variance in task performance improvement (item example is 'I can accomplish my job task better by using new KSA') was directly predicted by (a) supervisor support A directly ($\beta = 0.47$) (and also indirectly, $\beta = 0.21 \times 0.20 = 0.04$);

Table 1: Cronbach's alphas and intercorrelations among variables

Variables	M	Std	1	2	3	4	5	6	7	8	9
1. Sanctioning E	2.2	0.68	0.73								
2. Peer E	3.5	0.71	-0.296**	0.85							
3. Preferred E	4.1	0.62	-0.180	0.387**	0.80						
4. Sup. E	3.1	0.80	-0.126	0.584**	0.185	0.92					
5. Job Auto. E	3.7	0.93	-0.342**	0.371**	0.080	0.382**	0.92				
6. Sanctioning A	1.9	0.59	0.349**	-0.138	-0.065	-0.350**	-0.227*	0.73			
7. Peer A	3.5	0.66	-0.241*	0.258*	0.168	0.326**	0.121	-0.402**	0.85		
8. Preferred A	4.2	0.61	-0.112	0.092	0.326**	0.042	-0.130	-0.242*	0.188	0.88	
9. Sup. A	3.1	0.78	-0.111	0.255*	0.181	0.537**	0.188	-0.387**	0.645**	0.275*	0.93
10. Job Auto. A	3.8	0.86	-0.189	0.152	0.111	0.293**	0.452**	-0.222*	0.473**	0.122	0.404**
11. Transfer strategy	3.7	0.46	-0.270*	0.458**	0.604**	0.326**	0.370**	-0.096	0.288**	0.247*	0.363**
12. Task performance improvement	3.9	0.59	-0.242*	0.176	0.359**	0.288**	0.019	-0.374**	0.578**	0.468**	0.580**
13. Capacity building	4.1	0.44	-0.108	-0.004	0.025	0.215	0.101	-0.240*	0.402**	0.326**	0.425**
14. Job performance in general	3.8	0.53	-0.168	0.179	0.167	0.355**	0.119	-0.408**	0.600**	0.310**	0.706**
15. Age	1.69	0.71	-0.087	0.247*	0.318**	0.331**	0.198	-0.090	0.326**	-0.026	0.220*
16. Gender	1.36	0.48	-0.104	-0.214	-0.134	-0.094	-0.133	-0.109	-0.036	0.053	-0.016
17. Position	1.59	0.50	-0.156	0.214	0.254*	0.354**	0.306*	-0.034	0.246*	-0.037	0.253*
18. Years of working	9.46	6.14	-0.217	0.298**	0.368**	0.247*	0.169	-0.110	0.276*	0.008	0.153
19. Reason of learning	1.78	1.25	0.042	-0.093	0.070	-0.048	-0.135	0.066	-0.118	-0.144	-0.072
20. Payer(s)	1.34	0.72	-0.128	0.081	0.009	0.078	0.071	0.001	0.110	0.017	-0.017

Table 1: Continued

Variables	10	11	12	13	14	15	16	17	18	19	20
1. Sanctioning E											
2. Peer E											
3. Preferred E											
4. Sup. E											
5. Job Auto. E											
6. Sanctioning A											
7. Peer A											
8. Preferred A											
9. Sup. A											
10. Job Auto. A	0.93										
11. Transfer strategy	0.192	0.88									
12. Task performance improvement	0.370**	0.463**	0.90								
13. Capacity building	0.412**	0.276*	0.572**	0.92							
14. Job performance in general	0.352**	0.380**	0.667**	0.615**	0.86						
15. Age	0.209	0.398**	0.278*	0.208	0.305**	1					
16. Gender	0.022	-0.364**	-0.139	-0.072	-0.189	-0.304**	1				
17. Position	0.331**	0.312**	0.287*	0.296*	0.345**	0.420**	-0.252*	1			
18. Years of working	0.132	0.393**	0.275*	0.170	0.280*	0.823**	-0.288**	0.402**	1		
19. Reason of learning	-0.042	-0.034	-0.116	-0.146	-0.102	-0.081	0.027	-0.006	-0.123	1	
20. Payer(s)	0.063	0.055	0.026	0.143	0.002	0.184	0.066	0.088	0.149	0.112	1

Note: ** $P < 0.01$; * $P < 0.05$; values in bold type on the diagonal are Cronbach's alpha.

Sanctioning E = sanctioning transfer at the end of training; Peer E = peer support at the end of training; Preferred E = preferred support at the end of training; Sup. E = supervisor support at the end of training; Job Auto. E = job autonomy at the end of training; Sanctioning A = sanctioning transfer three months after training; Peer A = peer support three months after training; Preferred A = preferred support three months after training; Sup. A = supervisor support three months after training; Job Auto. A = job autonomy three months after training.

