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A Longitudinal Field Experiment of Post-Training Interventions
and Transfer of Training of the McGill Model of Nursing

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A Thesis

in

The Faculty

of

Commerce and Administration

Presented in Partial Fulfilment of the Requirements
for the Degree of Doctor of Philosophy at
Concordia University
Montreal, Quebec, Canada

January, 1997

ABSTRACT

A Longitudinal Field Experiment of Post-Training Interventions
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Concordia University, 1997

Employee training programs need to develop ways of increasing the likelihood that learned skills and behaviours are used when employees return to their jobs, i.e., that "transfer of training" occurs. One way to facilitate transfer of training is to perform a post-training intervention designed to increase transfer of training.

This dissertation has four main purposes. The first purpose was to test the effects of two post-training interventions, relapse prevention and transfer enhancement, in a 2 X 2 experimental design. The two interventions were designed to increase transfer of training by increasing self-efficacy for the training task, or a person's belief in his or her ability to perform the training task. Subjects were 147 nurses from one hospital who participated in a two day workshop. Self-efficacy and transfer of training were measured by both self-reports and supervisor reports at two and six months following training.

Contrary to prediction, the two post-training interventions did not result in higher transfer of training than the control group. It is suggested that the training itself was effective in increasing self-efficacy and in leading to transfer of training in control subjects, making post-training interventions redundant for this training program.

The second purpose was to test the effect of "motivation to learn" on transfer of training. Strong support was found for the hypothesis that "motivation to learn" is positively related to transfer of training.

The third purpose of the dissertation was to examine the process by which transfer of training occurs. This study hypothesized that self-efficacy would be positively related to transfer of training, and strong support was found for this hypothesis.

The fourth purpose of the dissertation was to examine the influence of transfer climate on transfer of training. It was found that supervisor and coworker support had a positive effect on self-reported but not supervisor-reported transfer of training.

A model of transfer of training is presented and recommendations for research and practice are discussed.

ACKNOWLEDGEMENTS

I would like to thank the nurses of the hospital where this study was done, and their supervisors, for their cooperation with this study. The high rate of questionnaire return, along with the results of this study which showed transfer of training, is indicative of the professionalism of these nurses, and I have taken pleasure in working with them.

The support of Donna McIntosh and Susan Rhéaume, who developed the training program, were the training instructors, and assisted in the development of some of the scales used in this study, is deeply appreciated. Their ability to motivate and increase the self-efficacy of nurses while providing an interesting workshop was instrumental in changing the way nursing is visualised at the hospital.

The assistance of Judith Leprohon and Susan Rhéaume in translating the questionnaire items is appreciated.

Many people at Concordia University helped me throughout the long process of obtaining a doctoral degree. I would like to thank Wela Dohmen and Shirley Masterson for their encouragement. I would also like to thank Heather Thomson for the assistance that she has given me, and Prof. Juan Segovia for his support while he was Associate Dean. In particular, I am grateful to Prof. Ulrike de Brentani for everything that she did to help me while she was Associate Dean.

The assistance of Lars Goransson in inputting the data for this study, and of Patricia Read-Hunter and Tom Robertson in reviewing earlier drafts of this study, is appreciated.

Prof. Steven Appelbaum, Prof. Blake Ashforth, and Prof. Jon Hartwick, members of my dissertation committee, made valuable contributions to this study. I am deeply grateful for the guidance of the chairperson of my committee, Prof. Alan Saks. His encouragement over the past few years enabled me to complete this study, and I feel very fortunate to have had such a helpful dissertation advisor who was able to contribute so much to my learning.

Lastly, I would like to thank my family and friends for their support since I entered the doctoral program.

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INTRODUCTION

Skilled employees help organizations to be innovative, providing them with a competitive edge (Rosow & Zager, 1988). The current trend to downsize organizations means that organizations can no longer rely on the selection of new employees to maintain a competent workforce (Quinones & Ford, 1993). Investing in employee training may help employees to meet the challenges of evolving job requirements (Goldstein & Gilliam, 1990). However, Georgenson (1982) estimated that only around ten percent of training expenditures result in work performance changes, a finding that demonstrates the need for research in the area of training.

