



# Individual and contextual influences on multiple dimensions of training effectiveness

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## Abstract

**Purpose** – To investigate individual and contextual antecedents of learning, transfer of learning, training generalization and training maintenance in a work context.

**Design/methodology/approach** – The hypotheses were tested using hierarchical regression analysis on data obtained from 119 employees who attended training programs.

**Findings** – The data supported the relationship between continuous-learning culture and supervisor support and training motivation. Although training motivation was directly related only to training maintenance, it interacted with performance goal orientation in affecting training transfer and generalization.

**Practical implications** – Practitioners interested in designing interventions directed at increasing similar training outcomes can use various approaches aimed at assessing and monitoring factors such as continuous-learning culture, supervisor support and training motivation. More importantly, based on the current results, practitioners can manage selectively the performance goal orientation of their trainees, given its differential relationship with training outcomes.

**Originality/value** – The findings are valuable for researchers and practitioners. From a theoretical perspective, the study offers a better-specified model of training effectiveness by including both contextual and individual factors important for improving training effectiveness. Practitioners can use these ideas to design corresponding training and training transfer interventions.

**Keywords** Continuing development, Training, Psychology, Knowledge transfer

**Paper type** Research paper

## Introduction

The change in the nature and content of work (Howard, 1995) has impacted organizational choice of human capital development programs. One of the most frequently encountered human capital development interventions is training, defined for the purposes of the present study as “a planned intervention that is designed to enhance the determinants of individual job performance” (Campbell and Kuncel, 2001, p. 278). In order to enhance job performance, the skills and behaviors learned and practiced during training have to be transferred to the workplace, maintained over time and generalized across contexts (Holton and Baldwin, 2003). Consequently, as transfer



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of learning remains a critical issue for researchers and practitioners (Holton and Baldwin, 2003; Holton *et al.*, 2000), it becomes necessary to test models that includes important but less-studied training-related determinants.

Moreover, several researchers called for examining the training function within the organizational system (Campbell, 1988; Mathieu *et al.*, 1992; Noe, 1986) and proposed training effectiveness models that contain both individual and organizational contextual factors as antecedents of learning and transfer of learning (Baldwin and Ford, 1988; Colquitt *et al.*, 2000; Mathieu and Martineau, 1997). The present model responds to these calls by integrating individual and contextual components. Therefore, the major objective of this study is to expand our knowledge of such factors affecting training effectiveness by examining a model that includes the perceived context (i.e. continuous-learning culture and supervisor support), individual components (training motivation and performance goal orientation), and training effectiveness. Specifically, this study strives to address three research gaps in the training literature.

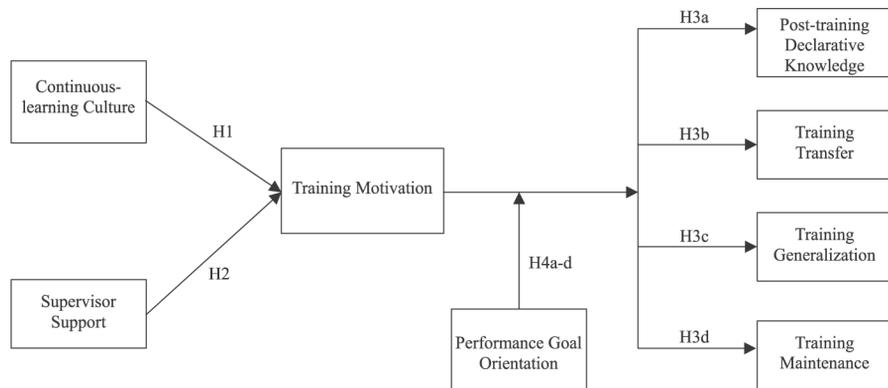
First, despite the existence of preliminary support for the relationship between contextual factors (e.g. transfer of training climate and continuous-learning culture) and learning (Tracey *et al.*, 1995) and between work environment and training motivation (Tracey *et al.*, 2001), researchers suggest further exploration of the role of motivation in the relationship between contextual factors and various training outcomes (e.g. learning, training transfer, generalization, and maintenance). For example, Tracey *et al.* (2001, pp. 20-21) state: "Future research should examine the impact of training motivation on other types and levels of effectiveness criteria. [T]he impact of additional individual and organizational characteristics on [t]raining motivation should also be considered." Similar research needs are proposed and suggested in other studies (Cheng and Ho, 2001; Colquitt *et al.*, 2000; Mathieu and Martineau, 1997; Tracey *et al.*, 2001). For example, while acknowledging that situational characteristics are related to training motivation and training outcomes, Colquitt *et al.* (2000, p. 700) maintain that "the examination of situational characteristics remains surprisingly rare" and call for research related to culture and contextual factors that "have the most positive relationships with training motivation and outcomes". Thus, we not only replicate previous research but also respond to the research calls by testing the relationships among continuous-learning culture, supervisor support, training motivation, and training outcomes (learning, transfer, generalization, and maintenance).

Second, although researchers forwarded evidence on the effect of supervisor support on training motivation (e.g. Cohen, 1990; Clark *et al.*, 1993; Facticeau *et al.*, 1995; Foxon, 1987) and that of training motivation on training outcomes (Tracey *et al.*, 2001), other studies did not find any relationship between supervisor support and training effectiveness (e.g. Chiaburu and Marinova, 2005; Russell *et al.*, 1985). It is possible for supervisor support to have an indirect effect on training outcomes through training motivation. Thus, since prior studies did not examine this alternative, we address it in this study by testing the relationship between supervisor support and training effectiveness through training motivation.

