

ENHANCING SKILL MAINTENANCE THROUGH RELAPSE PREVENTION  
STRATEGIES: A COMPARISON OF TWO MODELS

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In a quasi-experimental field study, two posttraining interventions composed of relapse prevention (RP) strategies were compared and tested for the effects on participant transfer outcomes. Participant retention of training content, skill maintenance, use of relapse prevention strategies, and self-efficacy served as the dependent variables. Self-efficacy was also tested as a mediator between the experimental treatment levels and both participant skill maintenance and participant use of RP strategies.

Participants (n = 39) included managers, directors, and supervisors from various departments within a multi-national telecommunications organization located in a large southern city. After participating in a four-hour leadership development training, two of the three groups participated in a 30-40 minute training where they received one of two RP interventions. One intervention included the steps of (1) identifying potential obstacles to positive training transfer, (2) predicting the first lapse to pretraining behavior, and (3) applying relevant coping strategies to thwart a lapse. The alternative RP intervention included the same steps in addition to a goal setting step.

Discriminant descriptive analysis was used to test for group differences across the response variables and to identify on which variables the groups differed. Three separate regression equations were used to test for the mediating relationship of self-efficacy between the RP treatment levels and participant skill maintenance and participant use of RP strategies. Results indicated minimal, but non-statistically significant results between treatment levels and each of the response variables. Self-efficacy was not found to

mediate the relationship between RP treatment level and participant skill maintenance or participant use of RP strategies, but did function as a strong predictor of both variables. Suggestions for future research include using additional motivational and efficacy variables to better explore group differences and including efficacy-inducing methods both in training design and as part of a transfer intervention to enhance training transfer. Further, specific suggestions concerning conceptual and psychometric refinement of the RP construct are discussed.

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## CHAPTER 1

### INTRODUCTION

#### Background and Significance of Study

Experts note that creating, capturing, and sharing knowledge are among the more important challenges facing organizations today (Weintraub & Martineau, 2002). Although employee training continues to be an effective way of leveraging knowledge to enhance performance, this goal is realized only when trainees can successfully apply and maintain their trained skills in the work context. When training design is geared more toward skill acquisition than retention, trainees are often ill-prepared to effectively manage many of the obstacles (i.e., lack of manager, peer, technological support) to successful skill transfer experienced once they are back in the work context (Marx, 1986). Such emphasis is problematic in organizations that evaluate employees on whether their application of trained skills yields both significant business results and a positive return-on-investment. Given this, trainees who learn effective strategies for overcoming potential obstacles to positive transfer may successfully maintain their skills longer.

Trainees demonstrate positive transfer of training by (a) *generalizing* the training material back to their work context and (b) *maintaining* their skills over time. One common method to enhance training transfer is for participants to learn cognitive and behavioral strategies that help increase both the generalization and maintenance of learned skills. Two of the more promising approaches for enhancing skill maintenance are to have trainees set specific skill goals and learn to recognize potential “trigger” situations (Marx, 1982) that may cause a relapse to pretraining behaviors. Goal setting is a well-documented successful transfer intervention (cf. C. K. Stevens & Gist, 1997; Gist, Stevens, & Bavetta, 1990; Morin & Latham, 2000; Richman-Hirsch, 2001; Wexley & Baldwin, 1986) in which participants are asked to establish specific, challenging goals

for applying their newly trained skills in the work context. In contrast, relapse prevention strategies enable participants to focus more on successfully managing events or experiences (i.e., time pressure, stress, conflict) that may cause a relapse to pretraining behaviors. First proposed by Marlatt and Gordon (1980) as a maintenance intervention for people with addictive behaviors (i.e., smoking, overeating, drug use), Marx (1982) proposed that a seven-step relapse prevention module (RP) could also be applied as a transfer intervention in less high-risk situations such as management training and organizational development programs. Marx's (1986) initial conceptualization of RP strategies includes the following:

1. Set a skill maintenance goal
2. Operationally define a slip and relapse
3. Explicate the advantages/disadvantages of applying new skills
4. Learn 14 specific transfer strategies (both cognitive and behavioral)
5. Predict first slip
6. Create coping skills
7. Monitor progress back on the job. (pp. 56)

Attention to relapse prevention strategies (RP) as a transfer intervention has recently gained momentum in training research circles. Noted in several current books and articles concerning trends in training performance (cf. Broad & Newstrom, 1992; Burke, 2001; Bates, 2003) considerable space has been devoted to discussing the effectiveness of using RP strategies to enhance trainee skill maintenance. In empirical research, some authors have found success in using Marx's (1986) RP strategies to promote skill maintenance in management development training (Tziner, Haccoun, & Kadish, 1991; Noe, Sears, & Fullenkamp, 1990). Further, other researchers have found moderate success of RP strategies as a transfer intervention when using a modified (shorter) version (Burke, 1997; Burke & Baldwin, 1999) to enhance skill maintenance. The modified version included three steps considered to be the essential strategies of the RP approach, namely that participants learn transfer strategies, predict a lapse, and apply relevant

coping skills (i.e., steps 4-6). However, the RPM model failed to include a goal setting step, a strategy found to enhance skill maintenance when paired with other self-management techniques (Gist, Stevens, & Bavetta, 1991; C. K. Stevens & Gist, 1997; Morin & Latham, 2000).

Specifically, goal setting has been found to help individuals regulate their behavior by directing attention and action, mobilizing energy expenditure or effort, prolonging effort over time (i.e., persistence), and motivating the individual to develop relevant strategies for goal attainment (Locke & Latham, 1979; Locke, Saari, Shaw & Latham, 1981). Thus, including a goal setting step in the RPM model may maximize skill maintenance with a more parsimonious intervention.

With the demonstrated success of goal setting strategies to enhance transfer maintenance and the modest success of the RPM model, this study attempted to combine elements of the two transfer interventions to enhance use of RP strategies and overall skill maintenance. Specifically, a goal setting step was added to the RPM model in an effort to increase trainee maintenance of new behaviors from a leadership skills training program. A second objective of this study was to explore self-efficacy as a mediating variable between relapse prevention strategies and the outcomes of learning retention, participant skill maintenance, and participant use of RP strategies.

### Theoretical Framework

To provide a theoretical background for this study, a brief review of the transfer model offered by Baldwin and Ford (1988), the transfer interventions of goal setting and relapse prevention strategies, and sources and determinants of self-efficacy follows. Each section highlights issues important to enhancing skill maintenance.

## Transfer Process

Learners demonstrate positive transfer of training by (a) *generalizing* the training material back to their work environment and (b) *maintaining* their performance over time in both identical, similar, and novel situations. The process by which learners obtain these outcomes is described in an adapted version of Baldwin and Ford's (1998) transfer model presented by Noe (2002) in Figure 1.

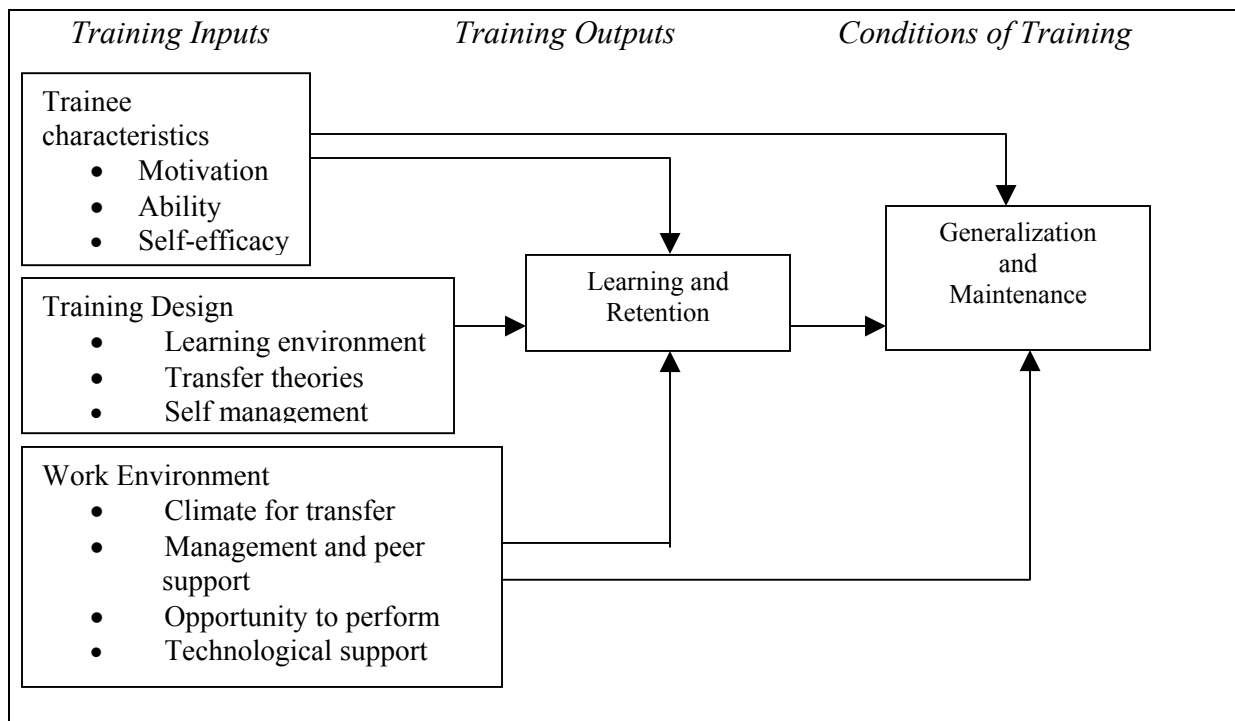


Figure 1. Transfer of training model.

Note. Conceptualized by Baldwin and Ford (1988) and adapted by Noe (2002).

The model considers training input factors, training conditions, and training output factors when explaining how positive training transfer occurs. Training input factors include *trainee characteristics* (motivation and ability), *training design* (create a learning environment, apply

theories of transfer, use self-management strategies), and *work environment* (climate for transfer, management and peer support, opportunity to perform, technological support). Training outcomes are defined as the amount of learning that occurs within the training program and the retention of knowledge, skills, and/or attitudes (KSAs) that occurs after the completion of the program. Conditions of transfer include both the generalization of material learned to the work context and maintenance of the learned material over time on the job.

Obstacles to training transfer can occur in each part of the transfer process. Trainees may lack cognitive ability and motivation or experience low self-efficacy in relation to mastering the training content. The training design may also be poorly structured, include unorganized or inadequate training materials, or neglect basic adult learning principles (Knowles, Holton & Swanson, 1998) such as using realistic examples, having opportunities for practice, and offering specific feedback on trainee performance. Teaching participants to anticipate how they will maintain their new skills in the work context is also a part of training design. Again, as noted by Marx (1986), participants may successfully acquire the training content, but be unable to maintain the new skills when faced with obstacles unless they are trained in self-management techniques that include anticipating barriers to transfer and employing coping strategies. Finally, the actual work environment may lack support for the participant's new skills. Noe (2002) suggested that managers foster a supportive transfer climate by encouraging the use of new skills, becoming involved in the training sessions, offering feedback on trainee use of new skills in the workplace, and by using both intrinsic and extrinsic rewards for improved performance.

### Goal Setting

Goal setting is a well-developed and successful strategy that focuses on having participants set specific, challenging goals. Training in setting goals has been found to help



individuals better direct their attention and action, mobilize energy expenditure or effort, prolong effort over time (persistence), and develop relevant strategies for goal attainment (Locke & Latham, 1979; Locke et al., 1981). In a review of goal setting research, Locke, et al. (1981) found that in more than 90% of the studies, participants who set specific and challenging goals enhanced their performance compared to those who were merely told to “do your best” and those in the control group. Specifically, goal setting is most likely to improve task performance when goals are specific and sufficiently challenging, subjects have sufficient ability, feedback is provided to show progress in relation to the goal, rewards are given for attainment, the experimenter or manager is supportive, and assigned goals are accepted by the individual. Used primarily in studies to either increase or extinguish certain skills (e.g., decrease absenteeism, increase production goals), goal setting recently has been used with success as a transfer intervention for interpersonal skills training that enhances positive transfer back to the work context (C. K. Stevens & Gist, 1997; Gist et al., 1990; Morin & Latham, 2000; Richman-Hirsch, 2001; Wexley & Baldwin, 1986; Wexley & Nemeroff, 1975).

### Relapse Prevention Training

Used initially to help individuals maintain abstinence from addictive behaviors (alcohol, physical abuse, smokers, weight loss), relapse prevention training (RP) offers a series of self-maintenance strategies to help an individual understand and effectively manage potential relapses to previous (pretraining) behaviors. Marlatt and Gordon (1980) posited that patients would experience an increase in self-efficacy toward maintaining training skills as a function of successfully using coping strategies to prevent slip or relapse in the post-treatment period. Rather than focusing on acquiring skills to prevent the use of drugs or alcohol, patients would be trained in skills to maintain their new skills in the posttreatment period. The specific RP strategies

conceptualized by Marx (1986) are based on the four steps of behavioral self-management listed below:

Stimulus management: learn to manage stimuli by anticipating predictable trouble spots;  
Organism: increase rational thinking; expect to handle thoughts and feelings that interfere with rational skill building;  
Behavior: diagnose skill deficiencies, and learn and practice necessary support skills; and  
Consequences: learn to provide appropriate consequences for behavior, which may not be available in the work environment. (pp. 55)

Based on the idea of enhancing participant efficacy toward skill maintenance, Marx (1986) extended the use of relapse prevention strategies to organizational development training situations, specifically to help managers transfer new skills to their work context. Marx noted that managers often have several obstacles (e.g., stress, time pressure, skill inadequacies) to effectively maintaining trained skills once they return to the work setting. Specifically, he theorized that managers trained in RP strategies should be better able to successfully identify high-risk situations, employ coping mechanisms to help manage a potential relapse, experience increased self-efficacy, and in turn, decrease the probability of relapse. Working from the notion that participants needed training in the “maintenance” of trained skills in addition to those that help them “acquire” the skills presented within the training setting, Marx noted that organizations could better identify the factors that participants perceive as obstacles to skill maintenance by using RP strategies as a transfer intervention in management development training.

Although various researchers have applied some form of the RP model as a transfer intervention, Burke and Baldwin (1999) claimed to be the first to use a pure operationalization of Marx’s (1986) RP model in an empirical study. The model they used consists of the seven steps outlined below:

1. Set a skill maintenance goal
2. Operationally define a slip and relapse
3. Explicate the advantages/disadvantages of applying new skills
4. Learn specific (cognitive/behavioral) transfer strategies
5. Predict first slip
6. Create coping skills
7. Monitor progress back on the job. (pp. 228)

Several researchers have applied some form of the modified version of the initial seven-step model to include fewer steps (Burke, 1997; Burke & Baldwin, 1997, 1999; Wexley & Baldwin, 1986)—namely steps 4, 5, and 6 as a transfer intervention. Specifically, Burke and Baldwin (1999) found the modified RP model (RPM) to be more successful than the full RP model in helping participants maintain trained skills when they perceived that the work environment was conducive to transfer. In qualitative comments concerning the full RP model, between 50-70% of the participants considered the steps of goal setting, predicting the first slip, and generating specific coping skills to be the most useful compared to the other steps (Burke, 1997).

### Self-efficacy

Introduced first by Bandura (1977), self-efficacy refers to beliefs in one's ability to utilize cognitive and behavioral resources to accomplish a certain task. Based on social cognitive theory, self-efficacy assumes that individuals are capable of *human agency* (intentional directed behavior) based on a series of determinants: previous behavior or performance, internal personal factors, and the external environment. Bandura (1982) suggested that the interplay of these factors can influence an individual's perception of task capability or performance and, thus, direct future action.

An individual's level of self-efficacy will influence the choice of activities and environments and will often dictate how much effort will be put into accomplishing goals despite obstacles or stressful conditions. Specifically, persons who consider themselves highly

efficacious are more likely to set difficult goals and adjust them based on their progress, will take a proactive role in reducing stress or disruptions in their environment that may inhibit performance, and will obtain support from others to increase their ability to cope with difficulties. Because such skills are crucial to both acquiring and maintaining new skills, Bandura (1986) suggested four sources of efficacy development as related to individual performance:

1. *Enactive mastery*: performance success strengthens self beliefs of capability
2. *Modeling*: proficient models build self beliefs of capability by conveying to observers effective strategies for managing different situations
3. *Verbal persuasion*: realistic encouragement promotes individual effort
4. *Arousal*: physical state can build self beliefs of capability. (pp. 126-129)

Self-efficacy is important to consider when determining a participant's given level of "readiness" for training (Noe, 1986) and has been found to be highly related to subsequent performance (cf. Gist, 1986; Harrison, Rainer, Hochwarter, & Thompson, 1997; Mathieu, Martineau, & Tannenbaum, 1993; Morin & Latham, 2000). Specifically, participants who perceived themselves as highly efficacious were more capable of both mastering the training content and maintaining their skills in their work context than were those with lower levels of self-efficacy. Because increasing an individual's self-efficacy is inherently a self-regulatory process (Bandura, 1982) and, thus, more malleable than a given organization's support initiatives for positive transfer, it may provide a better construct for explaining—and controlling for—differences in individual skill maintenance.

Bandura (1997) also noted that training programs rarely offer instruction in "resiliency" for maintaining skills in the midst of setbacks. Because effect of a lapse or slip to pretraining behavior can manifest itself in persons low in self-efficacy, identifying interventions that enhance self-efficacy toward skill maintenance in the work context would prove extremely

useful. Further, because Marx's (1986) RP module is based on enhancing self-efficacy by overcoming lapses through applying coping strategies, research that explores the relationship among modified RP strategies, self-efficacy, and subsequent transfer outcomes (i.e., skill maintenance, use of RP strategies) may equip trainers with a better understanding of how to strategically apply such skills as a transfer intervention.

### Purpose of the Study

The purpose of the study was to compare the effect of two versions of modified relapse prevention training interventions (see Table 1) on transfer outcomes for participants involved in leadership skills training. Specifically, this study explored how trainees grouped by modified relapse prevention training interventions differ with respect to learning retention, skill maintenance, self-efficacy, and the use of RP strategies. Further, as suggested by Burke and Baldwin (1999), the current study also examined the role of participant self-efficacy between the RP interventions and skill maintenance in the posttraining period.