For organizations to benefit from employee training programs, learning alone is not a sufficient outcome. Employees must apply the skills, knowledge, or attitudes that they have learned on the job, a process that is termed "transfer of training" (Newstrom, 1984; Wexley & Latham, 1981). As such, transfer of training refers to more than what is learned during training. Indeed, the fact that transfer of training involves more than post-training knowledge is given empirical support in many studies that have shown that post-training knowledge does not predict transfer behaviour (Alliger & Janak, 1989; Tracey, Tannenbaum, & Kavanagh, 1995). For transfer of training to occur, learning must be generalized into the job situation and be maintained over time (Baldwin & Ford, 1988). This generalization of learning from training to the work context and maintenance of

learning over time must be translated into changed behaviours in the work place in order to demonstrate that transfer of training has occurred.

Baldwin and Ford (1988) identified the need for research in the area of transfer of training, and developed a model of the transfer process (Figure 1). In their model, trainee characteristics, training design, and the work environment are antecedents of learning and retention. Trainee characteristics, the work environment, and learning and retention are antecedents of generalization and maintenance of learning, which is transfer. Baldwin and Ford noted that most research had limited itself to considering training design, and had measured learning immediately following the training. They called for research in the area of transfer of training, and suggested that trainee characteristics and the work environment also be investigated.

Relatively few studies have looked at the influence of the work environment on transfer of training, despite the fact that two recent review articles have called for such research (Baldwin & Ford, 1988; Tannenbaum & Yukl, 1992). It is reasonable to predict that constraints and supports in the work environment will influence the degree to which employees implement new behaviours in the workplace, or transfer what they learn in training.

Training design has traditionally focused on increasing learning and retention, as indicated in Baldwin and Ford's (1988) model. To improve transfer of training, training interventions aimed directly at the generalization and maintenance of what has been learned may be required. Leifer and Newstrom (1980) suggest that pre- and post-training

programs designed to increase transfer of training should be an additional component of training design. A limited number of studies have examined such training interventions (for examples, Gist, Bavetta, & Stevens, 1991; Noe, Sears, & Fullenkamp, 1990; Tziner, Haccoun, & Kadish, 1991; Werner, O'Leary-Kelly, Baldwin, & Wexley, 1994; Wexley & Baldwin, 1986). More research in this area is required, however, in order to examine the effectiveness of transfer interventions in transfer of training.

Baldwin and Ford's (1988) model does not suggest the process by which learning and retention leads to generalization and maintenance. One individual difference that may be useful to help explain this process is self-efficacy, or a person's belief in his or her ability to perform a specific task successfully. A number of research studies have demonstrated that increases in self-efficacy following training are related to improvements in behaviour (Bandura, 1986). Self-efficacy is a promising variable to help explain transfer of training.

This dissertation reports a longitudinal field experiment, with two post-training experimental manipulations designed to increase transfer of training. In addition, supervisor and coworker support, an important aspect of the work environment, and self-efficacy and motivation to learn are hypothesised to be positively related to transfer of training. Many previous studies of transfer interventions have been done with students as subjects, and have therefore not considered the importance of the work environment for transfer. There is only one study that has simultaneously examined both transfer of training interventions and transfer climate (Tziner et al., 1991), and no study has

simultaneously examined transfer of training interventions, transfer climate, self-efficacy, and motivation to learn.

The mechanism by which the post-training interventions are expected to increase transfer of training is self-efficacy. Therefore, a review of the literature on self-efficacy theory and self-efficacy and transfer of training is presented in the next section, followed by a review of the literature on transfer of training and post-training interventions.

LITERATURE REVIEW -- SELF-EFFICACY THEORY

AND SELF-EFFICACY AND TRAINING

Self-efficacy Theory

Self-efficacy is an important part of social cognitive theory (Bandura, 1986), a comprehensive theory of human behaviour that includes learning, performance, and motivation. Unlike purely cognitive or behaviourist theories, social cognitive theory includes the influences of the person, behaviour, and the environment. It is an interactionist theory, the major premise being that the person, behaviour, and environment, all influence each other, and these influences are bidirectional. Thus, social cognitive theory states that there is a triadic, reciprocal causation between the person, behaviour, and the environment (Bandura, 1986).