Third, we focus our attention on one important but less examined (Colquitt *et al.*, 2000) motivational aspect in training, goal orientation. Individuals participate in training programs not only with specific goals in mind, but also with specific goal

*orientations* (i.e. patterns of approaching goals in achievement situations). Formally, performance goal orientation is defined as “a preference to *demonstrate* and validate one’s competence by seeking favorable judgments and avoiding negative judgments from others” (VandeWalle, 2001, p. 163). Thus, individuals with high performance goal orientation are interested in demonstrating task competence through gaining positive and avoiding negative judgments of competence. Empirical studies demonstrate that such performance-oriented individuals tend to avoid challenges, decrease their effort and persistence following failure, and fear negative evaluation by others (Button *et al.*, 1996). In training transfer situations, researchers posit that: “performance-oriented individuals would look for cues as to whether he/she should attempt to learn and transfer trained skills” (Ford and Weissbein, 1997, p. 38). Although goal orientation has been examined in the training literature in relationship with learning and other training outcomes (e.g. Fisher and Ford, 1998; Kozlowski *et al.*, 2001), it has not been linked with more comprehensive training effectiveness criteria such as training maintenance and generalization. This is intriguing, given that meta-analytic research (e.g. Colquitt *et al.*, 2000; p. 701) suggests that “another mechanism that may help build on [their] integrative theory is state goal orientation”. Thus, the current study also addresses this issue by testing the moderating role of performance goal orientation on the relationship between training motivation and training effectiveness criteria.

In addition, consistent with the training effectiveness literature, we take a multidimensional view of training effectiveness. Specifically, our model goes beyond measuring post-training knowledge (or declarative knowledge), by incorporating also distal factors such as training transfer, and less-examined components, such as training generalization and training maintenance. *Declarative knowledge* refers to trainee’s mastery of the training contents as evidenced by post-training test scores. This is what other researchers (e.g. Anderson, 1982, 1985; Gagne, 1984) also refer to as the first level of cognition. For this study, we define *transfer of training* as “the degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job” (Baldwin and Ford, 1988, p. 63). Training *maintenance* is formally defined as the reproduction of trained skills in a new setting, while training *generalization* refers to the adaptation of trained knowledge and skills to a more complex task situation (Ford *et al.*, 1998). Figure 1 presents the hypothesized relationships in this study.



**Figure 1.**  
Hypothesized model

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**Perceived context: continuous-learning culture and training motivation**

A number of contextual/work environment factors have been identified as important elements in training effectiveness. Of these factors, we focus on continuous-learning culture, defined as “an organization wide concern, value, belief, and expectations that general knowledge acquisition and application is important” (Tracey *et al.*, 1995, p. 245), since organizations increasingly rely on continuous learning and continuous improvement to retain competitive advantage (London and Mone, 1999).

Theory-building efforts such as a meta-analysis of Colquitt *et al.* (2000) indicate that such perceptions of context are directly related to training motivation. The more employees perceive that the organization supports continuous-learning, the more the value is salient to them, thus raising their motivation to participate in developmental activities such as training (London and Mone, 1999). Although continuous-learning culture has been sometimes operationalized as an organizational-level variable in some prior studies, it is logical to expect that the individual perception of such a culture is critical to the employees’ training-related motivation, which is also an individual factor. Therefore, we hypothesize,

- H1.* Trainees’ perception of a continuous-learning culture present in the organization will be positively related to their training motivation.

*Supervisor support and training motivation*

In a number of organizations, we observe that immediate supervisors play a significant role in their subordinates’ training motivation (e.g. Facticeau *et al.*, 1995; Weiss *et al.*, 1980). Indeed, in a study involving several organizations, Cohen (1990) found that trainees with more supportive supervisors attended training programs with stronger beliefs in the programs’ usefulness, which is an important factor in employee motivation (e.g. Tharenou, 2001). Similar results were also found by other researchers (e.g. Clark *et al.*, 1993; Facticeau *et al.*, 1995).

Farr and Middlebrooks (1990) applied the expectancy theory framework to explain the process how supervisory support might influence training motivation. They suggest that supervisor support may positively influence motivation because it positively impacts trainees’ expectancies and instrumentalities. Specifically, it is highly likely that immediate supervisors cue the implications of training participation to employees through performance evaluations at the end of the year and through discussions during the performance period. In addition, it is highly likely that these supervisors provide support for employees to successfully participate in and complete the training programs. Thus, we forward the following hypothesis:

- H2.* Perceived supervisor support will be positively related to employee training motivation.

*Training motivation and training effectiveness*

For training programs to be effective, participants should believe that participating in learning would lead to desired rewards (Goldstein and Ford, 2002). Trainees with higher training motivation would, therefore, believe that participation in the program and the subsequent knowledge gain will lead to valued outcomes (Noe, 1986). In this study we focus on four outcomes of training motivation: declarative knowledge, training transfer, training maintenance, and training generalization. It is logical to

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expect that individuals who are highly motivated to attend the training program and to give due attention to the contents of the training program. As a result, they are more likely to score higher points on the post-training test. Indeed, prior studies have also provided evidence on the relationship between training motivation and declarative knowledge (or post-training knowledge). For example, Noe and Schmitt (1986) conducted one of the first studies that tested this relationship and found strong support for the hypothesis. This finding was subsequently supported in other studies (e.g. Mathieu *et al.*, 1992).

We also expect that training motivation will be positively related to distal outcomes, such as training transfer, maintenance, and generalization. Specifically, trainees who are highly motivated to attend the training, as described above, are more likely to see the training as a means to obtain some future benefits. These benefits will only be fully realized if the trainees can either utilize what they learned on the job (i.e. training transfer), in a new setting (i.e. training maintenance), and/or to more complex task situations (i.e. training generalization). Indeed, both theory and empirical evidence supports the relationship between training motivation and training transfer (e.g. Baldwin *et al.*, 1991; Chiaburu and Marinova, 2005; Fecteau *et al.*, 1995; Hicks and Klimoski, 1987; Mathieu *et al.*, 1992; Warr and Bunce, 1995) and training generalization and maintenance (Baldwin and Ford, 1988). Based on these conceptual arguments and on the empirical evidence, we hypothesize:

- H3.* Employee training motivation will be positively related to their (a) post-training declarative knowledge, (b) transfer of training skills, (c) generalization of training skills, and (d) maintenance of training skills.

#### *The moderating role of goal orientation*

In addition to the direct relationships described above, we propose that training motivation will interact with goal orientation in influencing training outcomes. Goal orientation is conceptualized as a mental framework for how individuals interpret and select sets of behavioral responses to achievement situations, such as challenging tasks (e.g. learning, transfer, maintenance and generalization). In this study, we particularly examine the role of performance goal orientation as a moderator of the relationship between training motivation and training effectiveness criteria. By examining this moderating effect, we respond to calls by Mathieu *et al.* (1992) and Ford and Weissbein (1997).