### Statement of the Problem

Because Baldwin and Ford (1988) first noted the importance of resolving the "transfer problem" in training research and application, several studies have focused on how to lessen the gap between what is learned in training and the extent to which the skills are maintained in the work setting. Subsequent research has focused on the effects of training design, how trainee characteristics impact learning and behavior, and to what extent the work/transfer context may influence the participant's subsequent performance. A consistent theme in several current transfer studies is the need for trainees to be better equipped to maintain their new skills once back in the work context. Research that identifies which transfer interventions are both effective

and practical is essential to advance both the theoretical framework of transfer research and to offer training practitioners proven strategies that enhance trainee skill maintenance.

Table 1

*Description of RPG and RPM Modules*

RPG Model	RPM Model
<ol style="list-style-type: none"> <li>1. Set a skill maintenance goal               <ol style="list-style-type: none"> <li>a. Select a skill that is susceptible to relapse</li> <li>b. Set a specific, quantifiable, and challenging goal</li> </ol> </li> <li>2. Learn RP transfer strategies               <ol style="list-style-type: none"> <li>a. Observe difference between training and work settings</li> <li>b. Create supportive network</li> <li>c. Identify high risk situations</li> <li>d. Recognize seeming unimportant behaviors that lead to errors</li> <li>e. Reduce dysfunctional emotions</li> <li>f. Identify what related skills are necessary to support the new behavior</li> <li>g. Identify organizational support for learning retention and create meaningful rewards and punishments when nonexistent</li> </ol> </li> <li>3. Predict first slip (temporary lapse in skill use) and lapse (permanent lapse)               <ol style="list-style-type: none"> <li>a. Identify circumstances that would sabotage use and maintenance of new skill.</li> </ol> </li> <li>4. Create relevant coping skills               <ol style="list-style-type: none"> <li>a. Select relevant transfer strategies that can help participant effectively cope with obstacles to transfer (best if discussed as a group)</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Learn RP transfer strategies               <ol style="list-style-type: none"> <li>a. Observe difference between training and work settings</li> <li>b. Create supportive network</li> <li>c. Identify high risk situations</li> <li>d. Recognize seeming unimportant behaviors that lead to errors</li> <li>e. Reduce dysfunctional emotions</li> <li>f. Identify what related skills are necessary to support the new behavior</li> <li>g. Identify organizational support for learning retention and create meaningful rewards and punishments when nonexistent</li> </ol> </li> <li>2. Predict first slip (temporary lapse in skill use) and lapse (permanent lapse)               <ol style="list-style-type: none"> <li>a. Identify circumstances that would sabotage use and maintenance of new skill.</li> </ol> </li> <li>3. Create relevant coping skills               <ol style="list-style-type: none"> <li>a. Select relevant transfer strategies that can help participant effectively cope with obstacles to transfer (best if discussed as a group)</li> </ol> </li> </ol>

*Note.* RPM model is taken from Burke and Baldwin (1999).  
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As Tziner et al. (1991) argued, it is important not only to continue investigating the effect of using transfer interventions like goal setting and RP strategies on training outcomes, but also to identify what such strategies do to trainees as a result of exposure. Given this and other calls for additional research on transfer interventions, the current study examined the impact of two modified versions of the RP strategies on trainee self-efficacy toward transfer, which in turn is expected to positively affect skill maintenance and the use of RP strategies. These relationships are illustrated in Figure 2. In both cases, self-efficacy was expected to mediate the relationship between the RP interventions and skill maintenance and in the use of RP strategies. Providing additional explanations of how the modified RP versions affect training outcomes will advance the training discipline toward resolving the ubiquitous “transfer problem” and could equip trainees with a more parsimonious transfer intervention.



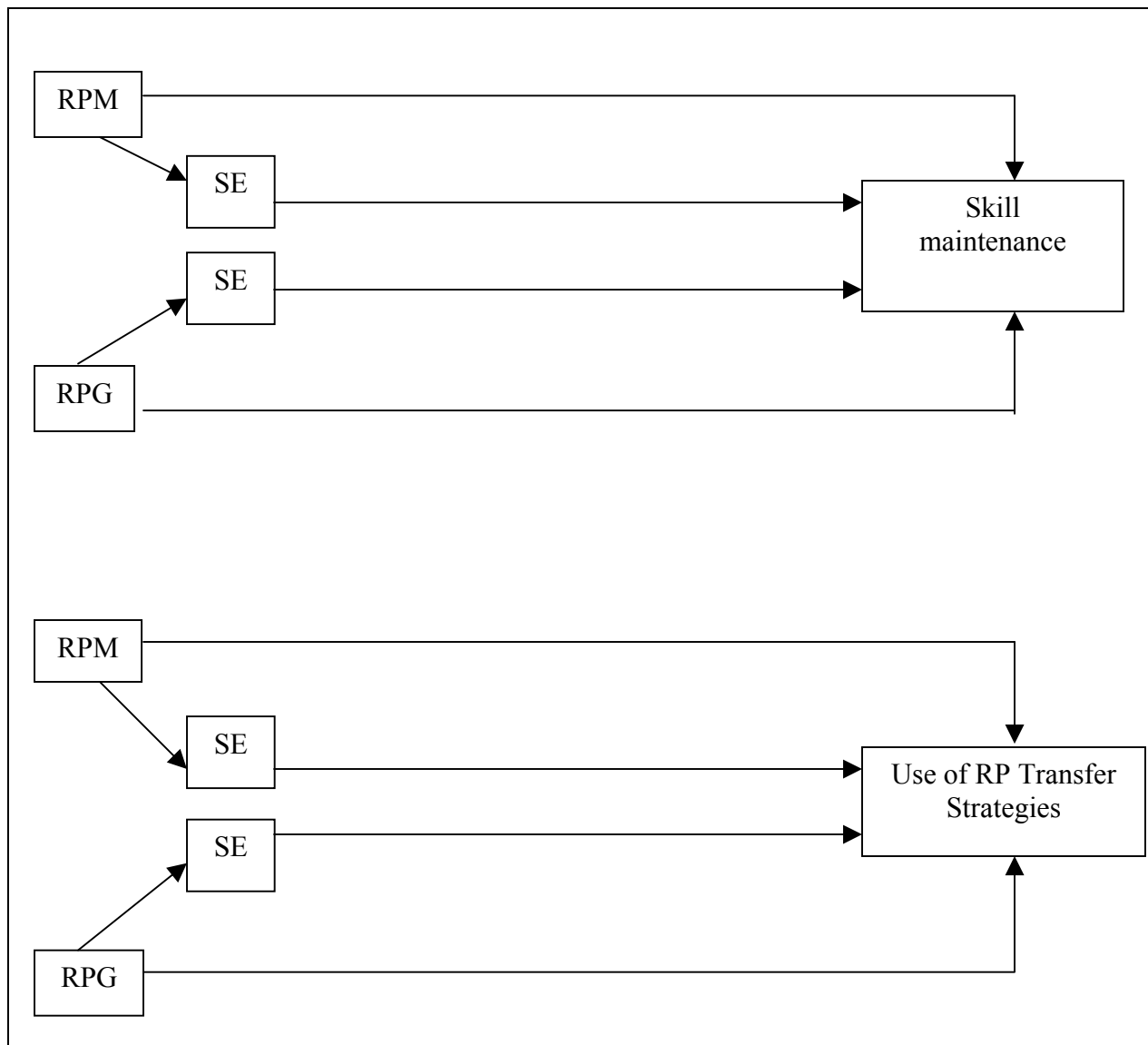


Figure 2. Model of self-efficacy as a mediating variable between RP treatment levels and response variables.

Note. RPM: Modified Relapse Prevention; RPG: Modified Relapse Prevention w/goal setting;

SE: Self-efficacy

## Research Hypotheses

The following are the research hypotheses for this study:

Hypothesis 1: Participants exposed to modified relapse prevention w/goal setting intervention will retain more content compared to those who did not receive a transfer intervention.

Hypothesis 2: Participants exposed to modified relapse prevention intervention will retain more content compared to those who did not receive a transfer intervention.

Hypothesis 3: Participants exposed to modified relapse prevention w/goal setting step intervention will maintain more trained skills compared to those in modified relapse prevention intervention.

Hypothesis 4: Participants exposed to modified relapse prevention intervention will maintain more trained skills compared to those who did not receive a transfer intervention.

Hypothesis 5: Participants exposed to modified relapse prevention w/goal setting step intervention will use more transfer strategies compared to those in the modified relapse prevention intervention.

Hypothesis 6: Participants exposed to modified relapse prevention intervention will use more transfer strategies compared to those who did not receive a transfer intervention.

Hypothesis 7: Participant self-efficacy will partially mediate the relationship between the modified relapse prevention w/goal setting treatment and skill maintenance.

Hypothesis 8: Participant self-efficacy will partially mediate the relationship between the modified relapse prevention w/goal setting treatment and the use of transfer strategies.

Hypothesis 9: Participant self-efficacy will partially mediate the relationship between the modified relapse prevention treatment and skill maintenance.

Hypothesis 10: Participant self-efficacy will partially mediate the relationship between the modified relapse prevention treatment and the use of transfer strategies.

## Definition of Terms

The following terms are defined as used in this study:

Generalization: A trainee's ability to apply learned capabilities (verbal knowledge, motor skills, attitudes) to on-the-job work problems and situations that are similar but not completely identical to those problems and situations encountered in the learning environment (Noe, 2001).

Goal setting: A method to increase task performance by setting specific, challenging goals that help users direct attention and action, mobilize energy expenditure or effort, prolong effort over time (persistence), and motivate the individual to develop relevant strategies for goal attainment (Latham & Locke, 1979; Locke, Shaw, Saari, & Latham, 1981).

Modified relapse prevention (RPG): Modified form of RP model that consists of four steps: having trainees set a skill maintenance goal, teaching trainees to use specific cognitive and behavioral transfer strategies, instructing trainees to predict their first slip, and having trainees create coping skills.

Modified relapse prevention (RPM): Modified form of RP model that consists of three steps: teaching trainees to use specific cognitive and behavioral transfer strategies, instructing trainees to predict their first slip, and having trainees create coping skills (Burke, 1997; Burke & Baldwin, 1999).

Leadership skills training: Situational Leadership II training developed by the Ken Blanchard Companies.

Relapse: A permanent lapse back to pretraining behavior (Marx, 1982).

Relapse prevention (RP) model: A seven-step transfer intervention that combines behavioral and cognitive self-management strategies to help recognize and manage potential relapses to pretraining behavior (Marlatt & Gordon, 1980; Marx, 1986).

Self-efficacy: The belief in one's capabilities to organize and execute the courses of action required to perform at designated levels (Bandura, 1977); judgment about task capability (Gist & Mitchell, 1992).

Skill maintenance: Process of continuing to use newly acquired capabilities over time (Noe, 2002).

Slip: A temporary lapse to pretraining behavior (Marx, 1982).

Training transfer: The degree to which learners apply their trained knowledge, skills, and attitudes in the work context (Noe, 2002).

Transfer interventions: Supplemental training programs that do not add skill area content but that focus on strategies for sustaining skills (C.K. Stevens & Gist, 1997).

Trigger events: Events that may cause a slip or relapse. Examples include stress, lack of experience in using new skills, time pressure, lack of assertiveness. (Marx, 1982).

Use of RP strategies: The extent to which participants used RP strategies to enhance transfer.

## Summary

In this section, both empirical and conceptual reasons were reviewed for comparing two transfer interventions based on relapse prevention strategies. Further, the role of self-efficacy as a mediating variable between the transfer interventions and response variables was described. Finally, the study hypotheses were listed, and key terms used in the study were defined.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of this study was to compare the effect of two versions of modified relapse prevention strategies on transfer outcomes for participants involved in a leadership skills training. To explore the major tenets for the present study, a review of the literature addresses three research areas: (a) current issues in training transfer research, (b) transfer interventions of goal setting and relapse prevention strategies, and (c) participant self-efficacy. Each concept is discussed as it relates to trainee performance, use of RP strategies, and skill maintenance.

#### Training Transfer

The topic of training transfer has received considerable attention from both researchers and practitioners alike over the last decade. Described as the behavioral demonstration of learning, training transfer is generally recognized as the third dimension in Kirkpatrick's (1967) widely used evaluation model (see Table 2). Surprisingly, however, the numbers of organizations conducting Level 3 (behavior/transfer) evaluations is small in comparison to those assessing reaction and learning (i.e., Levels 1 and 2, respectively), encouraging many still to argue that the "transfer problem" is not being adequately addressed (Janove, 2002; Rossett, 1997).

Organizations surveyed in the latest ASTD *State of the Industry* reported evaluating participant reaction/satisfaction with training up to three times more often than they assessed whether participants actually used (Level 3 evaluation) their new skills on the job (Sugrue, 2003).

Table 2

*Modified Kirkpatrick's Levels of Evaluation*

Level	Description
1. Reaction	Measures participant reaction to and satisfaction with the training program.
2. Learning	Measures skills, knowledge, or attitude change related to training.
3. Behavior	Measures changes in behavior on the job and specific application of the training. Also called, transfer of training.
4. Results	Measures the final results (business results) that occur as a result of the training: increased sales, higher productivity, reduced costs, improved quality.
5. ROI	Compares the monetary values of the business impact with the costs of the program.

*Note.* Kirkpatrick (1959); Phillips (1996).

The minimal use of assessing training transfer as a part of determining the impact of a training initiative is problematic because Alliger and Janak (1989) found no correlation between participant satisfaction and the other four levels (see Table 2). That is, relying only on how much trainees liked the training fails to whether or not they learned the content, will apply and maintain the content in the work context, or whether their performance will enhance business results and yield a positive return-on-investment. Level 3 evaluations can provide rich data that, when used effectively, can enhance trainee performance back on the job and garner employee and organizational support for future training endeavors (Rossett, 1997). When organizations fail to assess whether training is actually applied, little is known about which maintenance strategies helped or hindered successful transfer, whether training actually caused the change in behavior or skill, or how training outcomes support the larger strategy of the organization.

Spearheaded by Baldwin and Ford's (1988) extensive review of gaps in the transfer research, current research has attempted to expand the concepts of trainee characteristics, training design, and work environment and the impact on training transfer. Noe (2002) may have attempted to reflect these advances by updating the original transfer model proposed by Baldwin and Ford. Noe amended the model to include issues of self-management strategies and concern for the learning environment as relative to training design and assessing transfer climate (see Figure 1) as being important in assessing work environment.

Subsequent research in each of these areas demonstrates that new ways to consider transfer are being explored. For example, Yelon and Ford (1999) suggested that training transfer be viewed from a multidimensional perspective as a "complex set of processes rather than a complex process" with predictable patterns of performance contingent on various trainee and contextual aspects (p. 60). The authors argued specifically for performance technologists to

consider job context variables such as the degree of supervision on the job and the openness of the job task (i.e., highly variable compared to highly precise) when considering which transfer strategies to recommend. Further, studies exploring the use of action planning as a transfer method (Broad & Sullivan, 2002; Stone, 1999), manager and peer group perceptions of subordinates as predictors of opportunity to perform tasks (Ford & Quinones, 1992), and the degree of manager, peer, and organizational support as potential moderating variables (Awoniyi, Griego, & Morgan, 2002; Burke & Baldwin, 1996, 1999; Montesino, 2002); Richman-Hirsch, 2001) indicate that researchers are actively pursuing new directions in conceptualizing the transfer of training factors.

Perhaps most relevant to the current study is the research concerning participant adaptability to change and in using metacognitive techniques to enhance positive transfer of training (Ford & Weissbein, 1997). Similar to training generalization (i.e., how successful training content is applied to situations in the work/transfer setting), adaptability concerns participants' capability of adjusting their knowledge, skills, and/or attitudes in the face of novel situations in the transfer setting. Such adjustment may require altering or generating different methods—other than those taught in training—to handle situations with increasing or different task and/or situational requirements. Similarly, training participants to become aware of errors or obstacles to learning (and maintenance) in an instructional setting can increase participants' awareness and utilization of cognitive strategies to enhance positive transfer. Taken together, training participants in ways to increase their “adaptive expertise” (Ford & Weissbein, 1997, p. 35) by using cognitive strategies that enhance the application and maintenance of skills training in the work/transfer context may provide additional insight into the relationship between design factors and overall skill maintenance.



## Transfer Interventions

One of the areas given considerable attention in the current transfer literature is in the utility of behavioral and cognitive interventions to enhance transfer outcomes. The transfer interventions of goal setting and RP strategies garner most of this attention and are subsequently reviewed.

### Goal setting

Based on the premise that individual intentions influence task performance (Locke, 1968), goal setting is a successful self-management strategy that has been found to enhance individual motivation to complete a task. Specifically, Locke demonstrated that much of the research completed on task motivation found that individuals performed better when given specific, challenging goals than did those given “do your best” goals or no goals. This result was supported for both participative and assigned goals (Wexley & Baldwin, 1986). Goals affect performance by helping users direct attention, mobilize effort, increase persistence, and motivate strategy development. Goals are most likely to influence performance positively when participants have sufficient ability to complete the tasks involved and when rewards are given for attainment (Locke, et al., 1981). In addition to setting specific and challenging goals, Latham and Locke (1991) suggested that managers work with employees to mutually establish goals, that managers ensure that employees view goals as fair and reasonable, and that managers help employees to reach those goals.

Goal setting also has been found to be a successful strategy for enhancing maintenance of new skills. Wexley and Nemeroff (1975) found that participants who were assigned behavioral goals after training exhibited greater transfer of training content back to the work context than

those who did not set goals. Gist et al. (1990, 1991) also found that participants who received training in the self-management strategies of identifying lapses and applying coping skills that included a goal setting step performed significantly better in skill maintenance for tasks that required a knowledge of different strategies (e.g., negotiation skills) than did those who received training in only goal setting. However, goal setting alone was more effective for tasks that required repetitive use of the same strategies (e.g., operating machinery). The authors reasoned that participants exposed to self-management strategies learned a broader array of skills, namely coping skills and recognition of potential lapses, that helped them more successfully overcome both personal and environmental constraints to positive transfer.