Self-efficacy, a key regulatory mechanism in Bandura's (1986) social cognitive theory, is a person's belief in his or her capacity to successfully perform a specific task. Self-efficacy is an aspect of the person in social learning's triadic relationship of person, behaviour, and the environment, and is part of social cognitive theory's view of motivation.

Social cognitive theory postulates two cognitively based mechanisms of motivation, forethought, and internal standards or self-evaluative reactions (Bandura, 1986). Forethought acts by allowing people to see the future consequences of their behaviour, and to use these as motivators and regulators of behaviour.

The second cognitively based mechanism of motivation in social cognitive theory stems from internal standards and self-evaluation of one's performance. Social cognitive theory states that people set goals, and then evaluate their performance relative to their goals. When their performance falls below their goal, they experience a negative discrepancy between what they sought to do and what they actually accomplished, and become dissatisfied. This self-dissatisfaction serves to motivate future performance, provided self-efficacy for the goal is sufficiently high. When negative discrepancies between actual performance and goals are accompanied by low self-efficacy for the task, the negative discrepancy becomes discouraging rather than motivating.

Self-efficacy explains why different people with the same skills and the same goal may perform differently, or why the same person in different situations may perform differently. When a negative discrepancy is accompanied by low self-efficacy for the task, the person becomes discouraged and makes few efforts to perform the task. When a negative discrepancy is accompanied by high self-efficacy for the task, the person may exert much effort and persistence in performance attempts. When performance attempts result in successful performance, self-efficacy is further enhanced, which in turn can lead to setting higher goals and improving future performance.

An important feature of self-efficacy is that it is not static, but changes in response to interaction with the environment and performance feedback. Thus, it is a variable of interest to trainers, because training that increases self-efficacy for the training task should result in more performance attempts.

Bandura (1986) stated that self-knowledge of one's self-efficacy comes from four sources of information. The first source of information is one's actual performance attainments. When a task is successfully performed, self-efficacy for the task increases. The second source of information is vicarious experience. When people see models who are similar to themselves succeed with a task, they feel that they will also be able to perform this task. The third source of information is verbal persuasion, where social influence is used to persuade people into believing that they can perform a task. The final source of information regarding one's self-efficacy is physiological feedback, where people rely in part on their assessment of their physiological state to form their level of self-efficacy for a specific task. Training interventions involving any one of these four sources of information for self-efficacy may be effective in increasing self-efficacy for the training task, and hence increasing transfer of training.

Gist (1987) noted the importance of self-efficacy theory for the field of organizational behaviour, and expressed a need to study the importance of self-efficacy for work behaviour. While self-efficacy theory holds much promise in explaining behaviour in the work place, two difficulties associated with work in this area should be noted. The first difficulty stems from the fact that self-efficacy refers to a person's belief in his or her capacity to perform a *specific* task. For this reason, Bandura and Adams (1977) say that measures of self-efficacy should be specific to the realm being investigated. This can lead to difficulties when comparing self-efficacy studies, in that different tasks and hence different measures of self-efficacy have been used.

The second potential difficulty for work in the area of self-efficacy and work behaviour is that empirical studies have indicated that self-efficacy is a better indicator of performance for simple tasks than for complex tasks (Gist & Mitchell, 1992). Research in organizations needs to examine the types of work situations in which self-efficacy can affect performance. The present study looks at two post-training interventions designed to increase self-efficacy for performing a complex training task, singly and in combination.