The core proposition of Dweck and Leggett's (1988) theory is that goal orientation influences the individuals' cognitive and behavioral patterns in achievement settings. From a *cognitive* perspective, performance-oriented individuals perceive that their abilities are fixed to a specific level, focus on performing better than others, and set normative-based standards for themselves (Dweck, 1986; Dweck and Leggett, 1988; Elliot and Dweck, 1988). As a result, individuals high in performance orientation use short-term and surface-level learning strategies (Meece, 1994) and exhibit less persistence while performing a task (Dweck, 1986). In terms of *behavior*, individuals high in performance goal orientation have a desire to demonstrate their competence to others and to be positively evaluated by others (Farr *et al.*, 1993). Such a focus on performance is associated with what researchers call a "maladaptive response pattern" (VandeWalle, 2003, p. 584). Other characteristics of this pattern are decreased interest in difficult tasks, withdrawal from tasks, and an orientation toward less challenging

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material and toward tasks on which success is likely (Ames and Archer, 1988; Ames, 1992; Dweck and Leggett, 1988; Elliot and Dweck, 1988; Diener and Dweck, 1978; Diener and Dweck, 1980; Graham and Golan, 1991; Pintrich and De Groot, 1990).

Given the evidence presented above, and provided that trainees were aware that their knowledge will be measured at the end of each course, we propose an interactive effect of performance goal orientation on training outcomes. Specifically, for individuals high in performance goal orientation, the relationship between training motivation and declarative knowledge will be positive and strong because these trainees focus on earning higher scores on the test, using techniques such as, for example, memorization. On the other hand, trainees with low performance goal orientation are less worried about their test score and, therefore, may focus on learning the basics of the training contents. Thus, we hypothesize:

- H4a.* Employee performance goal orientation will moderate the relationship between training motivation and post-training declarative knowledge such that the relationship will be positive and stronger under high performance goal orientation than under low performance goal orientation.

Most of the research to-date has examined direct effects or interactions of goal orientation on proximal training outcomes such as learning in a training setting, with little emphasis on the effects of such interactions on more distal training effectiveness components such as transfer, generalization, and maintenance. Past studies found a negative or weak relationship between performance goal orientation and training transfer (e.g. Bell and Kozlowski, 2002; Ford *et al.*, 1998; Schmidt and Ford, 2003); we attribute such findings to the fact that performance goal orientation may interact with motivational components present in the task environment (Ames and Archer, 1988).

Although trainees with high levels of motivation are likely to increase their training transfer, training maintenance and training generalization, this effect will be weakened when employees also hold a high performance goal orientation. This occurs for several reasons. Recall that such high performance goal-oriented trainees present specific maladaptive cognitive and behavioral patterns, characterized by task withdrawal, decreased interest in difficult tasks, and tendency to seek less challenging situations. We argue that this interaction will have more negative outcomes because trainees with high levels of performance goal orientation will most likely perceive that the job environment is significantly different than the instructional environment and will be reluctant to engage in novel and/or more challenging tasks because of their concern of being perceived incompetent.

First, theoretical propositions indicate that an orientation toward performance goals in the instructional environment could limit trainees' cognitive resources (Ackerman, 1987; Kanfer and Ackerman, 1989; Kanfer, 1990). Such cognitive limitations might have a negative impact on distal training outcomes such as transfer, generalization and maintenance. Even if they have a high training motivation, performance goal-oriented individuals would look for cues in the environment as to whether to engage in skill transfer (Ford and Weissbein, 1997). However, the job environment might not provide such cues, especially for the novel skills that the trainees acquired during the instruction. In addition, the propensity of high performance goal-oriented trainees' to focus on a narrow set of surface characteristics relevant for their performance in the instructional environment (Meece, 1994) is less likely to work to their advantage for

transfer. Similarly, such trainees are less likely to maintain their skills without receiving external cues to engage in such actions; they would also be less inclined to generalize, given their tendency to avoid tasks that have uncertain outcomes and might lead to a high risk of a negative evaluation of their abilities. Indeed, researchers demonstrate that when faced to situations that require reliance on more complex and integrated concepts and principles, trainees might actually have lower training outcomes (Schmidt and Bjork, 1992).

Second, it is very likely that trainees will make mistakes during the transfer process particularly when they acquire skills that are new for them. Performance goal-oriented individuals will respond to such situations with helpless attributions, negative affect and helpless behavior (Robins and Pals, 2002). A large body of literature, forwarded mostly by Dweck and her colleagues, indicates that such cognitive and behavioral patterns have a powerful impact in achievement situations (see Dweck, 1999; Dweck and Leggett, 1988). The situation might be exacerbated for highly motivated trainees; these trainees, despite their high motivation to increase transfer outcomes, are nevertheless concerned about making mistakes and being perceived as incompetent (Dweck and Leggett, 1988). Thus, we argue that it is less likely for such trainees to transfer, maintain, and/or generalize their skills, given the real possibility to make a mistake and therefore to be perceived as incompetent. Overall, based on the prior empirical findings, we have reasons to believe that a high performance goal orientation outweighs the benefits of a high training motivation, mainly because of the performance goal-oriented trainees' maladaptive patterns (Dweck and Leggett, 1988; Elliot and Dweck, 1988; VandeWalle, 2003). Therefore, we hypothesize:

- H4b.* Employee performance goal orientation will moderate the relationships between training motivation and training (*b*) transfer, (*c*) maintenance, and (*d*) generalization, such that the relationships will be negative and stronger under high performance goal orientation than under low performance goal orientation.

## Method

### *Organizational context and sample*

The study was conducted in a large organization, which has nine regional business units dispersed in a metropolitan area of the USA. The organization operates in a relatively stable environment, with a single-digit growth in a fiscal year. Data were collected from employees attending courses during one business cycle, using self-report questionnaires. A total of 119 trainees attended training programs in the focal organization. As the organization has a well-developed internal labor market and career paths with precise requirements, the training courses catered to employees seeking to enhance their professional development and engage in a transition from line to administrative positions. Such non-compulsory courses covered topics related to readiness for such positions; in general, the instructional objectives were related to improving the trainees' communication, professional business presentations, office etiquette, and other similar skills. The first author designed the curriculum based on a competency model that outlined the skills necessary for such a transition. Instructional methods involved significant massed practice, combined with role-plays, group and individual presentations, and instructor or peer feedback. Study participants were engaged in jobs of a technical and administrative nature (e.g. machine operator,

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maintenance specialist, administrative assistant). Of the employees participating in training, 20 percent had college degrees, 59 percent were less than 40 year old, 82 percent had worked for the organization for more than three years, and 66 percent had been in the current position for more than three years.