C. K. Stevens and Gist (1997) also found similar results as a replication and extension of the Gist et al. (1991) study. The effectiveness of pairing a goal setting step with certain self-management strategies seems to suggest that a hybrid approach that includes both goal setting and the self-management strategies of recognizing lapses, developing coping skills, and reinforcing behaviors may produce a more optimal level of skill maintenance than either strategy can alone (C. K. Steven & Gist, 1997; Gist et al., 1991; Morin & Latham, 2000).

### Relapse Prevention Strategies

The use of relapse prevention strategies to enhance behavioral maintenance originated in clinical settings to help substance abusers prevent relapses after receiving treatment. Marlatt and Gordon (1980) conceptualized the relapse intervention as a process of identifying *immediate* (e.g., high-risk situations that could tempt a participant to relapse, coping skills, outcome expectancies, and effects of violating abstinence) and *covert* (e.g., lifestyle imbalances and urges and cravings) antecedents to relapse. Based on factors or situations that could trigger a relapse, participants are taught specific cognitive and behavioral skills to help them cope with such

influences and maintain abstinence. The result of using effective coping skills to thwart a relapse is that the participant experiences increased self-efficacy toward abstinence and the likelihood of maintaining skills in the future is enhanced. Although identifying internal and situational factors that could cause a relapse is central to the RP concept, the focus of treatment is on equipping participants with a range of coping responses to address the temptations to relapse.

The use of relapse prevention methods in organizational development training continues to receive considerable attention because it was first theorized as a transfer intervention to enhance trainee skill maintenance by Marx (1982, 1986). Noe et al. (1990) found that participants trained in relapse prevention strategies were more successful at overcoming transfer obstacles to positive transfer (i.e., stress, time pressure, lack of manager or peer support) and spent more time communicating with their managers about using their skills in the work context. The authors also found a positive relationship between training in RP strategies and cognitive rehearsal (thinking about how to use the skills outside of training); participants indicated a greater understanding of their newly trained skills and also actively sought out opportunities to use these skills in their work context as a result of learning RP strategies. According to social learning theory (Bandura, 1982), cognitive rehearsal is a necessary condition for retention and use of new skills but is not inherent in the training methods used in the study (i.e., lecture, discussion, role-play); rather it appeared to be a result of participant use of RP strategies. This finding is not completely surprising, since Marx (1982) described RP strategies as a cognitive-behavioral approach. Further, Morin and Latham (2000) found similar results in a study when goal setting was paired with the self-management strategy of cognitive rehearsal.

Different variations of relapse prevention strategies exist. Burke and Baldwin (1997, 1999) argued that they were the first to use a “pure” operationalization of Marx’s (1986) model,

whereas others have included fewer or different steps or have simply not provided enough information in their study to determine whether the complete RP model was used (cf. Noe et al., 1990; Richman-Hirsch, 2001; Tziner, et al., 1991; Wexley & Baldwin, 1986;). The differences between each operationalization are outlined in Appendix G. In most of the studies, a trainer facilitated a discussion of the newly trained skills, asked participants to identify obstacles to applying skills in work context and relative coping strategies, and encouraged personal rewards for skill maintenance.

As discussed previously, it is not surprising that previous studies that claimed to use RP strategies in posttraining interventions yielded mixed results because the steps differed from the RP operationalization used by Burke and Baldwin (1997, 1999). For example, both Wexley and Baldwin (1986) and Richman-Hirsch (2001) actually found that goal setting was superior to RP in helping participants maintain their target skills over a 2-month period. However, the RP strategies did not include goal setting as in Marx's (1986) original description of the RP model. In contrast, Noe et al. (1990) and Tziner et al. (1991) found RP strategies (again, without using a goal setting step) to be positively related to trainees immediately applying content after training, using transfer strategies to thwart lapses and slips, and recognizing obstacles to applying new skills in the work context.

Although studies utilizing some form of relapse prevention strategies offer inconsistent results, Burke and Baldwin (1999) provided a more comprehensive treatment of Marx's (1986) model. Utilizing the full RP model that included a goal setting step, the authors compared its influence on skill maintenance and transfer climate with a modified model (RPM) consisting of only three steps (see Table 1). Specifically, Burke and Baldwin (1999) found that the RP strategies learned by participants in training on employee coaching skills modestly influenced the

trainees' use of transfer strategies in their work context. Trainees' use of transfer strategies was significantly related to the number of coaching sessions each had with employees ( $r = .35, p < .01$ ), and to the subordinate (transfer) measurement of trainee transfer of skills ( $r = .33, p < .08$ ).

Although Burke and Baldwin (1999) failed to find a (statistically) significant main effect for the RP or RPM interventions on skill maintenance outcomes, they did find that trainee perception of a supportive transfer climate explained a significant amount of variance in the trainees' use of transfer strategies. They also found that the full RP and RPM modules influenced trainee perception of the transfer climate in different ways. Whereas the full RP strategies enhanced the use of transfer strategies and skills in unsupportive climates (as predicted in the original hypothesis), the RPM strategies actually enhanced trainees' use of transfer strategies in *supportive* environments. The authors reasoned that trainees may have needed fewer self-management skills when other motivators (i.e., manager, peer support) existed within the transfer climate.

Another possible explanation for the Burke and Baldwin (1997) results is that the full RP module included a goal setting step whereas the RPM did not. Several researchers have demonstrated how the combination of goal setting and the self-management strategies of identifying lapses and applying coping mechanisms increased participant use of RP strategies and skill maintenance compared to using either strategy independently (Gist et al., 1990, 1991;; Morin & Latham, 2000; C. K. Stevens & Gist, 1997). Adding a goal setting step to the RPM module may increase its influence regardless of organizational support mechanisms (i.e., climate, manager and peer support, etc.), and make it even more attractive as a transfer intervention due to its brevity and focus on proven transfer strategies. Additionally, trainee efficacy levels may have as much or more influence on use of RP strategies and skill maintenance than transfer

climate does. Although self-efficacy was not explored as an intervening variable by Burke and Baldwin (1997, 1999), they did suggest that future studies explore specific trainee characteristics (i.e., specific self-efficacy) to determine the degree of learner “readiness”, the first stage in behavioral change suggested by Marlatt and Gordon (1980).

### Self-efficacy

Important to the success of any transfer intervention is the enhancing of trainees’ belief in their ability to transfer their skills back to the work context. Defined first by Bandura (1977) as the belief in one’s capabilities to organize and execute the courses of (motivational, affective, cognitive) action required to perform at designated levels, self-efficacy has been found to be strongly correlated to improved performance and skill maintenance. The following review explores the link between self-efficacy and performance, the extent to which self-efficacy is a malleable attribute, and the relationship between self-efficacy and certain transfer interventions.

### Self-efficacy—Performance Linkage

Different from general self-efficacy in terms of scope, self-efficacy is a judgment about task capability (Gist & Mitchell, 1992) in which an individual assesses his or her confidence about accomplishing a particular task rather than a general or overall sense of performance ability. Specifically, persons who perceive themselves as highly efficacious toward a certain task are more likely to set difficult goals and adjust them based on their progress, will take a proactive role in reducing stress or disruptions in their environment that may inhibit performance, and will obtain support from others to increase their ability to cope with difficulties (Bandura, 1982; 1997). In contrast, those who perceive themselves to be inefficacious often have underdeveloped coping strategies that make relapsing to pretraining behavior probable. In research on individuals

attempting to abstain from smoking, Bandura (1982; 1997) noted that those participants who expressed high specific self-efficacy at the end of treatment reinstated control after a slip compared to those low in specific self-efficacy who relapsed completely.

The self-efficacy-performance linkage is well developed in both clinical and applied settings. Bandura's (1977) research on persons with phobias and in organizational settings (Wood & Bandura, 1989) demonstrated that persons who are highly efficacious toward their capability to perform a task will often perform at higher levels than those who do not. Specifically, participants who initially reported high self-efficacy outperformed those who reported low self-efficacy across several simulation trials. Subsequent research offers similar findings between self-efficacy and improved performance in organizational settings. Increased performance with computer-related tasks (Harrison et al., 1997) and in interpersonal communication skills development training (Morin & Latham, 2000) was found to be positively related to higher levels of participant self-efficacy. Participant self-efficacy levels were also positively related to increased performance and maintenance of aircraft technical skills (Ford & Quinones, 1992). The authors found that aircraft personnel who rated themselves high in self-efficacy sought out more opportunities to apply trained skills in the work context. Similar findings are noted in research exploring the relationship between teacher self-efficacy and instructional activities (Henson, 2002a) and in studies on academic self-efficacy (Pajares, 1997).

Self-efficacy has also been found to function as a mediating variable in relation to performance. A variable can be said to function as a mediator to the extent that it can help explain the relationship between the predictor and criterion variable(s) (J. P. Stevens, 2002). A variable can either partially mediate or fully mediate the relationship between the independent and dependent variable. As noted by Baron and Kenny (1986), who provided an excellent

discussion of the differences between mediating and moderating variables, “mediators speak to how or why such effects occur” (p. 1176). For example, Wood and Bandura (1989), in a study on goal setting and complex decision-making in organizations, found that self-efficacy functioned as a partial mediator between perceptions of prior organizational performance and future performance. In another study examining the effect of monetary incentives, goal setting, and performance, Wright and Kacmar (1995) found that self-efficacy functioned to explain a significant part of the relationship between incentives and performance. The authors reasoned that participants who earned bonuses for performance expressed lower self-efficacy and, thus, set lower goals for easy attainment. Self-efficacy has also been found to mediate the relationship between cognitive ability and conscientiousness with performance on simple tasks (Chen, Casper, & Cortina, 2001).

Finally, and perhaps most relevant to this study, is the role that self-efficacy plays in explaining the relationship between newcomer adjustment and training. In a longitudinal study exploring socialization training and newcomer adjustment in organizations, Saks (1995) found that self-efficacy mediated the relationship between the newcomer’s ability to cope and subsequent training performance. The author defined the ability to cope as “handling problems in the job, figuring out what should be done to accomplish one’s work and being sure of how to do one’s job” (p. 212). This result can be compared to the partially mediating effect of self-efficacy between training and the other work adjustments variables measured in the study (i.e., job satisfaction, organizational and professional commitment, turnover, job performance, and intention to quit the organization and profession). Saks’ (1995) finding supports previous research on the positive role of self-efficacy in individuals’ ability to successfully handle



obstacles and adversity, and it extends support to the important role that self-efficacy plays in aiding individual adjustment and performance in the work setting.

### Malleability of Self-efficacy

Bandura (1997) identified four influences on the development of self-efficacy: enactive mastery (successful performance), verbal persuasion, vicarious experience (modeling), and physiological arousal (excitement or anxiety). Gist and Mitchell (1992) noted that these influences should be considered in relation to the specific determinants of efficacy that include the specific task requirements, attributional analysis of experience (an explanation of prior performance), and an assessment of personal and situational resources and constraints. Because self-efficacy is inherently an intuitive process, an individual interprets, weighs, and integrates the information from these determinants in an “iterative manner” (p. 190). This evaluative process produces a judgment concerning capability (i.e., self-efficacy) toward subsequent, similar behavior.

Mathieu et al. (1993) demonstrated the predictability of these determinants on self-efficacy for individuals enrolled in a bowling class. The authors found that participant efficacy levels were most likely to increase when training attendance was voluntary and when participants began training with a high disposition toward challenging situations (i.e., achievement motivation). In contrast, participant self-efficacy tended to decrease when participants perceived individual or situational constraints (i.e., specific job tasks, time pressures, lack of feedback or support, etc.) as being associated with their involvement in training.

When assessing the probability of change in self-efficacy, the determinants of self-efficacy are important to consider in terms of their *variability* (high or low degree of change), *locus of causality* (internal or external), and *controllability*. For example, a computer

technician's perception of his or her ability to complete a task would be considered an internal attribute that is unlikely to vary without additional task knowledge or skill. In contrast, the distractions in the technician's work area that interfere with performance are considered an external, highly variable attribute and could be altered rather quickly (i.e., remove distractions). Gist and Mitchell (1992) argued that a person typically has greater control over those determinants that are internal and highly variable and, thus, these are the aspects most prone to change to enhance self-efficacy. Depending on the level of controllability and variability of the efficacy determinants, the authors offered three specific interventions for enhancing self-efficacy:

Strategy 1: Provide information that gives individuals a more thorough understanding of the task attributes, complexity, task environment (primarily through the use of mastery and modeling experiences) and the way in which these factors can best be controlled.

Strategy 2: Provide training that directly improves the individual's abilities or understanding of how to use abilities successfully in performing the task (primarily through the use of mastery, modeling, and persuasion experiences).

Strategy 3: Provide information that improves the individual's understanding of behavioral, analytical, or psychological performance strategies or effort expenditure required for task performance (primarily through the use of modeling, feedback, and persuasion). (pp. 203)

### Self-efficacy and Transfer Interventions

As noted earlier, individuals high in self-efficacy are more likely to perceive themselves as capable of accomplishing tasks by effectively overcoming obstacles than are those who are low in self-efficacy. It thus appears plausible that selecting an intervention to enhance low—or maintain high—efficacy levels toward performance and skill maintenance that incorporates some of these strategies suggested by Gist and Mitchell (1992) would be useful. In the current study, a transfer intervention consisting of relapse prevention strategies was used to increase participant

efficacy levels for maintaining trained skills once back in the work context. Two reasons are offered to support the use of the relapse prevention with goal setting step (RPG) as an effective intervention in this study. First, the strategies offered in the RPG intervention (i.e., setting a skill-maintenance goal, learning coping skills, predicting first lapse, and applying relevant coping strategies) are closely associated with the techniques suggested in Strategy 3. Because equipping participants with performance strategies (an internal, highly variable determinant) is the most prone to increases in self-efficacy (Gist & Mitchell, 1992), significant changes are expected. Further, the authors also specified that cognitive modeling of psychological performance strategies (i.e., the use of self-statements to mitigate inhibitions and guide performance) and proximal goal setting as useful strategies to enhance self-efficacy, both of which are included in the RPG intervention.

Second, of the four influences on self-efficacy development (i.e., enactive mastery, modeling, verbal persuasion, arousal), the concept of enactive mastery—or that repeated successes encourage increased efficacy in the potential of future successes—is often cited as the strongest source of efficacy development (Bandura, 1982). Self-efficacy is strengthened, or increases in resiliency, when a person is able to overcome challenging obstacles without a loss of confidence. For example, Mathieu et al. (1993) found initial self-efficacy to be positively related to midcourse self-efficacy, initial performance, and subsequent performance in skill development in a bowling class. The authors reasoned that the initial success experienced by the participants enhanced subsequent performance and maintained high self-efficacy levels such that participants experienced a “positive, reinforcing feedback cycle” (p. 143) that could transfer across training settings or topics. Gist (1986) also found that when participants received mastery experiences and supportive feedback as part of a transfer intervention, participant self-efficacy and

performance levels increased as compared to the self-efficacy and performance levels of those who did not receive a transfer intervention. Self-efficacy also increased in training settings where participants were trained in cognitive rehearsal and goal setting skills (Morin & Latham, 2000). Because the aim of learning relapse prevention strategies is to enhance the probability of early and continued success of trained skills, enactive mastery is a likely result of the RP intervention.

Additional support is offered by studies examining the effect of using goal setting and self-management strategies as transfer interventions on participant self-efficacy, performance, and skill maintenance. Gist et al. (1991) actually found that when goal setting was included in self-management training, the combination of strategies helped attenuate differences in participant (delayed) performance levels among high and low self-efficacy participants as compared to the goal setting alone-condition. The authors reasoned that those participants in the goal setting-only training focused primarily on goal attainment, whereas those in the self-management training worked toward overcoming weaknesses in maintaining their skills on the job. This finding was later substantiated by C.K. Stevens and Gist (1997), who found that participants trained in self-management skills were more likely to focus on improving their skills for transfer compared to those in the goal setting-only training, who focused primarily on obtaining superior performance.

In sum, these findings highlight the significant impact of self-efficacy on performance and skill maintenance, as well as the utility of including enactive mastery experiences in transfer interventions. Including the strategies of goal setting and RP skills in a transfer intervention will enhance participant coping skills to promote successful use and maintenance of skills in the work context. Early successes experienced by participants soon after they leave the training setting will help to create a cycle of enactive mastery experiences, resulting in both use and maintenance

of trained skills. An additional benefit will come when such coping skills are “generalized” or transferred to other training settings or varied work-related instances, thus resulting in both less stress and continued performance attainments (Pajares, 1997, p. 26) that far exceed the initial training goals and investment. Further, a hybrid approach that includes goal setting and the self-management strategies of identifying lapses and applying coping strategies may provide the coping skills needed by low-efficacy participants as well as providing the challenging goals used to motivate participants high in self-efficacy to achieve positive skill maintenance. Such an approach may enhance the maintenance of skills over time and provide a positive return-on-investment for organizations interested in a short, effective set of transfer strategies.

#### Critique of the Validity of the Existing Literature

Perhaps the most striking characteristic of current RP studies is in the inconsistent operationalizations and subsequent application of RP strategies as a transfer intervention. Across the seven studies that compared RP strategies to goal setting or other self-management transfer interventions, only three (Burke, 1997; Burke & Baldwin, 1997, 1999) illustrated both the order and type of RP strategies initially offered by Marx (1986). Additionally, studies that used self-management interventions similar to RP (cf. Gist et al., 1990, 1991; Stevens & Gist, 1997) failed to include the explicit steps discussed by Marx (1986), nor did the authors identify the steps as being RP strategies. Further, at least half of the RP studies and all of the studies exploring the relationship between self-efficacy and transfer interventions reviewed in this study used college students as the sample, a common criticism of research on training outcomes (cf. Baldwin & Ford, 1988). Failing fully to operationalize the RP strategies and not examining differences among actual organizational members make for problems in generalizing effects across samples and could explain the inconsistent results among studies as to the effectiveness of RP strategies

at enhancing skill maintenance. Taken together, more studies are needed to substantiate the effect of actual RP strategies as a transfer intervention in applied settings.