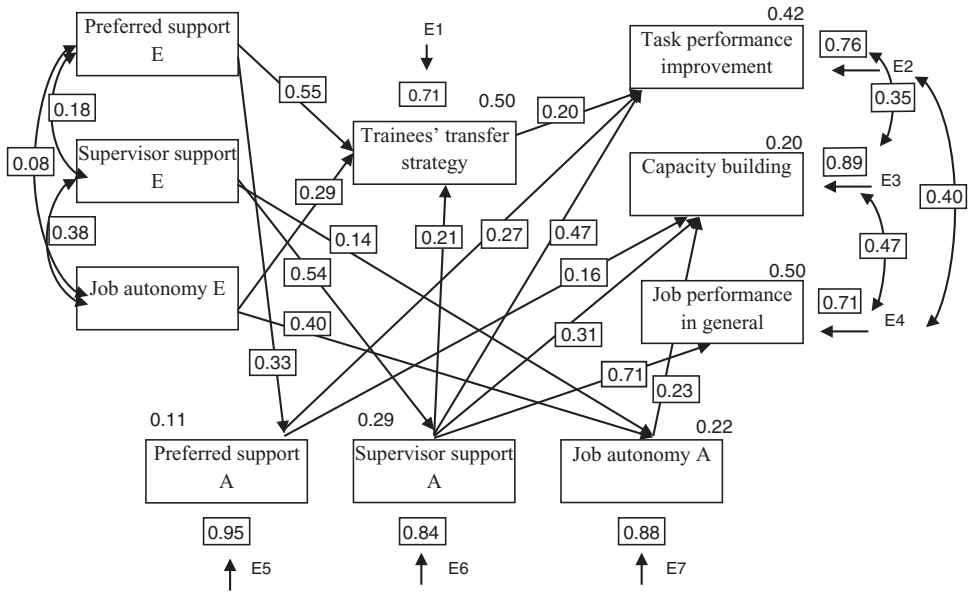


Figure 3: Comprehensive model toward transfer of training (ToT).
 Note: E = End of training; A = After three months of training.

- (b) preferred support A ($\beta = 0.27$), and (c) transfer strategy ($\beta = 0.20$). Similarly, 20 per cent of the variance in capacity building (item example is 'My ability to implement work in general is increased') were directly predicted by supervisor support A ($\beta = 0.31$), job autonomy A ($\beta = 0.23$) and preferred support A ($\beta = 0.16$).
- None of preferred support E, supervisor support E and job autonomy E directly influence transfer. Instead, they only directly influence preferred support A, supervisor support A and job autonomy A or transfer strategies. In turn, preferred support A, supervisor support A, job autonomy A and transfer strategies directly influence transfer. For example, supervisor support E influences supervisor support A ($\beta = 0.54$), and then supervisor support A directly influences transfer ($\beta = 0.47, 0.31$, and 0.71 in terms of task performance improvement, capacity building, and job performance in general, respectively).
 - Job autonomy A directly influences capacity building, and job autonomy E influences task performance improvement through transfer strategy.

These results partly support the first hypothesis: 'Work environment factors are positively related to the extent of transfer training'.

- Transfer strategy is directly influenced (in order of importance) by preferred support E ($\beta = 0.55$), job autonomy E ($\beta = 0.29$), and supervisor support A ($\beta = 0.21$). Additionally, transfer strategy directly influences transfer in terms of task performance improvement ($\beta = 0.20$). Also, the relation between supervisor support A and task performance improvement is strengthened when trainees use transfer strategies (supervisor support A directly ($\beta = 0.47$) and also indirectly, $\beta = 0.21 * 0.20 = 0.04$).

Therefore, the second hypothesis is partly supported: 'The effect of work environment factors on the training transfer effects is mediated by trainees' transfer strategies'.

Conclusion and discussion

The purpose of this study was to explore the relationship of work environment factors and the participants' transfer strategies with the transfer process. The findings support

that work environment factors (i.e. preferred support, supervisor support and job autonomy) affected transfer in different ways. Especially these effects were shown to be different when tested at two points in time: at the end of the training program (E) and three months after the end of the training (A). Additionally, the participants' transfer strategies, playing the role of mediator, contribute to the relation between work environment and transfer.

The results of the path analysis confirmed prior research indicating that work environment variables influenced transfer (e.g. Axtell & Maitlis, 1997; Baldwin & Ford, 1988; Blume *et al.*, 2010; Ford & Weissbein, 1997; Holton *et al.*, 2000; Nijman *et al.*, 2006) with supervisory support as a powerful predictor (Brinkerhoff & Montesino, 1995; Cohen, 1990; Cromwell & Kolb, 2004).