### *Procedure*

We collected data for this longitudinal study at three different times. At the beginning of each training program (Time 1), trainees completed a survey including questions related to continuous-learning culture, supervisor support and training motivation variables; in addition, trainees took a short content-related multiple-choice pretest assessing their initial knowledge of the specific course domain. At the end of the training period (Time 2), trainees completed a parallel form of content-related posttest assessing their knowledge at the end of the course. Based on guidelines from the conceptual literature analyzing multiple dimensions of transfer (i.e. learning, transfer, maintenance and generalization; Baldwin and Ford, 1988) and on similar studies focusing on transfer (e.g. Axtell and Maitlis, 1997; Tracey *et al.*, 1995), we collected data on transfer, maintenance, and generalization of knowledge between six and 12 weeks after the training programs were completed (Time 3). A total of 71 trainees returned surveys, for a response rate of 59.6 percent. We checked for non-response bias by performing comparisons on control variables and Time 1 data on continuous-learning culture, supervisor support, training motivation, and post-training learning between those who responded to *both* surveys and those who responded to Time 1 surveys only. There were no significant differences for any of these variables.

### *Measures*

We used previously published scales to collect data relevant for the study. Unless otherwise indicated, all measures were assessed using a five-point Likert-type scale (1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; and 5 = strongly agree). We used Cronbach's alpha as a measure of scale reliability. Cronbach alphas for the scales were all higher than the minimum of 0.70 recommended by Nunnally (1978). In addition, we performed factor analyses for each scale separately to examine if, indeed, only one factor best represents each scale. We followed this procedure because the small sample size did not render for analyzing all scales together. The results from these analyses (not reported here) demonstrated that, except for continuous learning culture scale (see below), only one factor was extracted for each of the remaining scales.

*Continuous-learning culture* was assessed using a 24-item scale taken from Tracey *et al.* (1995). Although the items were taken from prior research, our factor analyses in this study did not support the three dimensions. Specifically, the items were mixed on the three dimensions. Thus, we combined all items, and created a one-factor variable – continuous-learning culture. Sample items are, “Job assignments are challenges that stretch employees' knowledge to the limit” and “Job assignments are made in the employee's area of interest and designed to promote personal development”. Cronbach's alpha for the scale was 0.87.

*Supervisor support* was measured using a five-item scale from Yarnall (1998). A sample item is, “My supervisor views employee development as an important aspect of his/her job.” We added two other items, relevant to the present study:

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“My supervisor provides me with the time I need to practice the skills learned in training,” and “My supervisor provides me with constant reminders on how to apply the acquired skills.” Cronbach’s alpha for the scale in this study was 0.91.

*Training motivation* was measured using the eight-item scale developed by Noe and Schmitt (1986) and validated in subsequent studies (e.g. Kossek *et al.*, 1998). A sample item is, “Increasing my skills through training at my organization has helped me to perform my job better.” Cronbach’s alpha for this scale in this study was 0.89.

*Performance goal orientation* was assessed using the eight-item scale from Button *et al.* (1996). Sample items read, “I prefer to do things that I can do well rather than things that I do poorly”, “I feel smart when I do something without making any mistakes”, and “The opinions others have about how well I can do certain things are important to me”. Cronbach’s alpha for this scale in this study was 0.80.

*Proximal outcomes: declarative knowledge.* Knowledge acquisition in the training effectiveness domain is usually assessed by achievement tests administered at the end of the instructional process. Specifically, trainees might be asked to respond to questions in multiple-choice format; such tests provide information related to whether the trainees possess adequate *declarative knowledge* of the material covered in class. We used this principle for our assessment of the trainees’ declarative knowledge as a cognitive outcome (Kraiger *et al.*, 1993) using scores from pre- and post-training paper-and-pencil tests; these assessments are a measure of the trainees’ knowledge of the class material before and after the instructional process, respectively. For example, matching the term “energizing your audience with questions” with the components “choosing questions: rhetorical, group or targeted”, “leveraging questions to achieve impact” and “turning main points into questions” would indicate that the trainee has adequate *declarative* knowledge of one of the concepts covered in a course aimed at improving presentation skills. The tests consisted of short multiple-choice questions, mapping directly into the objectives and content of the respective courses. The content of the tests was reviewed by the first author in order to ensure correspondence with the course content. Thus, our choice of the type of assessment instrument is in line with instructional-systems design guidelines indicating that such a format is optimal for testing the retention of declarative knowledge (Gagne, 1970).

*Distal outcomes: training transfer, training generalization and training maintenance.* Employees were asked to think about the outcomes of the course they attended, using the following question: “This survey focuses on the [course name] course that you took the previous quarter. Based on your self-assessment after the training, to what extent do you agree with the following statements?” Six items, taken from Xiao (1996), were used to measure training transfer. An example item is, “I can accomplish the job tasks better by using new knowledge acquired from the training course.” Cronbach’s alpha for this scale in this study was 0.84. *Training maintenance* was based on the eight-item scale used by Gist *et al.* (1991) to measure transfer maintenance. An item reads, “I have monitored my progress in the use/review of the skills.” Cronbach’s alpha for this scale in this study was 0.82. *Training generalization* was measured using two items from the scale used in Tesluk *et al.* (1995). An example item is, “I incorporate skills learned in the training course into my daily work activities”. Cronbach’s alpha for this scale in this study was 0.80.

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### Analytical procedure

We used regression analyses to test *H1* and *H2*. Specifically, we regressed training motivation on continuous-learning culture (Step 2) and supervisor support (Step 3) after controlling for the demographic variables and for the trainees' knowledge prior to training, which may influence both training motivation and training outcomes. For *H3a-d*, we regressed training outcomes (post-training learning, transfer, generalization and maintenance) on training motivation after controlling for demographic variables and pre-training knowledge (Step 1) and continuous-learning culture and supervisor support (Step 2). To test *H4a-d*, we followed the procedure recommended by Cohen *et al.* (2003) for moderated regression analyses. Thus, we mean-centered the constituent variables and then created the interaction variables as a product of the mean-centered values. This procedure minimizes the occurrence of multicollinearity. Then, we regressed each outcome variable on demographic variables and training learning (Step 1), supervisor support and continuous-learning culture (Step 2), training motivation (Step 3), performance goal orientation (Step 4), and the interaction term (Step 5). If the interactions were significant, they were plotted to illustrate the *form* of the interaction effect, as suggested by Arnold (1982).