A second criticism of the existing literature is the failure to include self-efficacy as a variable of interest in RP studies. Although Marx (1986) discussed RP as a cognitive-behavioral approach that would increase a trainee's efficacy toward maintaining skills, the relationship between self-efficacy and use of RP strategies has not been empirically supported in organizational training settings. Whereas Burke and Baldwin (1999) and Burke and Marx (in press) argued that the effectiveness of RP strategies is a function of the degree of obstacles to the positive transfer that a trainee perceives in the actual work context, they did not consider how trainee self-efficacy could also explain the impact of RP strategies on trainee skill maintenance.

#### Contributions of This Study

This study will overcome many of the limitations of prior research. Conducting applied research in an organizational training setting where participants are likely to experience real obstacles to positive transfer will increase the generalizability of the results. Because research comparing RP strategies as transfer interventions in organizational development programs is essentially still in its infancy (see Table 3 in Appendix G), research in applied settings where the training need occurred independent of the study increases the likelihood of capturing actual results of the intervention effect and will bolster external validity.

Further, exploring self-efficacy in relation to measuring the effect of both modified versions of RP strategies will clarify the role self-efficacy plays in mediating the effect of transfer interventions on skill maintenance. As discussed earlier, individuals high in self-efficacy are more likely to overcome obstacles in their environment and take a proactive role in reducing stress or disruptions in their environment that may inhibit performance (Bandura, 1982).

Empirically clarifying the relationship between self-efficacy and the use of RP strategies can both strengthen and extend the support for interventions that use coping skills as a transfer strategy.

Perhaps this study's most important contribution to the existing research will be in extending inquiry into a parsimonious transfer intervention that includes the essential components of RP strategies as originally articulated by Marx (1986). As noted earlier, Burke and Baldwin (1999) may have found limited support for the modified RP intervention on skill maintenance because the modified version failed to include a goal setting step, as is included in the full RP model. The authors may have intentionally not included the goal setting step, assuming, as argued by Wexley and Baldwin (1986), that RP strategies could be described as a form of "self goal setting" (p. 505). However, failing to include an actual goal setting step may in reality lessen participants' ability to direct their attention and prolong effort in maintaining trained skills. To better understand the relationship between each intervention and skill maintenance and to clarify the influence of self-efficacy as an intervening variable, the current study provides a closer inspection of the Burke and Baldwin (1999) modified RP intervention (RPM) by comparing it to a RP model that includes a goal setting step (RPG).

### Summary

In this review, emerging directions in research on transfer interventions were identified as related to the utility of a modified transfer intervention that includes relapse prevention strategies and goal setting. Also discussed were the relationships between increasing participant self-efficacy, performance, and skill maintenance. Finally, contributions of this study to the training evaluation research area were described.

## CHAPTER 3

### METHODOLOGY

#### Introduction

The purpose of the study was to explore how participants grouped by modified relapse prevention training interventions differ with respect to learning retention, skill maintenance, self-efficacy, and use of relapse prevention transfer strategies. This chapter outlines the methodology used to measure and interpret the data in this study. The following discussion describes the sample, the experimental conditions, and the data instrumentation, analysis, and interpretation procedures.

#### Sample

The sample was taken from a multinational telecommunication organization based in a large southern city with approximate sales of \$1.8 billion and 2,700 employees worldwide. Managers (n = 39) from four different departments (finance, information technology, customer care, and networking) voluntarily participated in a 4-hour leadership skills training titled Situational Leadership® II. The organization purchased the leadership training curricula, activities, and participant materials through Ken Blanchard Companies, and the training department obtained permission to train participants and distribute related materials.

Internal trainers facilitated the training in which participants learned how to diagnose both their leadership styles and their subordinates' developmental levels in an effort to match a set of specific leadership behaviors to subordinate competence and motivation levels.

Subordinate developmental level was evaluated based on the specific task and was assessed based on a subordinate's level of *competence* (i.e., demonstrated task-specific and transferable knowledge and skills on a given task) and *commitment* (i.e., level of motivation and confidence



in relation to a specific task). Depending on the level of subordinate competence and commitment for a given task, a manager would use a specific situational leadership style most appropriate given the subordinate's developmental level.

The three training classes were taught by the same instructors using identical curriculum. Trainer facilitation activities for all groups included lecture, group discussion, video, games, and case studies. Further, the need for and design of the leadership skills training occurred independent of the current study. All participants were informed both in writing and orally that their participation in the transfer intervention and research surveys was voluntary and that nonparticipation would incur no negative consequences.

This specific sample and intervention are appropriate for the present study in two important ways. First, the training material was created by an outside organization specializing in leadership training, thus increasing the likelihood that such material and training would produce content mastery by the participants. A second reason that this sample was well suited for this study concerned the relevance of using RP strategies to enhance the specific leadership skills of managers in a telecommunication organization. As with many of the "soft skills" taught under the rubric of management development (e.g., communication, conflict management, teamwork), using or adapting one's leadership skills with subordinates is a time-consuming endeavor in an industry that is best known for speed and convenience. Correctly using Situational Leadership II skills requires that a manager schedule time to describe the leadership concept and initiate a four-step process of applying the skills with the subordinate on the work task(s). With managers in the current study averaging five direct reports, it was expected that supplementing the training session with RP training would help managers better organize their routine tasks around applying the new leadership skills with subordinates.

## Experimental Conditions

The design for the present research is a quasi-experimental field study. Participants self-selected training dates, but the treatment groups were randomly assigned to three levels of the RP treatment: control/no RP treatment, a modified relapse prevention (RPM) treatment (Burke & Baldwin, 1999), and a relapse prevention with goal setting (RPG) treatment as described in Table 4. Trainers and participants were unaware of which training group received treatments or participated as the control group.

Table 4

### *Summary of Study Treatments*

Treatment	Time	Content
Control	10 min.	Participants were encouraged to “do their best” at maintaining Situational Leadership skills. No RP strategies were presented.
RPM	30 min.	Participants were instructed to learn specific transfer strategies, predict first slip, and create coping skills.
RPG	40 min.	Participants were instructed to set a skill-maintenance goal, specific transfer strategies, predict first slip, and create coping skills.

## Instrumentation

Five measures were used for data collection in this study. These included a demographic survey, a learning (Time 1) and retention (Time 2) measure, a self-efficacy measure, a use of transfer strategies measure, and a skill maintenance measure. Unless otherwise noted, the

measures were based on a 7-point Likert scale labeled *strongly disagree* (1); *disagree somewhat* (2); *disagree a little* (3); *neither disagree or agree* (4); *agree a little* (5); *agree somewhat* (6); and *strongly agree* (7). Participants completed the Time 1 measure immediately after training in paper-pencil format, but completed the Time 2 measures using a Web-based survey sent individually to each participant by the researcher at 4 weeks after the initial leadership training and treatment intervention. Because each group received the leadership training and transfer treatment at different times, data collection was staggered over a 3-month period.

When possible, established measures with demonstrated ability to yield reliable scores were used ( $\alpha = .75$ ) and adapted minimally for the specific sample. Although the self-efficacy and the learning/retention measure were created for the current study, specific guidelines for item development were followed (as discussed in the following sections) and field representatives reviewed the measure for content validity. Further, despite the limited sample size, a factor analysis on the measures was conducted as additional descriptive information concerning the sample.

### Demographic Measure

To collect descriptive characteristics of the sample, a demographic survey was administered immediately after training (Time 1). Participants answered questions concerning their reason for attending training, sex, ethnicity, level of education, department, the number of direct reports in current position, and management level (see Appendix D). To better clarify the relationship between the actual treatment and dependent variables, each manager's number of direct reports was used as a control variable to help in evaluating transfer outcomes. It was expected that the number of opportunities (e.g., direct reports) a manager had to use the new leadership skills would impact the use of transfer strategies and skill maintenance.

## Learning Measure

Participant mastery of training content was measured immediately after training (Time 1) and again at four weeks (time 2). Because items on the learning (Time 1) and retention (Time 2) measure (see Appendix F) sought to determine each participant's performance based on a leadership criterion presented in the training, Crocker and Algina's (1986) steps for developing criterion-referenced measures were used to guide item development. Central to the process of creating criterion-referenced items is to define the set of tasks or skills that each participant should be able to perform upon completion of the training. Since the Situational Leadership II training materials and subsequent facilitation designated three instructional objectives, and these were used to identify specific tasks and skills for each item. Further, field representatives reviewed the items for content validity, and revisions were made to items based on their feedback. The measure included multiple choice and matching questions, which were scored as (0) incorrect or (1) correct, and an overall score (out of 10) was calculated.

## Self-efficacy Measure

Because self-efficacy is task-specific, measure items were created based on the specific tasks that participants were expected to master as a result of participating in the Situational Leadership skills training. Again, similar to creating the learning and retention measure, self-efficacy items were developed based on the three content areas (as noted by the instructional objectives) taught in training. The self-efficacy items measured the extent to which participants perceived their ability to master the specific skills taught in the Situational Leadership II training class. Although Bandura (1997) noted that efficacy beliefs vary on three major dimensions (i.e., strength, level, and generality), he explained that a measure of efficacy strength actually *incorporates* a rating of efficacy level, thus making for a more sensitive and informative

measure. Such directives are readily supported in the literature concerning both Bandura's (1982) operationalization of self-efficacy and his suggestions for measure development (cf. Henson, 2002a; Lee and Bobko, 1994; Pajares, 1997).

Participants completed a self-efficacy measure 4 weeks after the training (Time 2). Participants responded dichotomously (i.e., "yes" or "no") to whether they were capable of performing specific tasks within an activity domain (rate of generality) and then rated their strength in their ability to accomplish the related tasks. If participants answered in the affirmative to performing the task, they then rated the *strength* of that belief on a 100-point scale, ranging in 10-unit intervals from 0 ("Cannot do") through intermediate degrees of assurance; to 50 ("moderately certain can do"); to complete assurance 100 ("certain can do"). Following a single-judgment format (Bandura, 1997), the efficacy strength scores were then summed and divided by the total number of items to indicate the strength of the perceived efficacy score of the activity domain.

#### Use of RP Transfer Strategies Measure

Participants also completed a measure that identified the extent to which they used certain relapse prevention strategies to maintain the skills presented in the Situational Leadership II training (see Appendix B). The questions were based on Marx's most recent articulation of relapse prevention strategies (cf. Marx & Burke, in press), in which he offered a condensed version of the original 14 strategies, resulting in 7 strategies. Because some of the items included double-barreled questions, the survey used in the current study included an expanded version of the original strategies and totaled 13 items. Based on an earlier version of RP transfer strategies, Burke and Baldwin (1999) reported an acceptable reliability ( $\alpha = .82$ ) for 19 items and subsequent reliability checks yielded similar results for this sample (see Table 7).

The relapse prevention strategies measure was divided into two sections. The first section included 13 questions based on the specific relapse prevention strategies presented in the intervention to help participants maintain their skills in their workplace. The second section, presented to only the two treatment groups, included specific questions about the usefulness of the relapse prevention transfer intervention. Because each transfer condition differed by one step in the intervention, each condition received questions specific to the strategies presented in their intervention. The control group, having received no relapse prevention training intervention, did not receive this section on the survey.

The survey was administered 4 weeks after training (Time 2) in a Web-based format. Participants answered dichotomously (“agree” or “disagree”) to statements concerning the specific transfer (relapse prevention strategies) strategies used to help maintain trained skills. For example, “In the last four weeks, I recognized when I was slipping into old leadership habits or behaviors.”

#### Skill Maintenance Measure

To demonstrate the extent to which trained skills were maintained, each participant completed a 13-item survey (see Appendix E) based on the survey used by Burke and Baldwin (1999). For example, “Because attending the Situational Leadership session, in the *last four weeks*, I adapted my leadership style from one situation to another to match the individual’s developmental level.” The authors reported an acceptable reliability ( $\alpha = .87$ ) for their survey, and subsequent reliability checks yielded similar results for this sample (see Table 7). The measure used in this study was an adapted version because it was used as a self-report of skill maintenance.

## Control Variable

Control variables are a source of variation in the dependent variable(s) not attributable to the independent variable(s) (Creswell, 2002). That is, control variables could represent a potential amount of error variance in the dependent variable if not statistically controlled. In the present study, the number of direct reports was selected as a control variable because a manager's use and maintenance of leadership skills could be affected by the number of applicable opportunities (i.e., direct reports) that existed in the workplace. Further, managers' efficacy levels and the use of relapse prevention strategies are also likely to be affected by the number of direct reports. Following Bandura's (1982) idea of enactive mastery, success in using the leaderships skills with direct reports can influence efficacy toward future use of skills as well as the need to use coping strategies to overcome obstacles to using the new skills. This variable was measured with a single item that participants reported on the Time 1 survey.

## Qualitative Analysis

To gather additional information concerning the utility of the relapse prevention treatment versions, participants in the experimental (RP) intervention were asked to select the specific RP strategies that were most useful. Participants were also given an opportunity to respond to an open-ended question on how they felt about the RP intervention. Both questions were included to gather additional information about the usefulness of using relapse prevention strategies as a transfer intervention in a management training program.

## Data Collection Procedures

Participants completed the posttest survey on learning and the demographic survey immediately after training (time 1), but before the transfer intervention. Posttests measuring

learning retention, self-efficacy, use of RP strategies and skill maintenance were administered 4 weeks (time 2) after the initial training using a Web-based survey. Similar studies measuring skill maintenance have used anywhere from 3-6 weeks to conduct transfer assessments; however, a 4-week period was used because leadership skills are expected to transfer quickly. In brief, Table 5 describes each measure used in the study, the source, and when the measure was collected.

Table 5

*Summary of Study Measures*

Variable	Measure	Source	Time collected
Demographic	Decision to attend training Age Ethnicity Sex Education Number of direct reports Department Management level	Participants	Time 1
Mediator	Self-efficacy	Participants	Time 2
Dependent	Content retention Self-efficacy Use of RP strategies Skill maintenance	Participants	Time 2
Control	# of direct reports	Participants	Time 1
Qualitative	Usefulness of RP training	Participants	Time 2



## Data Analysis Procedures

The process used to test the research hypotheses was threefold. First, descriptive results were reviewed for statistically significant relationships between variables. Second, three regression equations were assessed to test for mediating effects of self-efficacy between the treatment levels and the multiple response variables (e.g., use of RP strategies and skill maintenance). Finally, a descriptive discriminant analysis (DDA) assessed the relationship between each level of the RP treatment and the dependent variables of self-efficacy, skill maintenance, and the use of RP strategies. Although a DDA provides the same information concerning whether differences exist across response variables as a one-way MANOVA with three groups, it also identifies on which variables the groups differ. As described by Huberty and Hussein (2003), the primary goal of DDA is to identify outcome variable “constructs” that underlie the effects of the grouping variable (p. 205). A specific explanation of each analytic procedure follows.

## Mediation

Based on the recommendations of Judd and Kenny (1981), as cited in Baron and Kenny (1986), a series of regression equations should be estimated to test for mediating effects. To test for the mediating effect of self-efficacy between the treatment levels and the dependent variables of skill maintenance and use of RP strategies, the following regression equations were computed: the first equation regressed the mediator (i.e., self-efficacy) on the independent variable (i.e., treatment levels: RPG and RPM); the second equation regressed the dependent variable(s) (i.e., skill maintenance, use of RP strategies) on the independent variable; and the third equation regressed the dependent variable on both the independent variable and on the mediator.

Mediating effects were determined if (a) the independent variable affected the mediator in the first equation; (b) the independent variable affected the dependent variable in the second equation; and (c) the mediator affected the dependent variable in the third equation. Baron and Kenny (1986) noted that if these relationships hold in the predicted direction—that self-efficacy mediates the effect of both RPG and RPM on the criterion/response variables—then the effect of the independent variables on the dependent variables must be less in the third equation than in the second. Perfect mediation, as the authors explained, occurs when the independent variable has no effect on the dependent variable when the mediator is controlled. Perhaps more relevant to applied research, a partial mediating effect becomes tenable when the relationship between the independent variable and dependent variable is reduced or lessened when the mediator is controlled.

#### DDA

To continue with hypothesis testing, a DDA was used to discover major differences among the grouping variables (i.e., group trained in RPM strategies, group trained in RPG strategies, and the control group) with multiple response variables (i.e., learning retention, use of RP strategies, skill maintenance). Unlike the goal of its companion analytic procedure (i.e., *predictive* discriminant analysis or PDA) of classifying groups, the goal of a DDA is to produce discriminating functions that maximize group separation along a series of response variables. Although used initially in such areas as personnel and educational testing, Klecka (1980) noted that discriminant analysis is especially useful in analyzing experimental data when assignment to treatment groups is presumed to affect scores on several response variables. Because this study explored how the group variable (RP treatment levels) compared across multiple response variables, DDA analytic procedures were selected to maximize differences between groups.

J. P. Stevens (2002) noted that DDA has the benefit of having both parsimony of description and clarity of interpretation as a statistical procedure. A DDA linearly combines the multiple dependent variables into one synthetic variable that provides maximum group separation. The new variable, the linear discriminant function (LDF), then provides the best representation of group differences among the response variables. For this study, two LDFs ( $k - 1$ , where  $k$  is the number of groups) were produced. The first LDF explains the correlation between the set of continuous variables (criterion variables) and the categorical/group variables (predictor variables); the second LDF explains any variance left over. DDA also offers easy interpretation because the separation of the groups along each discriminant function is unrelated to separation along a different function, thus, explaining unique variance and allowing a more complete understanding of the group variance on the response variables.

Standardized and structure coefficients were also interpreted to clarify variable importance. Both were interpreted because standardized coefficients do not consider multicollinearity (i.e., the shared variance between predictors) and either arbitrarily divide the shared area between predictors or assign it exclusively just to one predictor, thus failing to truly clarify variable importance. Put simply by Henson (2002b): “If standardized weights inform the researcher what variables are getting credit for the effect, then structure coefficients inform the researcher what variable *could have* gotten credit for the effect” (p. 11).