Based on the above conclusions, there are a number of issues that are worth discussing.

First, the significant findings of this study confirm the importance of what happens at the workplace *after* the training. In other words, how trainees perceive the work environment three months *after* training (A) is a stronger indicator of transfer than at the end of the training (E). For example, we found that none of preferred support E, supervisor support E and job autonomy E directly influenced transfer of training. Especially, supervisor support E was neither related to transfer strategy nor transfer. Given the fact that MBA trainees work during the training, this can be explained by the possibility that perhaps during training, the trainees depend less on their supervisors in the workplace than they do when they return to their job (after training). It became apparent that in order for trainees to transfer their training, they must have supervisory support *after* the training period. Consequently, how they experience the support by the work environment when returning to their workplace will influence their extent of transfer of training. Similarly, none of preferred support, supervisor support and job autonomy at the end the training directly influence transfer, whereas preferred support, supervisor support and job autonomy *after* training do. The power of trainees' perceptions three months *after* the training might be explained by the various interactions during as well as after the training that shape trainees' perceptions of the work environment. The results confirm the importances of what happens at the workplace *after* the training (Kontoghiorghes, 2004; Tannenbaum & Yukl, 1992; Vermeulen, 2002; Wexley & Baldwin, 1986) and support the suggestions by Alliger *et al.* (1997) and Nikandrou *et al.* (2009) that repeated measures of trainees' perceptions are relevant in order to better understand transfer.

The role of preferred supports directly affecting transfer (task performance improvement) after the training and indirectly at the end the training through transfer strategy, demonstrates the practical implications: managers should recognize that trainees who believe and know in advance that they will have the necessary support, and who have transfer strategy, will apply their learned knowledge and skills to their work.

Second, the impact of the trainee's job autonomy on transfer implies that the more the trainees' degree of freedom in carrying out their job, the greater their ability to organize and execute their work, resulting in more effective transfer. This confirms prior research mentioning the role of job autonomy (Axtell & Maitlis, 1997; Blume *et al.*, 2010; Nijman, 2004).

We found that supervisor support E influences job autonomy A ($\beta = 0.14$). This can be explained by the possibility that when an employee is allowed autonomy, it means (a) the supervisor trusts the employee; and (b) the supervisor 'covers for' the employee and defends the employee when the employee takes unauthorized initiatives.

Third, trainees' transfer strategy plays a significant role. It directly influences transfer in terms of task performance improvement ($\beta = 0.20$). It also plays an indirect effect in the relationships between supervisor support after training and transfer. In other words, transfer strategy strengthens the relationships between supervisor support after training and transfer.

Finally, the present study makes several further contributions:

1. Although there has traditionally been a focus on the relation either between work environment factors with transfer, or between the participants' transfer strategies with transfer, this study includes the simultaneous incorporation of the work environment and transfer strategies that influence transfer. It provides an empirical study that indicates the validity of a model that presents the simultaneous joint influence of factors on transfer of training. It adds to the existing knowledge base and might stimulate further research in the way of using a complete conceptualization of work environment to predict transfer, both at the end and three months after the training.
2. This study indicates that the use of transfer strategies strengthens transfer. The result supports the outcomes of previous studies such as those by Machin and Fogarty (2004) and Pham *et al.* (2010, 2011), which found that the use of transfer strategies is a strong predictor of transfer. More precisely, this finding emphasizes the importance of transfer strategies as the mediation, interacting with other factors resulting in an effective transfer practice.
3. The questionnaire used in this study extends to 11 the number of items used to measure the transfer effect. Although a number of previous studies have used a few items to measure transfer, our study goes beyond that by extending the Xiao (1996) questionnaire. This addition presents a strengthened self-report measure with a more robust instrument.
4. The study adds a preferred support construct in the set of work environment components, adding an additional tool for measuring work environment influences on transfer.
5. Unlike previous studies that used only self-report questionnaires to measure transfer, we have measured training transfer from the point of view of (33) trainees' supervisors as well. It helped to reduce the possibility of common method bias and to increase the reliability and validity of the relationships examined.

Implications for practice and research

Implications for practice

Based on the results, we suggest several recommendations to enhance transfer of training for the educational practice of MBA programs.