### Results

Means, standard deviations, and correlations are presented in Table I. Of the control variables, only participants' educational level was related to training motivation, while pre-training knowledge was related to post-training learning.

*H1* predicted a direct positive relationship between perceived continuous-learning culture and training motivation. As indicated in the second step of the regression in Table II, continuous-learning culture was related to training motivation ( $\beta = 0.28$ ,  $p < 0.01$ ), explaining an additional seven percent of the variance in training motivation. Thus, this result provides support for *H1*. *H2* predicted a positive relationship between supervisor support and training motivation. As expected, employees who reported higher supervisor support had higher training motivation ( $\beta = 0.64$ ,  $p < 0.001$ ; see Table II). After controlling for the demographic variables, pre-training knowledge, and continuous-learning culture, supervisor support explained additional 34 percent of the variance in employee training motivation, providing support for *H2*.

*H3a-3d* predicted that training motivation would be positively related to declarative knowledge, training transfer, training generalization, and training maintenance. Table III presents the results testing these hypotheses. After controlling for demographic variables, pre-training knowledge, continuous-learning culture, and supervisor support, employee motivation for training was related only to training maintenance ( $\beta = 0.35$ ,  $p < 0.05$ ), but not to declarative knowledge ( $\beta = 0.13$ , ns), training transfer ( $\beta = 0.07$ , ns), or training generalization ( $\beta = -0.12$ , ns). Thus, *H3d* was supported, but not for *H3a-3c*.

*H4a-d* predicted a moderating effect of performance goal orientation on the relationships between training motivation and training outcomes (declarative knowledge, training transfer, generalization and maintenance). As shown in Table III, performance goal orientation moderated the relationships between training motivation and training transfer ( $\beta = -0.28$ ,  $p < 0.05$ ) and training generalization ( $\beta = -0.32$ ,  $p < 0.05$ ), but not those with declarative knowledge ( $\beta = 0.04$ , ns) and

**Table I.**  
Means, standard deviations, correlations, and reliabilities<sup>a</sup>

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	1.49		0.50	-										
2. Education	2.75	1.14	0.01	0.01	-									
3. Age	5.19	0.85	0.03	0.15	0.02	-								
4. Declarative knowledge (before)	6.92	2.09	0.15	0.09	0.09	-0.05	-							
5. Declarative knowledge (after)	13.66		2.84	0.13	0.13	0.09	0.04	0.41	-					
6. Continuous-learning culture	3.31	0.47	-0.01	-0.07	-0.01	-0.01	-0.22	0.41	(0.84)					
7. Supervisor support	3.49	0.85	0.06	-0.11	0.03	-0.14	0.43	0.41	(0.91)					
8. Training motivation	3.98	0.63	-0.03	-0.21	-0.06	-0.11	0.34	0.31	0.66	(0.89)				
9. Performance goal orientation	3.74	0.59	0.09	0.01	0.07	-0.21	0.15	0.34	0.27	0.29	(0.80)			
10. Training maintenance <sup>a</sup>	3.74	0.61	-0.04	-0.11	0.02	0.10	0.21	0.16	0.20	0.31	0.09	(0.82)		
11. Training generalization <sup>a</sup>	4.14	0.82	0.04	-0.10	-0.11	0.03	0.15	0.03	0.08	-0.01	0.05	0.47	(0.80)	
12. Training transfer <sup>a</sup>	3.92	0.61	-0.08	0.07	-0.11	0.05	0.21	0.12	0.20	0.16	0.12	0.60	0.76	(0.84)

**Notes:** Reliabilities are on the diagonal matrix; <sup>a</sup>  $n = 71$ ; For others,  $n = 119$ ; Correlations  $> 0.200$  are significant at  $p < 0.05$  for  $n = 119$ . Correlations  $> 0.200$  are significant at  $p < 0.10$  for  $n = 71$

Predictors	Step 1 ( $\beta$ )	Step 2 ( $\beta$ )	Step 3 ( $\beta$ )
<i>Step 1</i>			
Gender	-0.01	-0.02	-0.07
Education	-0.20*	-0.18*	-0.14*
Age	-0.06	-0.05	-0.07
Declarative knowledge (before)	-0.09	-0.03	0.02
<i>Step 2</i>			
Continuous-learning culture		0.28**	0.05
<i>Step 3</i>			
Supervisor support			0.64***
$R^2$	0.06	0.13	0.47
$\Delta R^2$		0.07	0.34
$F$	1.65	3.29**	16.20***
$\Delta F$		9.34***	70.57***

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

**Table II.**  
Regression results predicting training motivation

training maintenance ( $\beta = -0.07$ , ns), failing to provide support for *H4a* and *4c*. Figure 2 indicates a strong, negative relationship between training motivation and training transfer when trainees have a high performance goal orientation, but a strong positive relationship when they have a low performance goal orientation, thus providing support for *H4b*. Similarly, the relationship between training motivation and training generalization is negative and strong when trainees have a high performance goal orientation, but not significant when trainees have a low performance goal orientation (see Figure 3). Thus, these results also provide support for I.

### Discussion

The present study aims at responding to calls for research that includes both contextual and individual variables in training effectiveness models (Baldwin and Ford, 1988; Colquitt *et al.*, 2000; Ford and Weissbein, 1997). Specifically, we examine the relationship between perceived contextual antecedents, such as continuous-learning culture and supervisor support, and training motivation, which in turn is linked to multiple dimensions of training effectiveness (learning, transfer, maintenance, and generalization). Furthermore, this study tests performance goal orientation as a moderator of the relationships between training motivation and training effectiveness dimensions as suggested by Mathieu *et al.* (1992) and Ford and Weissbein (1997).