Prior to conducting the DDA, certain data analytic assumptions and conditions were checked. First, multivariate normality was assessed using MULTINOR, a statistical technique developed by Thompson (1990) that is based on the calculation of Mahalanobis distance ( $D^2$ ). According to Henson (1999), MULTINOR provides a much easier interpretation aid than other normality assessments that tend to be conceptually complex and difficult to implement. The

MULTINOR procedure produces a graphical display indicating the distance a given case is from the vector of means. That is, normality is satisfied if each case is distributed about the mean vector in proportional manner. Homogeneity of covariance matrices was also assessed, using Box's *M* statistic. Finally, for items other than those in the demographic survey, any missing data were handled using the pairwise deletion method because only the item with missing data is excluded rather than the entire case in the analysis. For one case with a significant amount of missing data on one variable, the variable mean was used to replace the missing items.

In accordance with Huberty and Hussein's (2003) suggestions for "complete" DDA reporting, all analyses were conducted using SPSS® statistical analysis software, version 11.5. To test for mediating effects of self-efficacy, the REGRESSION command was conducted; for the DDA results, the DISCRIMINANT command was used.

### Summary

In this quasi-experimental study, managers (n = 39) employed at a multinational telecommunication organization attended a 4-hour training session on Situational Leadership II, where two of the three groups were administered different levels of a relapse prevention transfer intervention (e.g., RPM or RPG). The measures used were either established or created using methods to insure content validity. Multiple variable outcomes were assessed: learning and retention of content, self-efficacy, use of relapse prevention strategies, and maintenance of trained skills. Descriptive discriminant analysis was used to test the main hypotheses, and linear regression was used to test the mediating effects of self-efficacy between the treatment levels and use of relapse prevention strategies and skill maintenance outcomes.

## CHAPTER 4

### RESULTS

#### Introduction

This section presents the empirical results for the study. Specifically, the sample characteristics, plan of study, and descriptive results are discussed, followed by evidence for hypothesis support or rejection.

#### Sample

Although some participants were urged to attend the training by a manager or supervisor, 46% attended because they wanted to enhance their leadership skills with their direct reports. Each participant served in some type of management or administrative role within one of three organizational units (i.e., finance, customer care, and information technology) and had an average of five direct reports/subordinates. A summary of the sample characteristics is detailed in Table 6.

Table 6

*Sample Characteristics*

Demographic variable	Sample characteristics
Decision to attend training	Primary reason: wanted to enhance leadership skills
Age	$M = 39.5$ yrs $SD = 1.02$
Ethnicity	64% - Caucasian/White 14% - African American/Black 8% - Hispanic, Latino, Chicano 6% - Asian 6% - Other 3% - Native American
Sex	51% female
Education	43% - Bachelor's degree 33% - Some college/technical school 11% - Some graduate work 7% - High school degree 7% - Associate's degree
Department	50% - Information Technology 28% - Finance 11% - Customer Care/Service 11% - Other
Management level	53% - Supervisor 39% - Manager 7% - Director 3% - Other

## Plan of Study

In this quasi-experimental study, managers ( $n = 39$ ) employed at a multinational telecommunication organization attended a 4-hour training session on Situational Leadership® II skills, where two of the three groups were administered different levels of a relapse prevention

transfer intervention (e.g., RPM or RPG). The outcome (dependent) variables of learning and retention of content, self-efficacy, use of relapse prevention strategies, and maintenance of trained skills were assessed to determine the relative effect of training participants in using RP strategies as a posttraining intervention. Descriptive discriminant analysis was used to test the main hypotheses (H1-H6,) and linear regression was used to test the mediating effects of self-efficacy between the treatment levels and use of relapse prevention strategies (H8, H10) and skill maintenance (H7, H9) outcomes.

### Descriptive Data

Descriptive results for the entire sample and for the specific groups are presented. Factor analysis results conducted on each of the variable measures are also reviewed and discussed.

### Descriptive Analyses

The means, standard deviations, factor structures, and bivariate correlations are presented in Table 7.

Table 7

*Means, Standard Deviations, Correlations, Reliabilities, and Factor Structures*

Variable	<i>M</i>	<i>SD</i>	No. of factors	1	2	3	4	5	6
1. Learning (time 1) <sup>a</sup>	9.11	.536	-	-					
2. Retention (time 2) <sup>b</sup>	8.58	1.42	-	.27	-				
3. Self-efficacy <sup>b</sup>	7.31	1.27	1	-.21	.39*	<b>.85</b>			
4. Use of RP strategies <sup>b</sup>	5.10	.64	2	-.20	.24	.40*	<b>.81</b>		
5. Skill maintenance <sup>b</sup>	4.78	1.22	1	-.11	.19	.38*	.29	<b>.91</b>	
6. # of direct reports <sup>a</sup>	2.72	1.47	-	.02	.15	.24	.38*	.30	

<sup>a</sup>  $n = 39$  for Time 1 variables.

<sup>b</sup>  $n = 36$  for Time 2 variables. Cronbach alphas are on the diagonal.

\*  $p \leq .05$ .

*Reliability analysis.* Reliability coefficients for this sample are listed on the diagonal in Table 7. No items were eliminated for the skill maintenance or the self-efficacy measure to achieve acceptable reliability levels for the sample. As noted earlier, the skill maintenance use of RP strategies measures was adapted from Burke and Baldwin's (1997, 1999) earlier work, in which they reported acceptable reliabilities ( $\alpha = .87$ ,  $\alpha = .82$ , respectively). Two items were eliminated from the RP strategies measure due to low reliability results in order to achieve acceptable levels ( $\alpha = .75$ ) for the current study. Also of interest is the number of direct reports positively related to participants' use of RP strategies, thus supporting the decision to use this variable as a covariate.

*Bivariate correlations.* The relationship between participant self-efficacy and retention of training content is of particular interest. Participant self-efficacy was statistically significantly related to participant retention of learning content (measured at Time 2), demonstrating that



persons high in efficacious beliefs toward completing a specific task are more likely to perform at higher levels, or in this case, to retain the training content 4-weeks after the initial training session. This finding agrees with much of the research on the self efficacy-performance linkage previously discussed.

Another notable finding was that participant self-efficacy had a strong relationship with use of RP strategies ( $r = .40, p < .05$ ) and skill maintenance ( $r = .38, p < .05$ ), suggesting that the use of such cognitive and behavioral coping skills did positively correspond with one's belief in using and maintaining the leadership skills. This finding was of little surprise because Marx (1986) posited—but did not empirically test—that the use of RP strategies would increase participant self-efficacy toward maintaining the trained skills. This finding supports the concept of enactive mastery (Bandura, 1982), in which the act of mastering a task can subsequently boost one's belief in completing this task in the future. In sum, training participants to use coping strategies to thwart relapses to pretraining behavior is likely to cause increases in both self-efficacy and the ability to maintain trained skills longer.

### Exploratory Factor Analysis

An exploratory factor analysis (EFA) using principal components was conducted to assess the validity of the study measures. In brief, an EFA explains the maximum amount of shared variance with the fewest number of representative concepts (factors) and was employed in the current study to better understand the internal structure of each measure (Kieffer, 1999). Kieffer (1999) explained this process as a “mathematical re-expression” (p. 79) of relationships between a set of variables as identified by the fewest possible factors. As Henson, Capraro, and Capraro (2001) noted, factor analytic techniques help to bolster measurement integrity by further refining the concept or theory under study.

Although the sample in this study was less than the widely acknowledged “rule of five” participants per measure item (J.P. Stevens, 2002), an EFA was conducted as a way to further investigate the sample characteristics listed in Tables 6 and 7. An orthogonal (uncorrelated) rotation strategy using varimax rotation was used for ease in interpretation because the factors remain perfectly uncorrelated, resulting in a more parsimonious solution. Further, as Kieffer (1999) noted, the factors are “cleaned up” (p. 80) in a varimax rotation so that every factor has a factor pattern (i.e., shows each variable’s unique contribution to each factor) and factor structure (i.e., correlation between a factor/observed variable and each synthetic variable) matrix that are equal, thus making only one matrix necessary for interpretation. The factor pattern/structure matrix for each measure is listed in Tables 9-11.

Decisions to extract factors for each measure were made by reviewing both a visual scree plot and parallel analysis results. A parallel analysis (Horn, 1965) essentially compares eigenvalues of a matrix of random uncorrelated variables to eigenvalues produced from the actual data. Only eigenvalues in the actual data that are larger than the eigenvalues produced from the random set are extracted. Although the SPSS-provided scree plot produces a visual plotting of eigenvalues by factor, Zwick and Velicer (1986) noted complications concerning the location and number of “break point(s)” (i.e., the divider between EVs greater and less than one) that could cause a researcher to mistakenly overestimate factors. In a Monte Carlo evaluation study comparing the five most common decision rule techniques (i.e., eigenvalue  $> 1$  rule, Bartlett’s test, the scree test, the minimum average partial., and parallel analysis), Zwick and Velicer (1986) found that parallel analysis was consistently the most accurate in identifying factors to be retained across variations in sample size, component saturations, and number of variables per component.

For the current study, the scree plot indicated three viable factors each for the self-efficacy and use of RP strategies measure and two factors for the skill maintenance measure. However, results from the parallel analyses indicated that only one factor each for participant self-efficacy and skill maintenance and two factors for participant use of RP strategies should be extracted. For a comparison between the decision methods, Figure 3 and Table 12 depict the conflicting results of the self-efficacy measure. Specifically, Figure 3 includes the scree plot indicating three factors with eigenvalues greater than one, and Table 8 includes the eigenvalues from the study data and those generated from the parallel analysis for the self-efficacy measure.

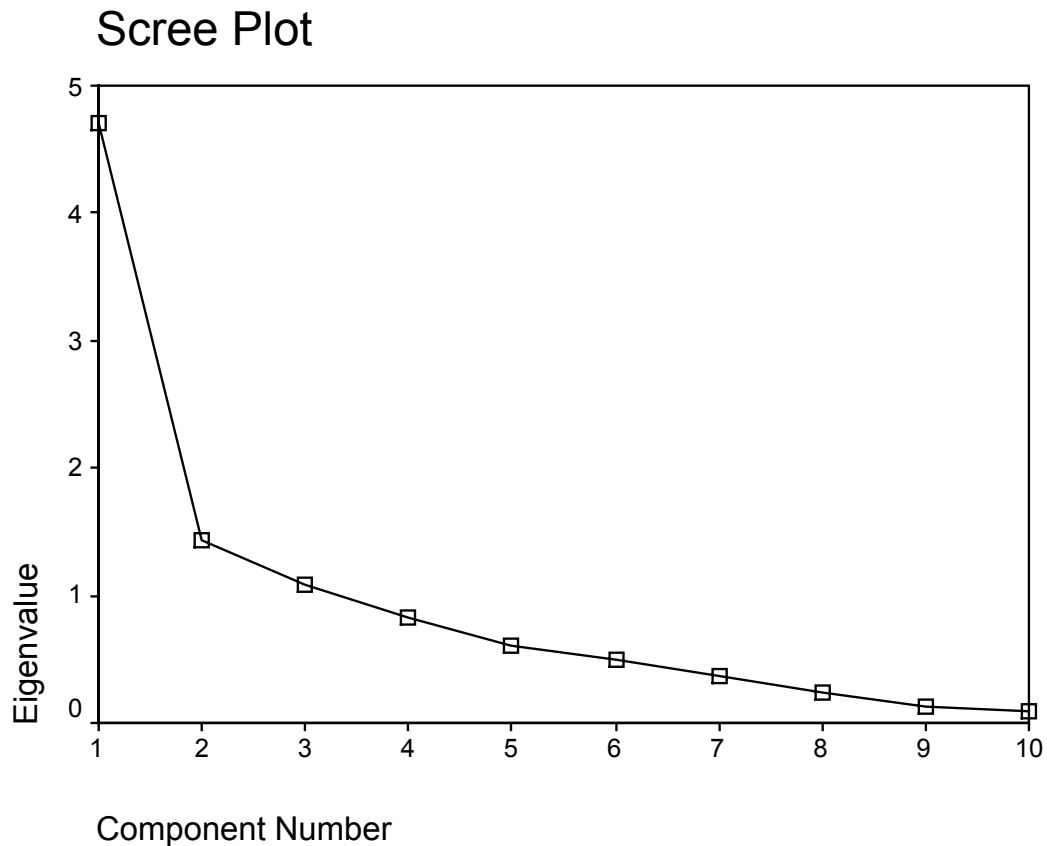


Figure 3. Scree plot of eigenvalues from self-efficacy measure.

The scree plot from the actual data set appears to suggest that two or possibly three factors should be extracted for the participant self-efficacy measure. However, when compared to the eigenvalues produced by the parallel analysis in terms of magnitude, only one factor emerged as larger than the corresponding (random) values. As Thompson and Daniel (1996) suggested, using multiple decision factors allows researchers to make better choices concerning the content validity of measurements.

Table 8

*Eigenvalues Generated From Study Data and Random Data for Self-efficacy Measure*

Factor	Data	Random data
1	4.714	1.627
2	1.432	1.482
3	1.078	1.391

Additional information concerning factor saturation, communalities, and the trace for each factor per response variable based on the parallel analysis results is included in Tables 9-11.

Table 9

*Factor Pattern/ Structure Pattern Matrices**Rotated to Varimax Criterion for Self-Efficacy Measure*

Variable	I	$h^2$
SE1	.334	.112
SE2	.009	.000
SE3	.823	.678
SE4	.536	.287
SE5	.352	.124
SE6	.381	.145
SE7	.775	.601
SE8	.393	.154
SE9	-.071	.005
SE10	.691	.477
Trace	2.583	2.583
% of Variance	25.83%	25.83%

*Note.* Coefficients equal to or greater than .70 are italicized. Percent variance is post-rotation. The second, unretained eigenvalue was 1.432.

An examination of the *trace* (the proportion of variance explained after rotation) for one factor explained 26% of the total variance for the self-efficacy measure. Factor 1 contained three items ( $\geq .70$ ) and was labeled “Agreement” because this factor demonstrates a manager’s perceived ability to gain agreement by a subordinate on the subordinate’s developmental level and on the leadership style. Although the parallel analysis failed confirm accepting the other two factors, inspection of the factor saturation levels indicated that each of these represented the other two skills and subsequent objectives (i.e., Flexibility and Partnering for Performance) taught in the training class.

Table 10

*Factor Pattern/ Structure Pattern Matrices**Rotated to Varimax Criterion for RP Strategies Measure*

Variable	I	II	$h^2$
RP1	.771	.369	.730
RP2	.081	.222	.056
RP3	-.220	-.054	.051
RP4	.462	.244	.273
RP6	.697	.150	.484
RP7	.857	.097	.743
RP8	.690	.031	.462
RP9	.870	.215	.803
RP10	.802	.026	.644
RP12	.230	.856	.786
RP13	.089	.892	.804
Trace	4.021	1.865	
% of Variance	36.55%	16.88%	

*Note.* Coefficients equal to or greater than .70 are italicized.  
Percent variance is post-rotation. The third, unretained eigenvalue was 1.114.

Two factors explained 54% of the total variance in the participant use of RP strategies measure. Factor 1 accounted for 37% of the total variance with four items with saturation levels ( $> .70$ ) and two factors that were close to .70 (i.e., RP 6, 8). Labeled “Understanding,” items representing Factor 1 indicate a manager’s conceptual understanding of relapse prevention strategies. Although extracting a second factor (Factor 2) was supported by both the scree plot and parallel analysis results, only two items had saturation levels ( $\geq .70$ ) and failed to justify a reliable factor emergence (J. P. Stevens, 2002).

Table 11

*Factor Pattern/ Structure Pattern Matrices**Rotated to Varimax Criterion for Skill Maintenance Measure*

Variable	I	$h^2$
SM1	.805	.648
SM2	.782	.612
SM3	.806	.650
SM4	.709	.503
SM5	.690	.476
SM6	.284	.081
SM7	-.073	.005
SM8	.199	.040
SM9	.144	.021
SM10	.204	.042
SM11	.325	.106
SM12	.170	.029
Trace	3.213	
% of Variance	26.78%	

*Note.* Coefficients greater or equal to .70 are italicized. Percent variance is post-rotation. The next unretained eigenvalue was 1.660.

For the skill maintenance measure, Factor 1 accounted for 27% of the total variance and had five items with saturation values of ( $\geq .70$ ). Factor 1 was labeled “Analysis” because the items represent a manager’s success (during 4 weeks immediately after training) at assessing the appropriate leadership style for a subordinate’s developmental level.

## Evaluation of Research Hypotheses

To extend the interpretation process, each hypothesis is reviewed and explained based on the results of the DDA and regression analyses.

### DDA Assumptions

A descriptive discriminant analysis (DDA) was used to identify major differences between the levels of the grouping variable (i.e., group trained in RPM strategies, group trained in RPG strategies, and the control group) and the multiple response variables (i.e., retention of training content, use of RP strategies, skill maintenance). Prior to conducting the actual analysis, certain data analytic conditions (Huberty and Lowman, 1997) were checked so that the DDA procedure would provide accurate and meaningful results concerning group differences. First, multivariate normality was assessed using MULTINOR, a statistical technique developed by Thompson (1990) that is based on the calculation of Mahalanobis distance ( $D^2$ ). The MULTINOR procedure produces a graphical display indicating the distance a given case is from the vector of means. That is, normality is satisfied if each case is distributed about the mean vector in a proportional manner. For the present sample, the assumption of comparable means across the criterion variables was satisfied.

A second condition, homogeneity of variance-covariance matrices, was assessed using Box's  $M$  statistic and found to be nonstatistically significant ( $M = 19.042, F = .782, p < .739$ ), meaning that within-group variance was similar for each group. Equality of the covariance matrices is crucial if the DDA analysis is to detect separation by way of the response variables and not other (unidentified or uncontrolled) group differences. Finally, the variable mean replaced missing data on one case, and all other missing data points (excluding demographic



data) were handled using the pairwise deletion method because only the item with missing data is excluded rather than the entire case in the analysis.

### DDA Results: Level 1 Interpretation

As a DDA is considered part of the General Linear Model (GLM), Thompson's (1997) two-stage hierarchical decision strategy was used to guide the general interpretation of results and Huberty and Hussein's (2003) reporting guidelines were used to focus the interpretation on relevant DDA issues. The first level of interpretation concerns whether or not there are results worth interpreting. To explore this issue, a statistical significance test with associated eigenvalues, canonical correlation coefficients, and an effect size index were examined, as shown in Table 12.