Self-efficacy and Training

Self-efficacy is not static, but changes with feedback from the environment and performance attempts. Therefore, self-efficacy may be modified through training. A number of studies in the organizational training literature have found that training increases self-efficacy, and that post-training self-efficacy is related to performance (Gist, 1989; Gist, Schwoerer, & Rosen, 1989; Frayne & Latham, 1987; Latham & Frayne, 1989; Saks, 1995; Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991). In a study comparing two training methods for training in innovative problem solving, Gist (1989) found that managers who received cognitive modelling training with practice and reinforcement made higher gains in self-efficacy and performance than managers who received lecture and discussion training with practice. In another study that compared behavioural modelling with tutorial training in computer software training, it was found that behavioural modelling was more effective in increasing self-efficacy and performance (Gist et al., 1989). Frayne and Latham (1987) found that training in self-management for work attendance increased self-efficacy and job attendance. The gains made in job

attendance were maintained in a nine-month follow-up study (Latham & Frayne, 1989). In a study of socialization training, it was found that military trainees had higher self-efficacy following their orientation training, and that self-efficacy was related to their post-training attitudes and performance (Tannenbaum et. al., 1991). In another study of socialization training, Saks (1995) found some support for self-efficacy mediating the training -- work adjustment relationship.

Recently, it has been demonstrated that post-training self-efficacy is related to transfer attempts. Ford, Quinones, Sego, and Sorra (1992) found that four months after graduating from an Air Force technical training program, trainees' self-efficacy was positively related to their transfer attempts. Their cross-sectional methodology does not make it possible to conclude that high self-efficacy led to increased transfer attempts.

Several studies have shown that self-efficacy is a moderator for the relationship between training method and training outcomes. In one study, it was found that self-efficacy prior to training in computer software moderated the effect of training method on post-training self-efficacy for software (Gist et al., 1989). Trainees with low initial self-efficacy made greater gains in self-efficacy when they received behavioural modelling training than when they received tutorial training. Gist, Stevens, and Bavetta (1991) demonstrated that post-training in self-management following training in negotiation skills increased the self-efficacy and performance of student trainees who had low initial self-efficacy. In contrast, they found that post-training in goal setting did not increase the self-efficacy and performance of trainees low in self-efficacy.

Research in the area of pre- and post-training programs is a new and emerging area. Only a few studies have examined how post-training interventions may influence self-efficacy. Self-management training has been shown to lead to increased self-efficacy (Frayne & Latham, 1987; Stevens, Bavetta, & Gist, 1993). Gist et al. (1991) examined training in negotiation that included a post-training intervention in goal setting or in self-management. They found that post-training self-efficacy was positively related to performance in negotiation for student trainees in the goal-setting group, while self-management training attenuated the self-efficacy -- performance relationship. Saks, Haccoun, and Laxer (1995) found that post-training in relapse prevention and self-management resulted in higher self-efficacy and transfer four months after managers attended a performance appraisal course.

The current study adds to the literature on self-efficacy and transfer by examining how self-efficacy is related to transfer of a complex training task in a field setting. Two post-training interventions that are expected to increase trainee self-efficacy will be tested, singly and in combination, and the effect of these interventions on self-efficacy and performance will be examined.

LITERATURE REVIEW -- TRANSFER OF TRAINING

AND POST-TRAINING INTERVENTIONS

The Transfer of Training Problem

Post-training knowledge and transfer of training have not shown strong correlations (Alliger & Janak, 1989; Tracey et al., 1995). The difficulty in developing training programs that lead to actual changes in employee behaviour has been identified in several review articles (Baldwin & Ford, 1988; Noe, 1986), and is referred to as the transfer of training problem.

One explanation given for the failure to generalize and maintain new knowledge in the work setting is lack of "motivation to transfer", or motivation to apply the new knowledge in the workplace (Noe, 1986). Employees may not believe that there are adequate rewards in the environment for new behaviours. New behaviours often require much effort to perform until they become well learned, and employees may not perceive sufficient benefits for this additional effort. Employees may initially use their new training, but when they discover their new behaviour is not recognized or rewarded, they may return or relapse to pre-training behaviours (Noe, 1986).

Another explanation given for the failure to generalize and maintain new knowledge in the work setting is low self-efficacy for the new behaviour (Gist et al.,

1991). Trainees may learn new knowledge, but not believe that they will be able to perform specific tasks related to this knowledge in their workplace.