First, we predicted and found support for the direct effect of continuous-learning culture and supervisor support on training motivation. Although continuous-learning culture has a direct relationship with training motivation, this effect disappears once supervisor support is included into the equation. Such results indicate that trainees who receive support from supervisors will have higher levels of training motivation. In addition, these results suggest that supervisor support is a stronger predictor of training motivation when compared with continuous-learning culture. A possible explanation for the weak effect of continuous-learning culture is that supervisor support may fully mediate the relationship between continuous-learning culture and training motivation. Specifically, it is likely that employees perceive their supervisor as proximal, as opposed to more distal organizational systems. Recent conceptual and

Predictor	Step 1	Step 2	Step 3	Step 4	Step 5
<i>Post-training declarative knowledge</i>					
<i>Step 1:</i>					
Gender	0.07	0.03	0.04	0.04	0.04
Education	0.06	0.11	0.13	0.12	0.13
Age	0.05	0.06	0.06	0.06	0.06
Declarative knowledge (before)	0.39***	0.54***	0.53***	0.54***	0.53***
<i>Step 2:</i>					
Continuous-learning culture		0.38***	0.39***	0.39***	0.39***
Supervisor support		0.35***	0.27***	0.27***	0.26**
<i>Step 3:</i>					
Training motivation (TM)			0.13	0.13	0.14
<i>Step 4:</i>					
Performance goal orientation (PGO)				0.01	0.01
<i>Step 5:</i>					
TM * PGO					0.04
$R^2$	0.18	0.55	0.56	0.56	0.56
$\Delta R^2$		0.37	0.01	0.00	0.00
$F$	6.15***	22.48***	19.79***	17.16	15.22***
$\Delta F$		45.45***	2.20	0.02	0.04
<i>Training transfer</i>					
<i>Step 1:</i>					
Gender	-0.07	-0.12	-0.12	-0.14	-0.19
Education	0.06	0.06	0.06	0.05	0.02
Age	-0.10	-0.10	-0.09	-0.09	-0.09
Declarative knowledge (before)	0.05	0.09	0.10	0.12	0.16
<i>Step 2:</i>					
Continuous-learning culture		0.03	0.02	-0.02	-0.09
Supervisor support		0.23	0.18	0.19	0.30
<i>Step 3:</i>					
Training motivation (TM)			0.07	0.05	-0.02
<i>Step 4:</i>					
Performance goal orientation (PGO)				0.11	0.15
<i>Step 5:</i>					
TM * PGO					-0.28*
$R^2$	0.02	0.08	0.08	0.09	0.16
$\Delta R^2$		0.06	0.00	0.01	0.07
$F$	0.39	0.89	0.78	0.76	1.28
$\Delta F$		1.86	0.19	0.68	5.02*
<i>Training generalization</i>					
<i>Step 1:</i>					
Gender	0.04	0.02	0.02	0.00	-0.05
Education	-0.10	-0.10	-0.11	-0.11	-0.15
Age	-0.11	-0.11	-0.11	-0.11	-0.11
Declarative knowledge (before)	0.04	0.05	0.03	0.04	0.09
<i>Step 2:</i>					
Continuous-learning culture		-0.01	-0.01	-0.03	-0.12
Supervisor support		0.09	0.17	0.18	0.30***
<i>Step 3:</i>					
Training motivation (TM)			-0.12	-0.14	-0.22

**Table III.**  
Regression results  
predicting training  
outcomes

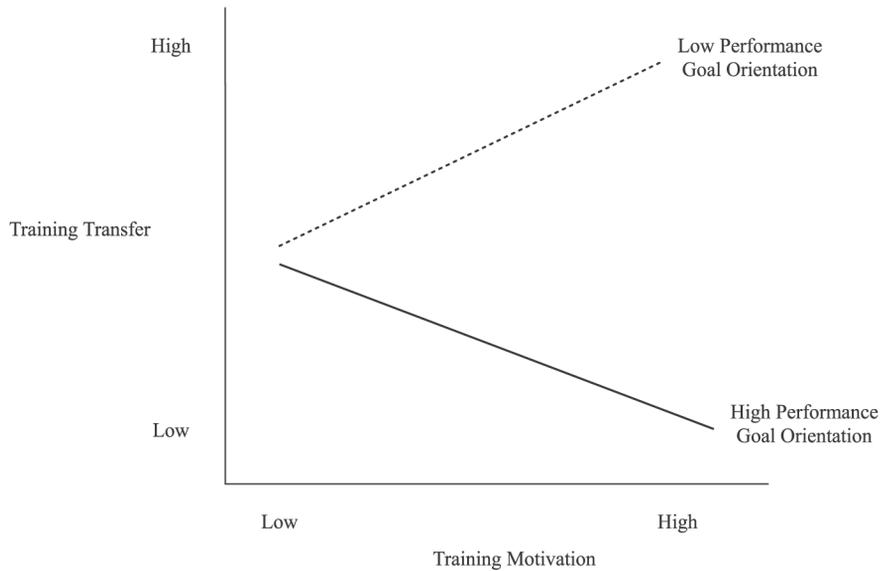
(continued)

Predictor	Step 1	Step 2	Step 3	Step 4	Step 5
<i>Step 4:</i>					
Performance goal orientation (PGO)			0.07	0.11	
<i>Step 5:</i>					
TM * PGO					-0.32*
$R^2$	0.03	0.03	0.04	0.05	0.14
$\Delta R^2$		0.00	0.01	0.01	0.09
$F$	0.42	0.35	0.38	0.36	1.06
$\Delta F$		0.23	0.54	0.27	6.41*
<i>Training maintenance</i>					
<i>Step 1:</i>					
Gender	-0.08	-0.13	-0.13	-0.14	-0.15
Education	-0.14	-0.15	-0.14	-0.14	-0.15
Age	-0.10	-0.10	-0.09	-0.09	-0.09
Declarative knowledge (before)	0.04	0.05	0.07	0.07	0.07
<i>Step 2:</i>					
Continuous-learning culture		0.11	0.09	0.07	0.05
Supervisor support		0.19	-0.03	-0.02	0.01
<i>Step 3:</i>					
Training motivation (TM)			0.35*	0.34*	0.32****
<i>Step 4:</i>					
Performance goal orientation (PGO)				0.06	0.07
<i>Step 5:</i>					
TM * PGO					-0.07
$R^2$	0.04	0.10	0.17	0.17	0.17
$\Delta R^2$		0.06	0.07	0.00	0.00
$F$	0.58	1.15	1.74	1.53	1.38
$\Delta F$		2.22	4.89*	0.19	0.31