Table 12

#### *Canonical Discriminant Functions*

Function	Eigenvalue	Percent of variance	Cumulative percentage	Canonical correlation
1	.097	71.2	71.2	.297
2	.039	28.8	100.00	.194
After Function	Wilks' Lambda	Chi-squared	df	Sig.
0	.878	4.115	8	.847
1	.962	1.208	3	.751

The Wilks' lambda test statistic was used for the present study to assess group (mean vector) differences across the response variables and was found to be nonstatistically significant ( $\Lambda = .878, p < .847$ ). The less a function maximizes group differences on the response variables, the further Wilks' lambda value is from zero. So, for the present study, the high Wilks' value

indicates minimal group separation across the response variables. Minimal differences can also be identified in reviewing the specific group/treatment level means on the four response variables (see Table 13).

A review of the associated eigenvalues and low canonical correlation coefficient also lends support to the weak discriminating ability of each function. Eigenvalues identify the relative discriminating power of each function, with higher numbers indicating that a function represents an increasing degree of group separation across response variables in a DDA. Similarly, the canonical correlation coefficient is the measure of association that identifies the relationship between the groups and each function, where higher scores are also indicative of a stronger relationship. When squared, a canonical correlation coefficient can also be interpreted as eta-squared in ANOVA, representing that 9% of the variance in the discriminant function can be explained by group differences. Interpreting the effect size using Wilks'  $(1 - \text{Wilks' } \Lambda)$ , Function 1 represents 12% of the total effect, indicating that a small-medium amount of variance (Cohen, 1977) between groups is attributable to the treatments. Given these general DDA results, the specific research hypotheses that were tested using DDA are reviewed.

*Effect of RPM and RPG on retention (H1-H2).* Hypotheses 1 and 2 predicted that participants receiving the RP training intervention (i.e., RPG and RPM) would significantly differ from each other (H1) and from the control group (H2) on retention of leadership training content. Specifically, it was argued that participants in the RPG condition would retain more training content than would those in the RPM or the control condition.

A review of the mean scores on the retention variable (see Table 12) shows that participants successfully maintained the learning content at 4 weeks after the training, a condition necessary for positive transfer to occur. However, when comparing each of the transfer

conditions on each of the response variables (see Table 13), differences—albeit not statistically significant—did exist. An unexpected result is that the control group scored higher on the retention (Time 2) and on the other response variables. Thus, there was no statistically significant difference between groups on the retention measure, and hypotheses 1 and 2 are not supported.

Table 13

*Comparison of Group Means for Retention, Self-efficacy, Use of RP Strategies, and Skill Maintenance*

<i>Variables</i>	Treatment levels/groups			df	F
	RPM (n = 12)	RPG (n = 12)	Control (n = 12)		
Retention (time 2)				2	1.033
Mean	8.17	8.58	9.00		
SD	1.90	1.31	.85		
Self-efficacy				2	.493
Mean	7.24	7.08	7.59		
SD	1.30	1.25	1.30		
Use of RP strategies				2	.820
Mean	5.84	5.89	6.24		
SD	.63	.80	1.02		
Skill maintenance				2	.825
Mean	4.92	4.68	5.16		
SD	.89	.98	.84		

*Effect of RP training on skill maintenance (H3-H4).* Hypotheses 3 and 4 predicted that participants receiving the RP training intervention would significantly differ from each other (H3) and the control group (H4) on the maintenance of leadership skills. Specifically, it was argued that participants in the RPG condition would maintain the leadership skills more than the RPM or the control condition. Although the mean differences between groups on the skill

maintenance measure varied more than on the other response variables [ $F(2, 33) = .825, p < .447$ ], no statistically significant differences were found between groups on the skill maintenance measure and hypotheses 3 and 4 are not supported.

Qualitative comments were also collected from participants in the RP treatment conditions concerning the usefulness of the RP intervention as a transfer strategy and are listed in Table 14. Consistent with Burke's (1997) findings, participants receiving the RPM condition rated each of the three steps as useful and the step of learning specific RP strategies as the most beneficial. Similarly, participants in the RPG condition also rated each step positively, but with goal setting and learning specific RP strategies as the most useful in helping them maintain the leadership skills.

Table 14

*Usefulness of RP Steps as Rated by Participants*

RP Step	% of RPG who agreed RP step was useful	% of RPM who agree RP step was useful
1. Goal setting	100%	Not included
2. Learn RP steps (11)	100%	92%
3. Predict first slip	67%	75%
4. Apply coping strategies	75%	83%

Further, 4 participants responded to the open-ended statement "Please include any general comments you have about the relapse prevention training," and Table 15 includes the response per RP intervention condition. Overall, participants believed the RP intervention helped them

use the leadership skills in the workplace, but 2 participants noted the difficulty of predicting realistic obstacles and actually finding time to use the new skills with direct reports.

Table 15

*Open-ended Comments About RP Intervention per Condition*

RPG Comments	RPM Comments
<p>“At first I thought it was a good idea to predict your first slip, however in a work environment especially a call center predicting is almost impossible.”</p>	<p>“I feel that the relapse training was very good in keeping me committed to actually using the Situational Leadership skills when I returned to my work environment.”</p> <p>“Learning (RP) strategies is useful as is predicting the first 'slip' but it seems to me to be more useful learning about the 'high risk' situations and how to deal with them.”</p> <p>“For me, and I suspect others, its just a matter of having or dedicating time to analyze your work environment and staff to incorporate the elements. When I find I'm running around with absolutely minimal downtime, I fail to remember to try and enhance my skills with these tools, and must dedicate time to do this.”</p>

*Effect of RP training on use of relapse prevention strategies (H5-H6).* Hypotheses 5 and 6 predicted that participants trained in RP strategies would significantly differ from each other (H5) and the control group (H6) on the use of the RP strategies during the 4 weeks after training. Specifically, it was argued that participants in the RPG condition would use more of the RP strategies than would those in the RPM or the control condition. Although the mean differences between RPG and RPM groups on the RP strategies measure were similar to those for the control

group [ $F(2, 33) = .820, p < .449$ ], no statistically significant differences were found between groups on the variable and hypotheses 5 and 6 are not supported

#### DDA Results: Level 2 Interpretation

The minimal differences between groups as evidenced by the eigenvalues and canonical coefficients, coupled with the moderate effect size, fail to make a strong case for additional interpretation of any of the functions produced in the DDA. However, Function 1 was interpreted to provide additional information concerning function structure and variable correlations as a way to better understand which variables accounted for the group differences.

Although examining statistical significance results and a corresponding effect size indicate how well a function maximizes (group) separation based on the response variables, it offers no indication as to which groups actually differed or which specific variables contributed to such differences (viz., the second level of interpretation). To provide an introspective look at the function structure, standardized coefficients (also called beta weights in regression) and structure coefficients (i.e., bivariate correlations between each function and the response variables) were examined to identify which response variables provided for separation among each function. As indicated in Table 16, participant retention of training content, use of relapse prevention strategies, and self-efficacy were the dominant variables in Function 1. Specifically, groups differed most on the extent to which participants maintained the leadership content, used relapse prevention strategies, and on their levels of self-efficacy 4 weeks after training.

Table 16

*Function Structure and Standardized Discriminant Function Coefficients Matrix*

Variables	Structure		Standardized	
	coefficients		coefficients	
	Function 1	Function 2	Function 1	Function 2
Retention	.762	-.408	.628	-.685
Self-efficacy	.715	.090	-.071	.485
Use of RP Strategies	.487	.422	.531	-.150
Skill Maintenance	.546	.736	.324	.719

Of additional interest is the high correlation of skill maintenance on both functions. Skill maintenance had a strong correlation with Function 1 ( $r_s = .55$ ) and Function 2 ( $r_s = .74$ ), indicating that groups differed little on the maintenance of leadership skills 4 weeks after training. Use of RP strategies may have helped participants retain the training content, but provided little help in maintaining the actual leadership skills. Using Kirkpatrick's (1959) evaluation terms, participant use of transfer strategies may have helped participants learn (Level 2) the leadership material, but failed to impact the actual use of leadership skills (Level 3) in the workplace.

Group centroids, a group's mean on each of the functions, were also examined to identify group association for Function 1. As displayed in Figure 4, the spatial placement of each group centroid indicates the degree of difference among the functions. The space between each group centroid will be greater the more a function can differentiate among groups.

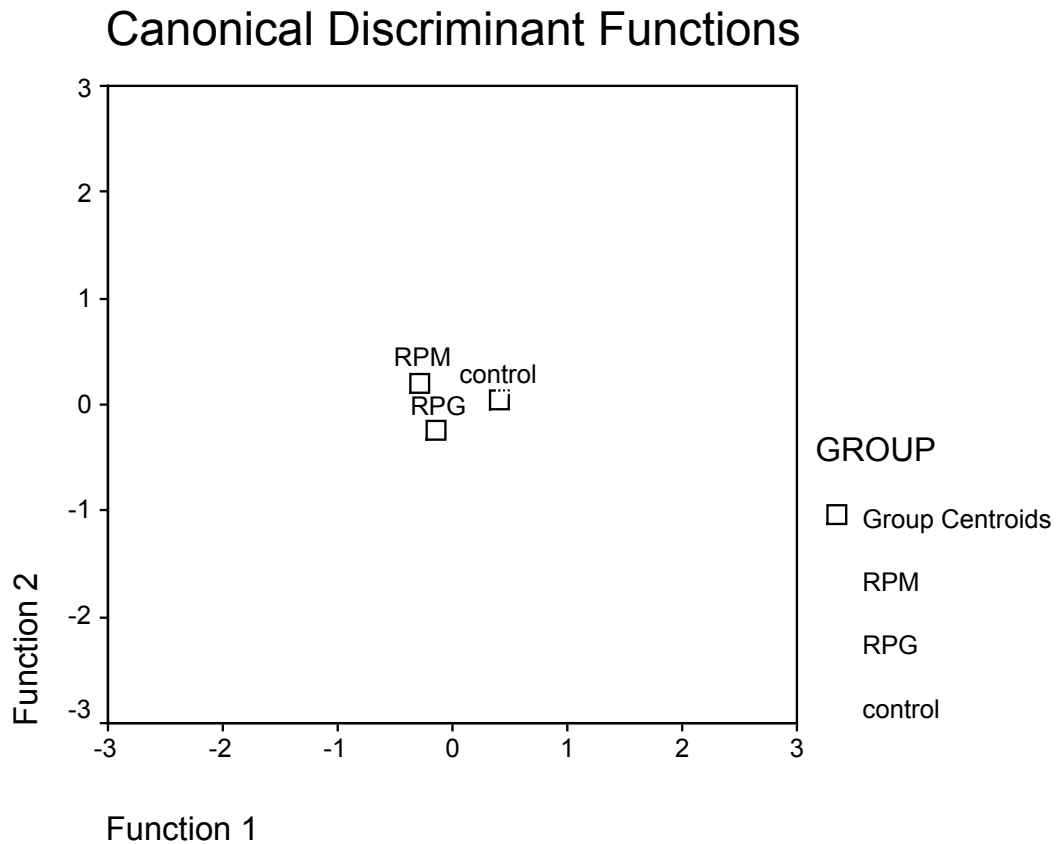


Figure 4. Group centroids plotted along discriminant functions.

On Function 1, both treatment groups were more similar to each other than to the control group. Again, although minimal differences existed as represented by the close proximity and overlap of group centroids, the RP treatment groups differed in retention of training content, use of RP strategies, and self-efficacy compared to the control group. The similarity between the treatment groups could indicate the value of teaching participants coping skills as a transfer intervention, whereas the minimal difference between groups could be due to the strong correlations between skill maintenance and both functions. That is, teaching participants coping skills may enhance self-efficacy toward learning and use of leadership skills, but it has little effect on the degree to which participants actually maintain the leadership skills.



## Regression Results for Mediation Test

Hypotheses 7-10 predicted that participant self-efficacy would mediate the relationship between the RP conditions and skill maintenance and the use of RP strategies. Baron and Kenney’s (1986) regression models were used to test for the mediating effects of self-efficacy between the treatment levels and skill maintenance (H7, H9) and the use of RP strategies (H8, H10). Specifically, three regression models were estimated and are described in Tables 17-19.

Three conditions must hold in order for self-efficacy to mediate the relationship between the RP treatment levels and participant skill maintenance and the use of RP strategies. The first condition is that self-efficacy must positively affect the independent variable or, in this case, the RP treatment levels. As depicted in Table 17 (Step 1), participant self-efficacy has a weak relationship with both RP treatment levels, therefore making the first condition for the mediating effect not tenable.

Table 17

*Step 1: Participant Self-efficacy Predicts RP Treatment Levels*

Variable	Self-efficacy		
	$\beta$	$t$	$p$
RPM	-.132	-.668	.509
RPG	-.192	-.970	.339

*Note.*  $R^2 = .029$ ,  $\Delta R^2: -.030$  ( $p < .62$ ).

The second condition for self-efficacy to be considered a mediating variable is for the RP treatment levels to positively affect participant skill maintenance and the use of RP strategies. As

noted in Table 18, the RP treatment levels do not affect the dependent variables and the second condition is not satisfied.

Table 18

*Step 2: SM and RP Strategies Predict RP Treatment Levels*

Variable	Skill maintenance			Use of RP strategies		
	$\beta$	$t$	$p$	$\beta$	$t$	$p$
RPM	-.128	-.653	.518	-.231	-1.175	.311
RPG	-.252	-1.284	.208	-.202	-1.028	.248

*Note: Skill Maintenance:  $R^2 = .048$ ,  $\Delta R^2: -.010$  ( $p < .45$ ); Use of RP Strategies:  $R^2 = .047$ ,  $\Delta R^2: -.010$  ( $p < .45$ )*

Finally, the third condition required for a mediation is that self-efficacy and the RP treatment levels need to affect participant skill maintenance and the use of RP strategies. The results in Table 19 indicate that neither RP treatment level affects participant skill maintenance and the use of RP strategies. Given that the three conditions necessary for mediation were not satisfied, hypotheses 7-10 are not supported.

Table 19

*Step 3: SM and RP Strategies Predict RP Treatment Levels and Participant Self-efficacy*

Variable	Skill maintenance			Use of RP strategies		
	$\beta$	$t$	$p$	$\beta$	$t$	$p$
RPM	-.082	-.435	.666	-.180	-.973	.338
RPG	-.184	-.976	.336	-.129	-.690	.495
Self-efficacy	.352	2.151	.039*	.379	2.342	.026*

Note. Skill Maintenance:  $R^2 = .168$ ,  $\Delta R^2: .090$  ( $p < .11$ ); Use of RP Strategies:  $R^2 = .187$ ,  $\Delta R^2: .111$  ( $p < .08$ ).

\* ( $p < .05$ ).

Of note, however, is that self-efficacy emerged as strong predictor of participant skill maintenance ( $\Delta R^2 = .090$ ,  $\beta = .352$ ,  $p < .039$ ) and the use of RP strategies ( $\Delta R^2 = .111$ ,  $\beta = .379$ ,  $p < .026$ ). To explore the extent of the relationship between self-efficacy and participant skill maintenance and the use of RP strategies, an additional regression analysis was conducted and is depicted in Table 20. Self-efficacy emerged as a strong predictor of both skill maintenance ( $\Delta R^2 = .118$ ,  $\beta = .023$ ,  $p < .02$ ) and participant use of RP strategies ( $\Delta R^2 = .137$ ,  $\beta = .402$ ,  $p < .02$ ) when regressed on each variable alone despite that it did not mediate the relationship between the RP treatment levels and the response variables.

Table 20

*SM and RP Strategies Predict Participant Self-efficacy*

Variable	Skill maintenance			Use of RP strategies		
	$\beta$	$t$	$p$	$\beta$	$t$	$p$
Self-efficacy	.378	2.382	.023*	.402	2.558	.015*

*Not.: Skill Maintenance:  $R^2 = .143$ ,  $\Delta R^2: .118$  ( $p < .02$ ); Use of RP Strategies:  $R^2 = .161$ ,  $\Delta R^2: .137$  ( $p < .02$ ).  
\* ( $p < .05$ ).*

## Summary

This section included the results of the tested hypotheses in the present study. As discussed, minimal but nonstatistically significant group differences were detected across discriminant functions on the retention of training content, participant self-efficacy, participant skill maintenance, and the use of RP strategies. Although participant self-efficacy failed to mediate the relationships between the RP treatment conditions and participant skill maintenance and the use of RP strategies, it was found to be a strong predictor of both response variables. Chapter 5 presents a specific discussion and implications of these results, limitations of the research, and future implications of the variables of interest.

## CHAPTER 5

### DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

#### Introduction

This section includes a discussion of the results and the limitations of the study. Subsequent implications for practice and recommendations for future research will also be presented concerning the use of relapse prevention strategies as a transfer-enhancing strategy.

#### Interpretation of Findings

This quasi-experimental field study compared two transfer interventions based on relapse prevention (RP) strategies on the outcomes of participant retention of training content, skill maintenance, use of RP strategies, and self-efficacy. Each transfer intervention included the steps of learning (11) cognitive-behavioral coping strategies, predicting the first slip to pretraining behavior, and applying relevant coping strategies to avoid a slip or relapse (see Table 3 in Appendix G). The interventions differed only in the addition of a goal setting step to one of the treatment conditions (RPG), but not to the other (RPM). Participants ( $n = 39$ ) were managers in a multinational telecommunication organization located in a large southern city.

Specifically, it was argued that (a) participants in the RPG condition would retain more content from the leadership training than would those in the RPM or control condition (H1-2); (b) participants in the RPG condition would maintain more skills from the leadership training than would those in the RPM or control condition (H3-4); (c) participants in the RPG condition would use more RP strategies than would those in the RPM or control condition (H5-6); and (d) participant self-efficacy would mediate the relationship between the treatment conditions and skill maintenance and participant use of RP strategies (H7-10). Three separate regression equations were estimated to test the potential mediating effect of self-efficacy between the RP

treatment conditions on skill maintenance and use of RP strategies, and descriptive discriminant analysis (DDA) was used to test the remaining hypotheses.