The work environment is another reason why transfer of training may not occur (Goldstein, 1986). Coworkers and supervisors may not support new behaviours, and may even encourage employees to return to their pre-training behaviour. Transfer of training may be optimized when all members of a work group receive the same training. In this case, coworkers may be more apt to support each other in their attempts to implement new ways of doing things, because they have a shared understanding of the value of these new behaviours.

Individual and Situational Variables

Many individual and situational variables such as age, academic level, and intelligence are not under the control of the trainer. Two individual differences that trainers may be able to manipulate are motivation to learn (Wlodkowski, 1985), and self-efficacy for the training task (Gist, 1989). Therefore, motivation to learn and self-efficacy for the training task may be variables of particular importance for training interventions designed to increase transfer of training.

Motivation. Noe (1986) notes that Porter and Lawler (1968) had proposed that performance was a function of ability, traits, effort, and role expectations, and used this model to propose that trainability was a function of ability, motivation, and perceptions of the work environment. Noe (1986) used an expectancy theory (Vroom, 1964) approach to trainee motivation, saying that trainees will be motivated to learn and to transfer if they

perceive that high effort will result in high performance in training, that high performance in training will result in high job performance, and that high job performance will result in desired outcomes.

Wlodkowski (1985) identified the importance of motivation to learn as a trainee characteristic, stating that unlike the more frequently studied trainee characteristics of cognitive ability and background variables, it is possible for trainers to change motivation. A number of studies have shown a positive relationship between motivation to learn and learning (Baldwin, Magjuka, & Loher, 1991; Quinones, 1995; Tannenbaum et al., 1991; Tannenbaum, & Salas, 1992).

Fewer studies have looked at the relationship between motivation to learn and long-term performance transfer gains. Mathieu, Tannenbaum, and Salas (1992) found that pre-motivation of university employees attending a proof-reading skills course predicted work samples measures, and that the best work samples were for trainees who were high in pre-motivation and high in reactions to training. Facteau, Dobbins, Russell, Ladd, and Kudisch (1995) found that pre-training motivation to learn was positively related to perceived transfer in a survey of state government managers who participated in a large scale training curriculum. However, the cross-sectional design of this study does not allow testing to determine if pre-motivation predicts perceived transfer. Following a meta-analysis on training and training outcomes, Alliger and Janak (1989) suggested that the level of motivation, as well as attitudes and context, may attenuate relationships between reactions to training and other training outcomes.

In addition to motivation to learn, motivation to apply learning in the work environment, or motivation to transfer (Noe, 1986), may also be an important variable. Motivation to transfer implies the intent to perform new behaviour in the work place. Noe and Schmitt (1986) found that when job involvement was high, there was high motivation to learn and to transfer skills.

Work environment. Goldstein (1986) used the term "climate for transfer" to refer to aspects of the work situation that may affect transfer of learning such as work group climate, supervisory support, and situational constraints. Fleishman (1953) showed that trainees who learned new leadership concepts were more apt to use these concepts on the job when their supervisors supported the new concepts. Hand, Richards, and Slocum (1973) found that the trainee's perception of the organization's work climate moderated changes in attitudes eighteen months after managers attended a human relations training program.

In a more recent study, it was found that the organizational transfer climate of the work situation influences the transfer of learning in the work place (Rouiller & Goldstein, 1993). Similarly, Tracey et al. (1995) found that transfer of training climate and a continuous-learning culture were both directly related to post-training behaviours. In addition, they noted that social support had a central role in both the training climate and the continuous-learning culture. Thus, the support provided by supervisors and coworkers alike may be a promising variable in models of transfer of training.

Efforts made to increase transfer of training may need to be combined with a supportive transfer climate in order for trainees to be successful at implementing new skills on the job. Tziner et al. (1991) found that post-training in relapse prevention was beneficial for trainees who perceived they had a supportive work environment.