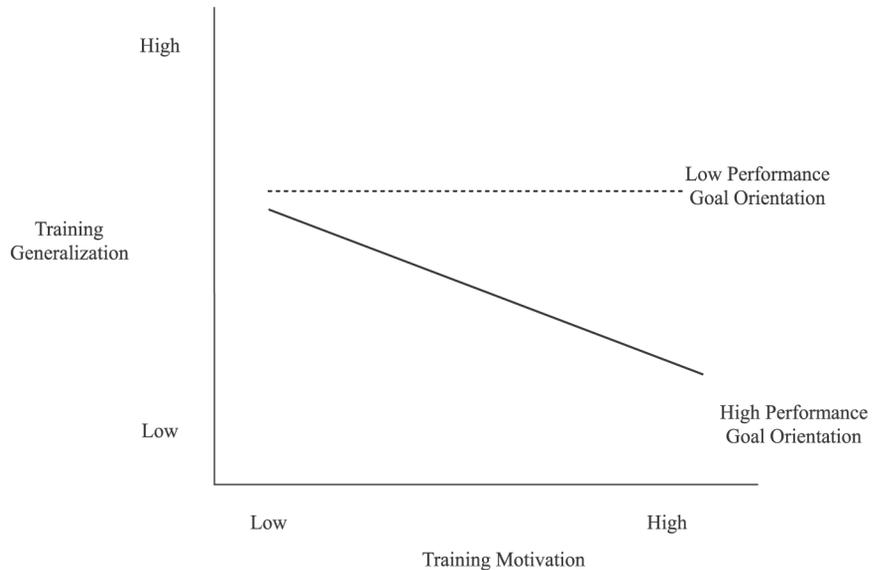
Notes: All values are standardized coefficients. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.10$

Table III.

empirical research has also suggested similar effects. For example, conceptual work (e.g. Rousseau, 1985) suggests that individual behavior is most affected by variables proximal to the employee, and empirical research (Chen *et al.*, 2002; Tesluk *et al.*, 1995) provided support for the thesis that proximal constructs explain more variance in performance than distal organizational constructs. As perceptions of supervisor behavior and support filter other perceptions of the organizational context such as continuous-learning culture, it is likely that supervisors not only directly cue the employees on the importance of training and enhance their motivation but also act as representatives of the larger organizational culture for their subordinates. Accordingly, organizational culture factors such as continuous-learning may be perceived by the employees as more distal than immediate supervisor support. We followed Baron and Kenny (1986) procedure to test for the mediating role of supervisor support on the relationship between continuous-learning culture and training motivation. In addition to the results shown in Table II, we regressed supervisor support on continuous-learning culture after introducing the control variables in the first step. The results from the latter regression analysis, not presented here, showed that continuous-learning culture was significantly related to supervisor support ( $\beta = 0.46$ ,  $p < 0.001$ ). However, as shown in Table II (Step 3), the relationship between



**Figure 2.** Interactive effects of training motivation and performance goal orientation on training transfer



**Figure 3.** Interactive effects of training motivation and performance goal orientation on training generalization

continuous-learning culture and training motivation was not significant ( $\beta = 0.05$ ,  $p > 0.10$ ) when supervisor support was entered into the equation, fulfilling the criteria for full mediation (Baron and Kenny, 1986). Moreover, Sobel (1982) test of indirect effects shows a significant  $t$ -value ( $t = 4.595$ ,  $p < 0.001$ ), indicating that supervisor support acts as a mediator of the relationship between continuous-learning culture and training motivation.

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The second goal of this study was to examine the role of training motivation as a predictor of post-training declarative knowledge, training transfer, generalization, and maintenance, after controlling for contextual factors. Contrary to our expectations, training motivation did not have a direct relationship with post-training declarative knowledge. This indicates that training motivation did not have any incremental effect on such knowledge above and beyond the effect explained by education and pre-training knowledge, although training motivation and post-training declarative knowledge were significantly correlated ( $r = 0.34, p < 0.001$ ). Our results are in line with findings of other researchers who failed to find support for this relationship (e.g. Noe and Schmitt, 1986).

Also, contrary to our expectations, the direct relationships between training motivation and training transfer and generalization were not supported. Although these findings were contrary to our initial direct relationship hypotheses, we found that training motivation interacted with performance goal orientation in affecting training transfer and generalization, a relationship discussed in detail in the next paragraph. On the other hand, as expected, the present data confirmed the positive relationship between training motivation and transfer maintenance. This finding indicates that employees' training motivation is important for their subsequent skill maintenance.

Third, we hypothesized that performance goal orientation would moderate the relationship between training motivation and training effectiveness criteria. When such an interaction is present, trainees should receive differential interventions if training outcomes are to be maximized. In our study, we found support for the moderating effect of performance goal orientation on the relationship between training motivation and training transfer and training generalization. Specifically, when the trainees maintained a high level of performance goal orientation, their high levels of training motivation resulted in diminished training transfer. On the other hand, high training motivation resulted in a higher level of transfer when the participants maintained lower levels of performance goal orientation. Similarly, the study provided support for the predicted moderating effect of performance goal orientation on the relationship between training motivation and training generalization. That is, a higher level of training motivation was negatively related to training generalization when trainees maintained a high level of performance goal orientation, while there was no effect of training motivation on generalization for low levels of performance goal orientation.

These results imply that higher levels of training motivation do not necessarily lead to better outcomes (e.g. transferring and generalizing skills gained in training programs) for trainees with higher levels of performance goal orientation (which is sometimes manifested as a short-sighted effort to "look good" to others (VandeWalle, 2001)). Therefore, it is essential that trainers and/or supervisors engage in an assessment of the trainees' performance goal orientation, particularly when the training goals aim at enabling participants' skill transfer and generalization since there are studies indicating that such goal orientations are amenable to modification (e.g. Stevens and Gist, 1997; Winters and Latham, 1996). Such modifications can be attempted either by supervisors before sending the employee to the instructional environment, or by the trainers in the early stages of the instructional process. In a related course of action, it is possible to utilize self-management interventions, which may provide explicit instruction in metacognitive activities related to self-regulation

and may subsequently decrease the outcome of interest, i.e. performance goal orientation (Stevens and Gist, 1997).