The results of this study provide no support for any of the tested hypotheses. Because a DDA maximizes separation among the response variables to indicate on which variables groups differ, groups actually were more similar than different in their retention of leadership content, maintenance of the leadership skills taught in the training, use of RP strategies, and perceived self-efficacy to use the leadership skills in the actual work context. Although marginal differences were found between the RP treatment conditions and the control group on the retention of training content, the use of RP strategies, and self-efficacy in the DDA analysis, these results should be taken cautiously because the practical significance of such differences is limited. Further, self-efficacy was not found to mediate the relationship between the RP treatment conditions and the response variables of skill maintenance and the use of RP strategies.

#### Goal setting and RP Strategies

Surprisingly, the addition of the goal setting step to the RPG condition failed to differentiate groups on any of the response variables. Although several studies have found goal setting particularly effective in helping participants maintain their trained skills while used alone (cf. Richman-Hirsch, 2001; Wexley & Baldwin, 1986; Wexley & Nemeroff, 1975) and when paired with self-management strategies that included RP strategies (Gist et al., 1991; C.K. Stevens & Gist, 1997), it failed to demonstrate the same effect in the present study. The goal setting step was included in Marx's (1986) initial articulation of RP strategies, but it was excluded from the modified RP model conceptualized and empirically tested by Burke (1997) and Burke and Baldwin (1999) included in the current research. Because goals help to focus effort and increase persistence toward attainment (Locke & Latham, 1979; Locke et al., 1981), it

was expected that reintroducing the goal setting step to the modified RP model would bolster both the use of RP strategies and the subsequent maintenance of leadership skills in the RPG condition. The result, however, was just the opposite; participants in the RPG condition scored less than the control group on skill maintenance and the use of RP strategies (see Table 12).

One possible explanation for this result was that all participants were asked to engage in a form of goal setting as part of the actual leadership training. Because a direct report's developmental level (i.e., level of competence and commitment) and a manager's leadership style are diagnosed in relation to a specific task, participants were asked to develop specific task-related goals for a selected direct report. Such exposure to a form of goal setting, although for a direct report, may have contaminated the effect of a goal setting step in the actual RP treatment conditions, thus exposing all groups to using goals as a part of the leadership training. Another possibility is that RP strategies, as noted by Wexley and Baldwin (1986, p. 505), actually function as a form of "self goal setting" without an explicit goal setting step. If so, then the RPG and RPM conditions would have differed only slightly in exposure to instruction in goal setting, thus making the minimal variability between groups on the response variables understandable.

Finally, although predicted otherwise, it was not surprising that no significant differences existed between participants in the RPM and control groups on each of the response variables. The impact of using RP strategies in a transfer intervention has, to date, been marginal in research studies. For example, Burke (1997) and Burke and Baldwin (1999) found partial support for using RP strategies in a transfer intervention only when moderated by transfer climate. That is, participants tended to use more RP strategies based on the degree of support offered in their immediate environment (e.g., by managers, colleagues, organization). Burke failed to find that training participants to use RP strategies helped them use more of the RP skills

or that such training enhanced skill maintenance except when transfer climate was concerned. Similar results were found when comparing RP strategies to goal setting as a transfer intervention (Richman-Hirsch, 200; Wexley & Baldwin, 1986) where participants trained in goal setting maintained their skills longer than those trained in RP strategies. However, as noted previously, generalizability of these results may be limited due to the different operationalizations of the RP strategies used as compared to the Burke (1997) and Burke and Baldwin (1999) studies. Taken together, the results indicate that using RP strategies in a skill maintenance intervention requires further methodological refinement in which the composition and use of such strategies are clearly identified.

### Self-efficacy and Skill Maintenance

Interestingly, self-efficacy was not found to mediate the relationship between each RP condition and the response outcomes of skill maintenance and the use of RP strategies. This finding was also unexpected because the rationale for using RP strategies in both chemical addiction and management development programs was to increase participant self-efficacy (Marx, 1986) in using trained skills. That is, RP strategies would help participants enhance self-efficacy toward skill maintenance by predicting obstacles and learning relevant coping mechanisms to prevent a reversion to pretraining behavior. What is not surprising, however, is that self-efficacy explained a significant amount of variance in skill maintenance ( $\Delta R^2 = .12, p < .02$ ) and in the use of RP strategies ( $\Delta R^2 = .14, p < .02$ ) for all groups, as noted in Table 20. This finding supports the substantial research on self-efficacy as being instrumental in enhancing performance.

One reason that self-efficacy failed to mediate the relationship between the RP treatment conditions and skill maintenance could be that there were strategies used during the actual



leadership training that helped increase participant self-efficacy toward skill maintenance. As Bandura (1997) explained, participant self-efficacy can be positively influenced in both the skill acquisition phase of learning and through a transfer program to enhance skill maintenance. Sources of efficacy development include having participants observe others model correct behavior or skills (mastery modeling), receive expert-guided instruction with corrective feedback (enactive mastery), engage in the continued practice of skills, receive encouragement from the trainers and other group members (verbal persuasion), and consider how they will use the skills outside of training (cognitive rehearsal). During the leadership training, the researcher observed that several of these efficacy-inducing methods were used (see Table 21) to help participants understand and apply the learning objectives. The use of these methods in the actual leadership training may explain the moderate to high self-efficacy scores across all groups (see Table 13) and that the fact that self-efficacy was strongly related and subsequently predictive of both participant skill maintenance and the use of RP strategies.

Table 21

*Examples of Self-efficacy Methods Used in Situational Leadership II Training*

Group	Efficacy Method	Examples in training
All	Mastery modeling	Viewed and discussed video-taped vignettes of managers using correct and incorrect leadership skills with direct reports.
All	Guided instruction	Participated with a small group in an interactive game of matching leader and direct report developmental levels with trainer debriefing at various points of game.
All	Verbal persuasion	Received encouragement from trainers concerning performance on case study and interactive game.
All	Practice	Worked on a lengthy case study with another participant and applied each of the four steps to using the leadership skills.
RPG, RPM	Cognitive rehearsal	Instructed to think about and plan ways to maintain leadership skills in the work context as a function of the RP intervention.

Given this, it seems reasonable that self-efficacy plays a dual role in the impact on performance and maintenance of trained skills. A mediating effect may have resulted if the use of efficacy-inducing methods in training had been controlled, because all groups were exposed, and the amount of exposure may have been greater than that of the actual RP training intervention for the treatment groups.

Another possible explanation is that participants had a high level of self-efficacy prior to the leadership training as a result of other (unmeasured) attributes or experiences. Because the majority of participants (73%) voluntarily took the leadership training, they may have entered the

training context with a moderate to high level of efficacy toward using the leadership skills.

Mathieu et al. (1993) found that participant efficacy was positively related to voluntary (training) attendance because, as they reasoned, participants would expect to perform well if they chose to enroll in training. The authors also found that self-efficacy helped explain the relationship between achievement motivation (i.e., participant predisposition toward challenging work) and training performance.

Other factors may also have influenced participant self-efficacy independent of the transfer intervention. As Gist and Mitchell (1992) noted, judgments concerning self-efficacy depend on a progressive weighting of specific task requirements, personal attributes concerning past performances, and perceived individual and situational constraints. Assessing participants' prior leadership exposure (i.e., training, general leadership experience, knowledge or experience in Situational Leadership methods or concepts) and any perceived constraints to learning may have better described participant differences prior to training. Had additional behavioral information been measured, demonstrated a strong correlation with the response variables and therefore been controlled, self-efficacy may have emerged as a mediator between the RP treatments and the response variables of skill maintenance and the use of RP strategies.

In sum, it is clear from both previous research and the current study that facilitative strategies exist for increasing self-efficacy that are important contributors to participant learning, retention, and maintenance of training content. Influences on individual self-efficacy in learning contexts can be difficult to isolate because such influences are dependent on both several, sometimes unknown, internal and external attributes. To this end, attempts at identifying and then evaluating the degree to which efficacy—and attempts at increasing efficacy—impact actual

learning and subsequent maintenance of skills will depend on how “efficacy-inducing” strategies are classified, evaluated, and interpreted.

## Implications of Findings

Several important implications for enhancing training transfer warrant attention. Specific focus is given to the issues of self-efficacy in training and transfer settings and the use of RP strategies as a transfer intervention.

Given that managerial and executive training are second only to technical training in terms of current training expenditures (Sugrue, 2003), most organizations would be interested in methods that help enhance performance through the successful transfer of skills. Because self-efficacy is a strong predictor of performance and because it is unlikely that participants enter a training setting with an optimal level of efficacy, training personnel would benefit from assessing participant efficacy levels throughout the training (Kraiger, Ford, & Salas, 1993) and in the subsequent transfer context as another way to understand differences in participant transfer outcomes. Evaluating individual and situational determinants of self-efficacy (Gist & Mitchell, 1992) prior to training can provide trainers with an idea of participant readiness for the training. Listed below are specific questions that could be sent to participants within a week of the actual training course to assess precourse efficacy levels:

1. Are you familiar with the (topic) that will be presented in the training class?
2. Do you have any prior training or experience in using (topic) skills?
3. If you answered “yes” to 2, did you/do you successfully use the (topic) skills?
4. Do you expect to master the (topic) training content?
5. Do you expect to successfully use the (topic) skills in your work setting?
6. What obstacles or barriers (if any) to learning the (topic) do you expect in the training settings?
7. What obstacles or barriers (if any) to maintaining the (topic) do you expect in your work setting?
8. Do you perceive the (topic) training as a way to enhance your performance in your work setting?

If a participant was identified as not having the necessary knowledge or skills to succeed in the training or if the participant expressed low efficacy in mastering the training content, a trainer

could suggest other training or education options to help increase a knowledge or skill deficiency or explore reasons for the low efficacy level with the participant prior to the actual training. As Gist and Mitchell (1992) noted, participants may experience low efficacy due to inaccurate attributions of ability or past performance. The preintervention could help “ready” the participant for participating in the training course by remedying either actual or perceived efficacy deficiencies, especially those that are individual and highly variable to change.

Gathering efficacy information may also direct what types of facilitation strategies are used in the actual training and in subsequent transfer initiatives. Efficacy-inducing methods include enactive mastery, guided instruction, modeling, or verbal persuasion (Bandura, 1997), and they have been found to be especially effective when used as methods to foster skill acquisition (Mitchell et al. 1994). Mastery modeling, for example, requires that participant observe an exemplary example of the behavior or skill being taught instead of just listening to a “best case” description. Because decisions concerning facilitative strategies must be made prior to the training course start, precourse self-efficacy information would provide trainers and instructional designers with direction as to which facilitative methods would best meet the needs of participants. Likewise, assessing self-efficacy immediately after the training and at variable intervals in the transfer period would provide information concerning efficacy change as a function of the content and/or facilitative strategies used and could determine whether or not some participants would benefit from additional efficacy methods as part of a transfer program.

A second implication for practice concerns the use of RP strategies as a transfer intervention. Although the results of the current study offer mixed messages concerning the utility of using relapse prevention strategies as a transfer intervention, teaching participants to successfully manage obstacles to skill maintenance despite competing demands remains a vital

part of supporting positive transfer. The practice of considering how to cope with obstacles that interfere with success has been supported across various disciplines and situations. For example, having long-distance runners visualize problems that could occur during a race (e.g., falling behind other runners, fatigue, pain) and considering how these would be handled in practice sessions is used to better prepare them for the actual racing experience. Similarly, requiring entrepreneurs to assess threats and risks to new venture startups in their business proposal is another way to maximize success by devising ways to minimize potential obstacles. In both situations, participants shift their focus from idea generation or skill acquisition to realistic application of new ideas and skills.

Relapse prevention strategies are based on the idea that building resilience in handling setbacks or failure in skill maintenance can determine the extent to which potential opportunities are realized and constraints are overcome (Bandura, 1997) in using the trained skills. In effect, thinking about obstacles and related coping strategies engages one in cognitive mastery by increasing the “belief” of success and possibly even in enactive mastery through increasing efficacy from continued success in maintaining skills. However, interventions geared at increasing self-efficacy should not end with the conclusion of a training program; rather, organizations should consider including efficacy intervention strategies (cf. Gist & Mitchell, 1992) in transfer programs that are geared toward participant efficacy levels (as measured at varied intervals). Across studies, including the present one, participant self-efficacy had a strong positive correlation with both skill maintenance and the use of RP strategies indicating that participants who perceived themselves as efficacious also reported maintaining their leadership skills and using RP strategies in the transfer period. Including skills in identifying and coping

with obstacles to skill maintenance will better equip participants to maintain the trained skills amid competing demands and, in the end, will heighten the probability of successful transfer.

### Limitations

Given the results of the present study, several limitations require explanation and discussion. Issues concerning both research design and methodological concerns are explored.

A lack of randomization of groups and lower than expected sample size likely affected the rigor and, thus, generalizability of the present results. The power level and desired effect size will determine the required number of participants needed to provide valid results, but the sample size ( $n = 39$ ) for the present study was a function of enrollment guidelines set by the participating organization. Specifically, although treatment conditions were randomized, participants self-selected the training sessions, with each session restricted to 15 participants per course. One attempt at equalizing groups was the administering of a learning measure (Time 1) immediately after training, but before the interventions. The results indicated that groups were similar on learning prior to receiving the RP transfer intervention (see Table 13).

To achieve sensitivity in detecting group differences when using a DDA, J.P. Stevens (2002) suggested a 20:1 ratio between participants and each tested variable. Such a ratio means that the optimal sample for the present study would have been larger ( $n = 80$ ). Although the 20:1 ratio is at the higher end of sample estimates, a suggested sample for a one-way MANOVA (essentially equivalent to a DDA) to achieve a moderate effect size with power set at .70 would be much closer ( $n = 46$ ) to the present sample. The participant retention rate was high (90%), but the low sample size may have restricted the measures in detecting true differences between groups.



Second, participant bias in self-reports may have hindered the objectivity of the data. Although the self-report method was selected with the expectation that managers had few other observers who could provide an objective evaluation of their leadership skills with direct reports, including multiple reports of manager use of RP strategies and skill maintenance may have decreased the potential bias that often accompanies self-reporting. Although reports of learning and self-efficacy are best assessed by the actual individual, corroborating perceptions between an observer report of participant behavior and the self-report may have increased the reliability and objectivity of the participant skill maintenance and use of RP strategies measures.

In addition to low power and the use of self-reports, another limitation of the present study was in the potential contamination effects of using goal setting as part of the leadership training content. As noted earlier, all groups were exposed to goal setting as part of the leadership training although it was in relation to helping a direct report set a goal. Because the treatment groups received an intervention that differed only in the goal setting step, differential effects of the treatment may have been eliminated, thus resulting in minimal differences across groups.

Finally, given the conflicting results of previous research on using RP strategies to enhance skill maintenance, it is clear that further conceptual and psychometric refinement are needed to better understand the use of relapse prevention strategies in a transfer intervention. Earlier studies using RP strategies as a transfer intervention have used different operationalizations of the RP construct that have varied in the composition of strategies, order and number of steps, and length of intervention. Inconsistent applications of the RP construct may have resulted in minimal attempts at verifying the RP constructs using factor analytic procedures. Interestingly, but perhaps not unexpectedly, the factor analysis conducted in the

current study resulted in items indicative of each RP strategy dispersed across factors with some items dropped for poor reliability. Taken together, it is clear that the model of RP strategies needs further refinement by way of additional validation analyses to clarify the underlying constructs.

### Future Directions

Given the importance of positive training transfer to organizational performance, several recommendations for practice are suggested based on the current findings. First, although conducting field studies offers the benefit of collecting data in an applied setting, certain organizational restrictions can influence the research design. Lack of randomization of groups results in the increased potential for confounding variables, especially when measuring variables such as self-efficacy and transfer outcomes that are known to have multiple antecedents. To further clarify the relationship between these variables, further research should explore additional variables that impact positive skill maintenance. Variables such as participant motivation to transfer (Noe, 1986), readiness to change (Lawrence, 1999), perceptions of transfer climate (Burke & Baldwin, 1999), and even participants' level of organizational commitment (Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991) may better describe additional influences on participant maintenance of trained skills in applied settings.

Second, comparing the effects of using methods to increase self-efficacy as a part of skill acquisition and in skill maintenance would expand the scope of influences on positive training transfer. Whereas the goal of the present research was to clarify the impact of relapse prevention strategies on participant self-efficacy to maintain trained skills, it is clear that self-efficacy may also influence transfer outcomes in addition to, or even independent of, the effect of a transfer intervention. Would high self-efficacy as a result of skill mastery in the training setting transcend

to high efficacy toward maintaining the trained skills in the actual work setting? Because judgments concerning self-efficacy are influenced by both individual and contextual factors at a given time, it appears that the differences in the goal (learning vs. maintaining skills) and the difference in the context (training vs. work) may affect self-efficacy differently, thus making different methods or interventions for enhancing self-efficacy required. For example, participants may perceive a great deal of control in learning the training content in the actual training context because few, if any, obstacles are evident. However, the participant may perceive less control when attempting to use and maintain the same skills in the work context resulting in less self-efficacy. The efficacy strategies offered by Gist and Mitchell (1992) would be particularly helpful in addressing either situation, with the result being an increase in individual self-efficacy toward maintaining trained skills. In sum, identifying the relationship between specific efficacy methods/strategies, participant performance, and setting (i.e., training vs. transfer) would clarify the differential effects of self-efficacy in instructional settings.

Perhaps the strongest suggestion for future research is to refine the conceptual model of RP strategies as a transfer strategy through validation studies. Marx (1986) extended the use of RP strategies from chemical addiction programs, where relapses in drug or alcohol abuse could result in destructive if not life-threatening behavior for participants. Is it possible that such strategies are not completely applicable in an organizational setting, where the stakes of relapsing are not as high? Or is it possible that a relationship exists between the type of skill (i.e., cognitive, affective, skill-based) and/or skill level (degree of complexity) and the type of intervention that would be most effective at bolstering skill maintenance? Although each idea is speculative, the current attention directed at using RP strategies in organizational training settings indicates that the strategies offer some promise for helping participants view success at

maintaining trained skills as a function of managing obstacles in the actual work context. Further, as more organizations move toward using computer-based and online formats (e.g., CD-Rom, Web-training) for instructional purposes (Sugrue, 2003), assessing positive transfer becomes an even more illusive process of demonstrating the value of training as an effective performance strategy. By validating the RP concept as a transfer intervention in organizational training settings, a wider application of the strategies would be possible across training settings and formats.