One way that supervisors may demonstrate their support for new concepts is by allowing trainees time to practice their new skills on the job. Ford et. al. (1992) found that different opportunities to practice training on the job were related to supervisory attitudes as well as to work group support. With complex tasks, having sufficient time to practice new skills is essential to improve transfer of training performance. Quinones and Ford (1993) extended the finding that supervisor and work group support influenced opportunities to perform. The study showed that the opportunity to perform trained tasks was related to transfer performance.

While individual differences such as motivation and self-efficacy and characteristics of the work environment have recently been considered in transfer of training research, studies in this area are relatively few. Most studies have not measured variables such as self-efficacy, motivation to learn, intent to transfer behaviour, and characteristics of the work environment. Transfer of training has frequently been measured by self-reports, and long-term behavioural performance outcomes have rarely been measured.

This study on transfer of training examines the role of motivation to learn the training task, self-efficacy, and transfer climate provided by supervisor and coworker support. Transfer of training is measured by both self-reports and supervisor reports. The

longitudinal design permits examination of the influence of motivation to learn, self-efficacy and transfer climate on subsequent transfer of training.

Pre- and Post-training Programs

Leifer and Newstom (1980) suggested that the periods before and after training programs may be particularly fruitful times for interventions designed to facilitate transfer of training. Adult education theorists (Knowles, 1984; Scheer, 1979) hold that adults learn when they perceive a need for learning, or are motivated to learn. Pre-training interventions designed to increase the motivation to learn should be able to increase the perceived need for learning. The period following training programs may also be a useful time to address the issue of transfer of training.

Relapse prevention. Marx (1982) suggested that relapse prevention training is a useful strategy to increase transfer of training. Originally designed to prevent relapse following addictive disorder programs (Marlatt & Gordon, 1980), relapse prevention training involves having trainees identify situations when they may fail to transfer learning, and helps them to identify coping strategies that are specific to these situations. As outlined by Marx (1982), the first step in relapse prevention is to make people aware of the relapse process itself. Trainees are told that slips or relapse are an inevitable event when new training is being implemented, but should not think of this as failure and should not blame themselves or feel guilty. Secondly, trainees are asked to identify situations that may prevent them from implementing their training. They are told that they need to identify coping strategies to deal with the situations that sabotage their efforts to implement

training. Instructions are given regarding how to monitor the environment for situations that will cause relapse, and regarding how to implement identified coping strategies in order to avoid relapse. Trainees are guided to see how they may hold enhanced views of the positive outcomes of old behaviour, and to see how this behaviour may be less effective than the training behaviour. They are told to examine the conditions that led up to a relapse, as they have often actively made decisions that led to this relapse. Further, instructors inform them that people are most apt to relapse if they have a high ratio of things they have to do versus things they would like to do. Trainees are asked to make a daily record of things they have to do and things they would like to do, and to try and devise ways to make this list more balanced. Life style interventions are provided, because people are more apt to relapse when they are feeling stressed. Finally, trainees are taken through a forced relapse situation, where they are required to return to their former behaviour in a situation that can be analysed to avoid future relapse.

In Marx's model, increased self-efficacy is the process by which relapse prevention works. Self-efficacy is heightened by the coping attempts that enable trainees to implement their new training. With this heightened self-efficacy, there is a decreased probability of future relapse, and an increased likelihood that the new behaviour will be implemented in future difficult situations. Thus, heightened self-efficacy as well as transfer behaviour is an outcome of implementing coping strategies.

Only a few studies in the organizational literature have used relapse prevention as a post-training intervention (Noe et al., 1990; Saks et al., 1995; Tziner et al., 1991;

Wexley & Baldwin, 1986). Wexley and Baldwin (1986) compared transfer in students who had attended a three-hour time management skills course, and received post-training in either assigned goals, participative goals, or relapse prevention. They found that both the goal interventions resulted in greater transfer as measured by self-reports but not by observer reports. They note that the failure of the relapse prevention intervention to increase transfer may have been because students were not asked to state or write down individualized coping strategies. Noe et al. (1990) followed a two- to three-day training program in supervisory skills for managers with relapse prevention combined with manager trainees discussing their development goals with their bosses. In a follow-up two to three months later, subjects in the relapse group were significantly different from control subjects on 5 of 14 questionnaire items. These items did not measure transfer of training, but referred to identifying an area to develop, why this area was important, and what might prevent them from developing this area. As such, their results supported that trainees in the relapse prevention group had retained knowledge of the post-training intervention.