### *Limitations*

This study is not without limitations. First, the results may not be attributed to the effects of the training programs alone since it was not conducted in a controlled condition, although some authors (e.g. Sackett and Mullen, 1993) mention that this particular design might be appropriate when assessment of specific knowledge is sought. Nevertheless, utilizing a control or comparison group might have enhanced the internal validity of the present study. Second, trainees in this study self-nominated to attend the training programs conducted in the organization and only some of them responded to the surveys containing the dependent variables. However, the effect of this problem seems minimal because there was no evidence of non-response bias, i.e. we did not find any difference between the two groups in any of the control, continuous-learning culture, supervisor support, training motivation, and post-training knowledge variables. Moreover, we tested *H1*, *2*, *3a* and *4a* using only the 71 trainees who responded to both surveys. Results were virtually the same; thus, the possible limitation related to a smaller number of respondents at Time 2 is diminished. Third, the study uses self-reports for the variables under investigation. This is due partly to the constraints of a field study and partly to the specific training programs under investigation. It is likely that individual employees would be a better source to collect information for skills that are not readily observable by their supervisors or their peers, as it was the case in the present study. In addition to research indicating that self-reports are not always a major limitation in organizational behavior research (Spector, 1994), other researchers (e.g. Fecteau *et al.*, 1995) also mention that there is no evidence that trainees cannot correctly estimate their levels of skill transfer. Fourth, the generalizability of the results might be limited since the dataset is specific to one company. Thus, the findings should be replicated in other companies that use different programs and other trainees from multiple organizations

### *Theoretical and practical study contributions*

Despite the above limitations, this study extends previous research in several aspects. First, although Mathieu *et al.* (1992) found support for the relationship between supervisor support and training motivation for one training program, the present study provides support for this relationship across several training programs. Second, as proposed by Tracey *et al.* (1995), we tested a direct relationship between continuous-learning culture and training motivation. Third, the present findings also extend previous work that linked training motivation to learning and perceived transfer (Mathieu *et al.*, 1992; Fecteau *et al.*, 1995) by including training generalization and maintenance as training effectiveness criteria. Fourth, we responded to calls for research examining interactions that are relevant for the relationship between training motivation and training effectiveness criteria (Mathieu *et al.*, 1992; Ford and Weissbein, 1997) and showed that performance goal orientation is one such boundary condition. This study is the first that we know to test for all these elements in a model.

The results of the study have also important practical implications. As contextual organizational-level factors such as continuous-learning culture are important for training effectiveness, interventions aimed at changing related employee perceptions

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can be devised. This can be done, for example, through formal processes such as policies and directives. Integration of organizational learning culture questions in needs assessment surveys is also in order, since it has been shown that these variables relate in a significant way to training motivation. In the light of the present findings, continuous-learning culture is filtered by perceptions of supervisor support, which suggest that interventions should be communicated and made explicit through the direct supervisor in order to reap their full benefits. To meet this objective, training programs aimed at modifying supervisor behavior or role in relationship to employee development, and supervisor communication of the scope, direction, intensity, and purpose of culture interventions in general and continuous-learning culture in particular may be essential to maximize the benefits of supervisor support for training effectiveness. In addition, the creation of policies which require the employee to initiate a brief discussion session before training in order to make sure that a correct understanding of the training programs benefits exist, is another possible direction.

This study also provides empirical evidence to managers and trainers that they need to be cautious in their effort to raise the trainees' levels of training motivation. As shown in this study, higher training motivation may not necessarily lead to desired outcomes. Thus, the performance goal orientation of employees participating in training programs may negate the effort of the organization to gain competitive advantage through training. Specifically, managers and trainers should work together with each trainee in providing guidance and in setting goals for training. In the light of the present study, managers and trainers should strive to downplay the performance goal orientation of the trainees, in particular when the training programs aim at promoting skill transfer and generalization. Consequently, aside from creating special training modules aiming at goal orientation assessment and modification, the work context can combine components that would level off such competitive orientations related to performance. For example, knowledge management systems that require employees to share learning experiences, or a context that would encourage trainees to exhibit cooperation patterns as opposed to competitive ones might be useful in managing performance goal orientation. Provided that these results are based on a field study, we also recommend that researchers conduct experimental studies to better understand the consequences of downplaying performance goal orientations in reference to training effectiveness criteria.

### **Directions for future research**

As indicated above, the relationship between training motivation and training effectiveness dimensions is complex and needs to be further investigated. First, future studies should attempt to replicate these findings, including possible moderating effects of learning goal orientation in addition to performance goal orientation. Second, data collected from several sources, such as supervisor and/or peer ratings of the trainees' post-training behaviors would also enhance the credibility of the findings. Moreover, motivation remains a construct of interest as it contributes to training outcomes in addition to other individual and work environment predictors (Colquitt *et al.*, 2000). Consequently, different conceptualizations can be used to test the relationships of motivation variables with training outcomes. For example, training motivation can be conceptualized retrospectively, as in the present study, or prospectively, as related to future expected outcomes. Interactions of these

motivational components with goal orientation should be examined. Also, goal orientation can be construed both as a dispositional (trait-like) and situational (state-like) factor (Chen *et al.*, 2000). Studies that measure the dispositional part of goal orientation at the beginning of the program and combine it either with manipulations or with measurements at a different point in time could bring additional insights on how it operates. In addition, given that some of the variables in the study (i.e. continuous-learning culture, supervisor support) can be also collected from sources other than the focal employees, future research might examine the current relationships using data on these variables from other sources.

In conclusion, the study contributes to our knowledge of training by testing relationships suggested by researchers and examining a broader model of training effectiveness, including important contextual factors such as perceived learning culture and supervisor support. Such inclusions are important in that they provide support for theoretical propositions that expand the limited perspective on the training function to a more systemic level. In addition, the study indicates that the relationships between training motivation and training effectiveness dimensions are more complex, including interactions between training motivation and performance goal orientation. The results of the present study suggest that there is considerable complexity extending beyond the direct relationships of training motivation with training outcomes. As training effectiveness remains important in research and business contexts, future studies should explicate these relationships and interactions in greater detail.

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