An additional benefit of clarifying the construct of RP strategies as a transfer intervention is to better understand the relationship between goal setting and the other RP strategies. Earlier studies on the modified (i.e., three-step model) RP intervention failed to include goal setting as a strategy; however, several studies have demonstrated the enhanced effect that an intervention including goal setting and RP-like self-management strategies had on skill maintenance (cf. C.K. Stevens & Gist, 1997; Gist, Stevens, & Bavetta, 1991; Morin & Latham, 2000), prompting many to suggest a hybrid model. Further, because self-efficacy affects participant performance through goal level, effort, and persistence, clarifying the role of goal setting in addition to RP strategies may result in more strategic and effective transfer intervention. As Holton (2003) recently noted, faster and more efficient methods for bolstering organizational performance are needed to keep human resource development (HRD) programs as relevant, contributing facets of organizations. In short, efficient transfer interventions may offer more of a “just-in-time” effect on participant transfer potential than making more (macro) changes in areas such as transfer climate—currently a main focus in transfer research (cf. Bates, 2003; Burke, 2000; Richman-Hirsch, 2001).

Because few studies have submitted the RP intervention to factor analytic methods to refine the specific steps and psychometric properties of the associated measures, the loose

operationalizations of the RP model could explain the varied results across studies concerning the impact on helping participants maintain training skills. Given this lack of conceptual consistency, further validation studies through factor analytic methods or perhaps structural modeling procedures are suggested to refine the underlying constructs of the RP approach and develop measures that are valid and reliable. Doing so would make a substantial methodological contribution to the sparse collection of valid instruments used in human resource development (HRD) research. As noted by Holton, Bates, and Ruona (2000), submitting instruments to validation studies strengthens the analytic procedures and offerings of the HRD discipline and makes cross-study comparisons on transfer constructs possible.

### Conclusions

The present study compared transfer interventions based on different operationalizations of RP strategies on skill maintenance for a leadership skills training. Self-efficacy was also tested as a mediator between the RP interventions and the outcomes of skill maintenance and use of RP strategies. Although no statistically differential effects were found between groups, self-efficacy was found to be a strong predictor of both response variables, indicating that subsequent performance is dependent on individual perceptions of capability. The self-efficacy-performance link, well established in research on skill acquisition and motivation, also plays a vital role in understanding individual success at maintaining trained skills.

The present research indicates that designing successful transfer interventions is an evolving process with multiple variables of influence. As Burke (1996) noted in her first study on using RP strategies as a transfer intervention, “the transfer problem is complex, context-dependent, and stubbornly entrenched” (p. 55). The results of the present study support this notion while also indicating that the utility of using RP strategies as an effective transfer

intervention hinges mostly on methodological refinement rather than on additional randomized application. It is recommended that training personnel assess participant self-efficacy in evaluating the extent to which positive transfer occurred and use participant efficacy levels to direct facilitation choices in training design and subsequent transfer programs to bolster skill maintenance.

APPENDIX A

PARTICIPANT CONSENT FORM

Subject Name:

Date: July 2, 2003

Title of Study:

Enhancing skill maintenance through modified relapse prevention strategies: A comparison of two models.

Principal Investigator: Holly M. Hutchins

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Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the proposed procedures. This letter describes the procedures, rights, benefits/risks, and confidentiality issues of the study. It also describes your right to withdraw from the study at any time. It is important for you to understand that no guarantees or assurances can be made as a result of this study.

### **Purpose, Participation Rights, and Procedures**

I am currently involved in a research project comparing two transfer interventions and the effect on training transfer. Specifically, the study seeks to find an efficient, yet effective method for helping participants maintain their trained skills when they return to their work setting. After you participate in the Situational Leadership session provided by your organization, I will guide you through a series of cognitive-behavioral coping skills to help you maintain the skills from the leadership training. This study is performed as partial fulfillment of the requirements for my Ph.D. degree in education at the University of North Texas.

Your participation in this project is completely voluntary. You may withdraw from the study at any point without penalty. By participating, you will provide useful information on the topic of training transfer. This evaluation process will consist of you completing four surveys designed to assess self-efficacy, learning and retention, use of transfer skills and skill maintenance. You will also be asked to complete a demographic questionnaire.

### **Confidentiality**

The four instruments and the demographic questionnaire will be kept separate from your personnel file and will be used solely for analysis in the training study. The data collected will only be available to the primary researcher (Holly Hutchins) and to her faculty advisors. Your information will be analyzed along with others to provide a better understanding of the effectiveness of transfer interventions in enhancing training transfer. Data from questionnaires and instruments are anonymous. Names of participants will not be connected to information or scores.



### **Risk, Duration of Research, Questions about the Study**

There are no foreseeable psychological or physical risks associated with your participation in this study. There is no direct benefit to you for participating in this study, however your participation will increase our understanding of the relationship between specific transfer strategies and positive training transfer. Your total time for participation and to complete the first survey and demographic questionnaire will be approximately 15 minutes. I will also contact you again in **four weeks** to have you complete the remaining four surveys in a Web-based format. This should only take you between 25-30 minutes to complete.

The results of this study may be published in educational or business journals or be presented at professional meetings, but neither you nor the organization will be identified. If you have any questions not discussed here, you may ask the researcher present or contact Holly Hutchins at (214) 690-1194 or hutchins@unt.edu. You may also contact my advisor (Dr. Michelle Wircenski) at (940) 369-7704 or mickey@unt.edu.

### **Signature and Acknowledgement**

Your signature below indicates that you have read and understand the above information and that you had an opportunity to ask questions of the researcher concerning your participation and the study purpose. You may also request a summary of the research findings after the study is complete. This study has been reviewed and approved by the UNT Committee for the Protection of Human Subjects (940/565-3940).

\_\_\_\_\_  
Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Date

### **For the Investigator:**

I certify that I have reviewed the contents of this form with the participant signing above. I have explained the known benefits and risks of the research. It is my opinion that the subject understood the explanation.

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

## APPENDIX B

### USE OF TRANSFER STRATEGIES MEASURE

Please indicate the extent to which you agree or disagree with the following statements.

- 1 = Strongly disagree  
 2 = Disagree somewhat  
 3 = Disagree a little  
 4 = Neither agree or disagree  
 5 = Agree a little  
 6 = Agree somewhat  
 7 = Strongly agree

1. I recognized when I was slipping into old leadership behaviors.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
2. I identified situations at work that threatened my use of my Situational Leadership skills.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
3. I had a plan for dealing with work situations that threatened my use of the Situational Leadership skills.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
4. I dealt with thoughts/feelings that could interfere with using the Situational Leadership skills on my job.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
5. I maintained a support network with other trainees who participated in the Situational Leadership skills training.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
6. I identified the appropriate setting for applying the Situational Leadership skills.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
7. I viewed slips in using the Situational Leadership skills as opportunities to learn, not as personal failure.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
8. I identified work situations where the application of Situational Leadership skills would be useful.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
9. I thought about necessary support skills (i.e., assertiveness, listening skills, time management, stress management, etc.) I needed in order to effectively	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7

communicate with my subordinates.							
10. I retained self -confidence even if I slipped in using the Situational Leadership skills on the job.	1 Strongly disagree	2	3	4 Neither agree of disagree	5	6 Strongly agree	7
11. I understand <i>why</i> trainees sometimes relapse into old behaviors when returning to work from training programs.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
12. I recognized that some behavior, while seemingly unimportant, could lead to my <i>not</i> using the Situational Leadership skills.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7

*Note.* Adapted from “Workforce training transfer: A study of the effect of relapse prevention training and transfer climate,” by Burke, L.A., & Baldwin, T.T. (1999), *Human Resource Management*, 38(3), 227-242; Marx, R. D., & Burke, L.A. (in press). Transfer is personal: Equipping trainees with self-management and relapse prevention strategies. Used with permission.

## APPENDIX C

### SELF-EFFICACY MEASURE

This questionnaire is designed to help me get a better understanding of your perceived capability at mastering a task or set of tasks.

**Directions:** Please circle yes “Y” or no “No” indicating whether or not you believe you can perform each of the following tasks. **If you answer YES**, please rate your confidence in being able to perform that task: (1) not certain in completing task to (10) certain can complete task.

1. Are you able to diagnose your leadership style (S1-Directing, S2-Coaching, S3-Supporting, S4-Delegating)?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
2. Can you diagnose an others' developmental level (D1, D2, D3, D4)?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
3. Can you get agreement from others on developing SMART goals (specific, measurable, attainable, relevant, and trackable)?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
4. Can you get agreement from others on your diagnosis of their development level?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
5. Can you get agreement from others on your current and future leadership style?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
6. Are you able to get agreement from others on which leadership behaviors are appropriate for each goal?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
7. Are you able to get agreement on how and how often you and others will stay in contact?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
8. Are you able make adjustments to your leadership style when you <b>over-supervise</b> others?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
9. Are you able make adjustments to your leadership style when you <b>under-supervise</b> others?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain
10. Can you use the “Partners for Performance Worksheet” to help match your leadership behaviors to the individuals' developmental level?	<b>Y or N</b>	1 Not Certain	2	3	4	5 Moderately certain	6	7	8	9	10 Certain

APPENDIX D

DEMOGRAPHIC QUESTIONNAIRE

**Directions:** Answering the following information is voluntary. Your completion of the following questions will help me address the individual differences in questionnaire responses.

1. **Why did you decide to enroll in this training session?**

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2. **What is your age?** \_\_\_\_\_

3. **What is your ethnicity?**

- African-American
- Hispanic, Latino, Chicano
- Asian (i.e., Far East, Southeast Asia, and the Philippines)
- Native American or Alaskan Native
- Pacific Islander
- Caucasian (not of Hispanic origin)

4. **What is your gender?**

- Female
- Male

5. **What is your level of education?**

- High School Diploma
- Some College/Technical Training
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Jurist Doctorate/PhD.

6. **What is your department?** \_\_\_\_\_

7. **How many subordinates do you manage?** \_\_\_\_\_



APPENDIX E

SKILL MAINTENANCE MEASURE

To what extent do you agree or disagree with the following statements?

- 1 = Strongly agree
- 2 = Disagree somewhat
- 3 = Disagree a little
- 4 = Neither agree or disagree
- 5 = Agree a little
- 6 = Agree somewhat
- 7 = Strongly agree

Because attending the Situational Leadership II skills training, *in the last month*, I have:

1. diagnosed my leadership style (i.e., S1-Directing, S2-Coaching, S3-Supporting, S4-Delegating).	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
2. diagnosed others' individual development level (i.e., individual level of competence and commitment to accomplish a goal: D1, D2, D3, D4).	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
3. used <i>directive behaviors</i> to influence others' developmental level..	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
4. used <i>supportive behaviors</i> to influence others' developmental level.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
5. adapted my leadership style (i.e., Directing, Coaching, Supporting, Delegating) from one situation to another to match the individual's developmental level.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
6. made adjustments to my leadership style when I <i>over-supervised</i> on others' performance.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
7. made adjustments to my leadership style when I <i>under-supervised</i> on others' performance.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
8. gained individuals' agreement on SMART (specific, measurable, motivating, attainable, relevant, and trackable) goals.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7
9. gained individuals' agreement on my diagnosis of his or her developmental level.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6 Strongly agree	7

10. gained individual's permission to use the leadership style that matched his or her developmental level.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6	7 Strongly agree
11. gained individual agreement on how often we (me and the person(s) I was leading) would stay in touch..	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6	7 Strongly agree
12. used the "Partnering for Performance Worksheet" to help diagnose the development level of the persons I was leading.	1 Strongly disagree	2	3	4 Neither agree or disagree	5	6	7 Strongly agree

Note. Burke, L.A., & Baldwin, T.T. (1999), *Human Resource Management*, 38(3), 227-242.

## APPENDIX F

### LEARNING AND RETENTION MEASURE

1. Match each skill of a situational leader (1= diagnosis, 2 = flexibility, 3 = partnering for performance) with the correct definition. Please use each answer only once.
- \_\_\_\_\_ a. the ability to comfortably use a variety of leadership styles
  - \_\_\_\_\_ b. the willingness and ability to look at a situation and assess others' developmental needs
  - \_\_\_\_\_ c. reaching agreements with others about the leadership style(s) they need from you to achieve their goals and the organization's goals.
2. Select the term that matches the following definition:
- “a person's demonstrated task-specific and transferable knowledge and skills on a given task or goal”
- a. commitment
  - b. competence
  - c. cohesiveness
  - d. comprehension
3. Select the term that matches the following definition:
- “a measure of an individual's motivation and confidence in relation to a specific task or goal”
- a. competence
  - b. comprehension
  - c. commitment
  - d. cognitive ability
4. Match each development level (D1, D2, D3, D4) with the correct description. Please use each answer only once.
- \_\_\_\_\_ a. capable, but cautious performer
  - \_\_\_\_\_ b. self-reliant achiever
  - \_\_\_\_\_ c. disillusioned learner
  - \_\_\_\_\_ d. enthusiastic beginner

5. Select the description that is considered an example of “directing” behavior?
- engages in more two-way communication
  - involves the other person in decision-making
  - listens and provides support and encouragement
  - sets goals and clarifies expectations
6. Select the description that is considered an example of “supportive” behavior?
- tells and shows an individual what to do, when, and how to do it
  - encourages and facilitates self-reliant problem solving
  - closely supervises, monitors, and evaluates performance
  - engages in goal setting and setting expectations for an individual
7. Match each leadership style (S1, S2, S3, S4) with the adjectives that best describe each style. Please use each answer only once.
- \_\_\_\_\_ a. redirecting, exploring/asking, sharing feedback
- \_\_\_\_\_ b. empowering, allowing/trusting, challenging
- \_\_\_\_\_ c. teaching/showing and telling how, defining, giving feedback
- \_\_\_\_\_ d. collaborating, reassuring, appreciating
8. Match each leadership style (S1, S2, S3, S4) with descriptions of the four individual development levels. Please use each answer only once.
- \_\_\_\_\_ a. Individual is autonomous, self-assured, and consistently competent.
- \_\_\_\_\_ b. Individual is confused, demotivated, and yet has flashes of competence.
- \_\_\_\_\_ c. Individual is eager, curious, yet inexperienced.
- \_\_\_\_\_ d. Individual is self-critical, cautious, yet capable.

9. Correctly match the steps for “Partnering for Performance” process (1 = first step; 2 = second step; 3 = third step; 4 = fourth step; 5 = fifth step). Please use each answer only once.

- \_\_\_\_\_ a. Get agreement on diagnosis of Development Level (D1-D4)
- \_\_\_\_\_ b. Get agreement on appropriate leadership behaviors for each goal
- \_\_\_\_\_ c. Get agreement on current and future Leadership Style (S1-S4)
- \_\_\_\_\_ d. Get agreement on SMART goals
- \_\_\_\_\_ e. Get agreement on how and how often you will stay in touch

10. Select the answer that best describes what is meant by SMART goals.

- a. written, general, non-trackable goals
- b. oral, specific, very challenging goals
- c. oral, general, non-measurable goals
- d. written, specific, measurable, and attainable goals

## APPENDIX G

TABLE 3: RELAPSE PREVENTION STEPS ACROSS RP STUDIES



Table 3

*Relapse Prevention Steps Used Across RP Studies*

Study	RP intervention
Wexley & Baldwin (1996)	(1) learned RP strategies, (2) predicted first slip, (3) applied relevant coping skills
Noe, Sears & Fullenkamp (1990)	(1) presented overview of relapse prevention model, (2) identified target skill, listed, positive and negative consequences of not using the skills, (3) described support needed to use the skill, (4) described possible “slips” and feelings concerning slips, (5) gave a letter to managers explaining the target skill and requested a meeting to discuss plans for developing target skill, (6) used RP worksheet to track progress
Tziner, Haccoun, Kadish (1991)	(1) discussed problem of transfer (causes and consequences), (2) reviewed summary sheet of course key concepts, (3) identified specific situations where the application of taught skills would prove difficult (sample problematic situations were read and discussed), (4) discussed (with all participants) coping strategies relative to each situation, (5) completed application activity where hypothetical employee had problems applying skills, (6) analyzed problem, causes and suggest steps which might be followed to overcome difficulty, (7) participated in general group discussion in which specific “dos and don’ts” were identified and noted, (8) received a “pep” talk from group leader encouraging trainees to transfer their newly acquired skills

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Burke (1996)

(1) stated skill desired to maintain, (2) defined a slip and relapse of the specific skill, (3) identified positive and negative consequences of using the new skill, (4) learned 14 cognitive and behavioral transfer strategies, (5) predicted slip and (6) identified strategies to deal with such situations, (7) self-monitored their progress using RP worksheet.

Burke & Baldwin (1999)

(1) set a skill maintenance goal, (2) operationally defined a slip and relapse, (3) explicated the advantages/disadvantages of applying new skills, (4) learned 14 specific transfer strategies (both cognitive and behavioral), (5) predicted first slip, (6) created coping skills, (7) monitored their progress back on the job using RP worksheet.

Richman-Hirsh (2001)

(1) presented overview of RP model, (2) listed newly trained skills that trainees wished to apply to job, (3) examined potential obstacles for effective transfer, (4) developed potential coping responses to handle unfavorable environmental influences, (5) instructed on how to experience a sense of accomplishment after attempting to use a coping skill in a problematic situation, (6) given a self-management plan worksheet to help them personalize self-management process, (7) instructed to complete the following over the next four-six weeks:

(a) focus on specific skills taught in training that they wanted to apply on the job, (b) list potential obstacles, (c) specifically describe how they would cope with or avoid each of the listed obstacles, (d) determine how they would monitor their performance toward avoiding or overcoming each, and (e) decide how they would reward themselves for successfully avoiding or overcoming each

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