Tziner et al. (1991) found that relapse prevention training following a two-week military training program resulted in more positive reactions to training, higher motivation to transfer, and an increase in the use of trained behaviour. Further, they found that relapse prevention was particularly beneficial for trainees with an internal locus of control (Rotter, 1966), or belief in personal control of a situation, and a supportive environment for transfer of training. Tziner et al.'s (1991) study used a two-hour modified version of

Marx's relapse prevention. Trainees were made aware of the transfer of training problem, and then reviewed the key elements of the training program. They were then asked to identify situations when transfer of training would be difficult, and went on to identify methods to deal with these situations in a group setting. Trainees then reviewed a sample situation where a trainee had difficulty, and offered solutions that this trainee could apply. The session closed with a pep talk, where trainees were encouraged to use their new skills.

Behavioural self-management. A method similar to relapse prevention that has been suggested to increase transfer of training is behavioural self-management (Luthans & Davis, 1979). This technique involves anticipating obstacles to transfer of training and the self-administration of rewards and punishments in response to behaviour.

Only a few studies have used behavioural self-management as a post-training intervention. Gist et al. (1991) found that post-training in self-management was particularly useful for subjects with low self-efficacy for transfer. Saks et al. (1995) compared post-training in self-management with post-training in relapse prevention following training in performance appraisals. They found that both post-training groups showed similar transfer four months after training, and that the training -- transfer relationship was mediated by self-efficacy.

Goal setting. Goal-setting theory (Locke, 1968; Locke & Latham, 1990) has been used to explain motivation and effort in the work place. According to goal-setting theory, goals that are specific, accepted, and challenging are best at motivating behaviour.

Feedback (Landy, 1985) and self-efficacy (Bandura & Cervone, 1983) have been added to goal-setting theory, making this a cognitively-oriented model.

A few studies have used goal setting as a post-training intervention. Wexley and Nemeroff (1975) used assigned goal setting following a hospital management development program, and found that trainees who had been assigned goals were better at applying their learned skills. Reber and Wallin (1984) looked at transfer performance in employees of a farm machinery manufacturing plant, following training in safety. They compared transfer behaviour following training alone, training and goal setting, and training with goal setting combined with knowledge of results. They found that the combination of goal setting with knowledge of results was the most effective for transfer. Gist, Bavetta, and Stevens (1990) followed training in negotiation skills by goal training or self-management training. While trainees in the goal training group were less able to generalize their training to new situations than those in the self-management group, the goal training group exhibited more frequent transfer of training behaviour than the self-management group. In another study, an attempt was made to look at the process by which self-management training and goal-setting post-training work. It was found that while self-efficacy mediated the self-management training -- performance relationship, subjects with high self-efficacy did better with goal-setting training that did subjects with low self-efficacy (Gist et al., 1991). Wexley and Baldwin (1986) found that the post-training interventions of assigned and participative goal setting led to more maintenance of transfer of training than did post-training in relapse prevention or control conditions.

Brinkerhoff and Montesino (1995) had trainees meet with their supervisors to discuss their expectations prior to attending one of five workshops offered by the organization. In addition, these trainees had a follow-up discussion with their supervisor after returning to work. The process of meeting with supervisor before and after training may result in trainees forming goals for transfer. These trainees reported more transfer six weeks following training than did trainees in the control group. Brinkerhoff and Montesino's (1995) intervention is interesting, in that while trainees may form goals as a result of meeting with their supervisors, these meetings may also maximize the support trainees will receive in the work environment.