Work environment

1. Training providers/trainers should train supervisors about how to (a) support trainees during and after training; and (b) allow successful trainee 'graduates' to exercise more autonomy on the job.
2. Training providers, as part of the negotiation on the content and targets of the training program, should focus on the role of the work environment in enhancing transfer effects. They should make organizations aware of their responsibility in making transfer happen. At the same time, supporting trainees in overcoming resistance should be on the agenda of the training program.
3. Employers are advised to keep facilitating trainees during and after training and respond to their need for support (preferred support). Concurrently, allow them to exercise more autonomy on the job. It is also important for organizations to be aware of their responsibility in making transfer happen by letting trainees know that they will receive the necessary support from the organization (preferred support), supervisor, as well as having job autonomy to successfully transfer the training. It influences the trainees' perception that their need for support is relevant and of high value. It influences the trainees' perception that their supervisors trust them in their ability to transfer their training to improve job performance.

Trainees' transfer strategy

4. Trainers should encourage trainees to formulate transfer strategies during the training process. They should collect examples of training transfer strategies from

- previous trainees and present these explicitly as part of the training. This helps trainees to be well prepared for applying new knowledge and skills to their work.
5. Employers should allow, encourage and reward successful trainee graduates to apply learning on the job. Transfer rewards have been acknowledged for their effects on motivating employees to achieve certain goals (Cheng, 2000). Along with informing employees that transfer is valued by the organization, supervisors should identify any organizational reasons behind the failure to apply the training. By doing so, organizations and supervisors will facilitate trainees' transfer (Richman-Hirsch, 2001).

Directions for future research

First, this study offers evidence for the validity of work environment and the trainees' use of transfer strategies influencing transfer in a Vietnamese MBA context. Therefore, it may not immediately be generalized to different educational contexts. For further research, replication studies in MBA programs in different countries can confirm cross-national validity of our findings.

Second, with respect to transfer, we included the ratings of 33 supervisors in this study to avoid bias and to achieve comparability. However, for future research, we suggest the use of not only supervisor evaluation, but also additional measures based on multiple sources (e.g. peers, subordinates and customers), especially adding qualitative measures (e.g. interview) in order to confirm results.

Finally, although our sample provided statistical power to conduct our hypotheses testing, a larger sample is suggested to achieve a greater sophistication in statistical analysis, in turn having stronger evidence for the validation of the measure.

Appendix A: Descriptions of MBA programs in Vietnam

No	Program	Instructional approach	Language
1	Vietnam – Belgium ¹ MBA	Lecture; Tutoring	English
2	NEU ² MBA	Lecture	Vietnamese
3	CFVG ³ MBA	Lecture; Consultancy project; Simulation; Practical cases; Problem solving; Conferences competing	English/ French
4	VNU Ie ⁴ MBA ⁵	Lecture; Team working; Seminars; Business consulting; Group study; Guest speakers	Vietnamese
5	VNU Re ⁵ MBA	Lecture; Team working; Seminars; Business consulting, Group study; Guest speakers	English
6	FTU ⁶ MBA	Lecture	Vietnamese
7	MsM ⁷ MBA	Lecture; Teaching assistants; Project assignments	English
8	HCMC UT ⁸ MBA	Lecture	Vietnamese

¹ Solvay Business School (Univ. Libre de Bruxelles, Belgium).

² Hanoi National Economics University.

³ Centre Franco-Vietnamien de Formation à la Gestion.

⁴ Vietnam National University International Executive.

⁵ Vietnam National University Regular Executive.

⁶ Foreign Trade University.

⁷ Maastricht School of Management in Vietnam.

⁸ Ho Chi Minh City University of Technology.

Appendix B: Variables, scales and examples

Variables		Scales name and number of items	Example items
Independent variables	Work environment	– Sanctioning transfer ($n = 3$)	– My colleagues/supervisor are against my applying what has been learnt
	Nijman <i>et al.</i> (2006)		
	Transfer climate	– Peer support ($n = 4$)	– My colleagues seem to trust in my application of what has been learnt
		– Preferred support ($n = 2$)	– I would rather have more support and help from others with my training.
Mediator variable		– Supervisor support ($n = 6$)	– My supervisor helps me set goals for applying new knowledge, skills and attitude to my job
	Xiao (1996)		
	Job autonomy	– Job autonomy ($n = 4$)	– I can determine by myself how I can execute my work
Dependent variables	Trainees' transfer strategy	– Transfer strategy ($n = 19$)	– I identified the appropriate setting for applying what I have learnt
	Burke and Baldwin (1999)		
	Training transfer effect	– Task performance improvement ($n = 6$)	– I can accomplish my job task better by using new knowledge, skills and attitude
	Xiao (1996)		
	– The authors	– Capacity building ($n = 6$)	– My ability to implement work in general is increased
	– The authors	– Job performance in general ($n = 5$)	– In general, I think this training course has helped me increase my work performance

Note: The scale names and their items are indicated as they resulted from the factor analyses.

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