Transfer enhancement. Mayer and Russell (1987) note that behavioural modelling may provide trainees with the ability and motivation to implement new skills, but transfer of training will be minimal if they are unable to recognize cues or opportunities in their work place to use the new skills. Therefore, post-training that focuses on having trainees identify the opportunities for transfer in their work place may be a promising post-training intervention. This is the first study to investigate if post-training designed to help trainees identify opportunities for transfer, a strategy this study names transfer enhancement, results in higher transfer of training.

The transfer enhancement intervention encourages trainees to focus on opportunities rather than on problems in the work environment. The focus on opportunities is similar to an approach taken recently in work in the area of realistic job previews. The traditional realistic job preview involves providing prospective employees with accurate expectations

of the job and the organization, usually including suggestions for how to deal with the realities that the new employee will face. A major goal of the traditional realistic job preview is to reduce any overly optimistic views about the new job or organization. In contrast, Meglino, DeNisi, Youngblood, and Williams (1988) developed an enhancement job preview, designed to dispel commonly held negative views about the new position. Rather than focusing on the negative aspects of the job as the traditional realistic job preview does, the enhancement job preview tries to make employees feel that the job is not overly difficult, and includes positive aspects of the new job and organization. The enhancement job preview is similar to the transfer enhancement intervention, in that both consider positive aspects of the job and both take a positive focus on what the employee will be able to do on the job.

Combined use of training interventions. Only one study was identified that looked at the effects of two training interventions, singly and in combination. Werner, O'Leary-Kelly, Baldwin, and Wexley (1994) looked at a pre- and post-training intervention, perceived need for learning, and goal setting, in a 2 X 2 design. The pre-training intervention involved trainers attempting to influence trainees perceived need for the training through discussion of the usefulness of the training. Werner et al. (1994) found that those who were assigned goals liked their training less immediately following the training, but four weeks later they had more retention of learning than did the trainees who had not been assigned goals, and at this time viewed the training more favourably.

No significant effects were found between the pre-training intervention and outcome measures.

This Study's Contribution

While pre- and post-training interventions seem to be an important strategy for transfer of training, the above discussion illustrates that work in this area is only beginning. There have been few studies in the area of post-training interventions, relatively few post-training interventions have been tested, and no study has looked at a combination of post-training interventions (Werner et al., 1994). Most of the post-training intervention studies have looked at simple skills. In addition, many of the studies of transfer of training interventions have allotted almost a third of the total training time to the transfer intervention. Noe and Ford (1992) called for studies with a more realistic amount of time devoted to the transfer intervention, to see how intense the intervention needs to be in order to ensure long-term maintenance of behaviours in the work place.

Research in the area of post-training interventions and work in the area of transfer of training share a number of limitations. Many of the studies have used students as subjects. Others used only self-report measures of transfer behaviour, and process variables such as self-efficacy have rarely been measured. Follow up has generally been limited to only one point of time, usually within two months following the training. Therefore, the long-term performance gains that may be associated with motivation to learn the training task are not known.

The present study addresses the limitations of earlier work in the areas of post-training interventions and transfer of training. It is the first study to look at the post-training intervention of training enhancement, an intervention that was designed for this study. In addition, the study looks at the combined intervention of training enhancement with another post-training intervention, relapse prevention, using a 2 X 2 experimental design. A realistic amount of time is devoted to the post-training interventions, ranging from 30 to 60 minutes. The training skill is a complex skill, which is training in a theoretical framework of nursing, the McGill Model of nursing. The study is done in a field setting, where subjects are actual employees who attended a two-day workshop that was designed by the organization to promote desired change in the way employees perform their jobs. Both self-report and supervisor measures of transfer behaviour are used. Subjects were followed up to six months post-training, with two waves of follow-up, one at two months and one at six months post-training. Finally, the study includes measures of the work environment, motivation to learn, as well as self-efficacy in the same study.

PURPOSES OF STUDY AND STUDY HYPOTHESES

This study has four main purposes: 1) to test two post-training transfer interventions in a field setting, 2) to study the relationship between motivation to learn and transfer of training, 3) to examine the role of self-efficacy in the transfer of training process, and 4) to investigate if transfer climate predicts transfer of training.

Post-Training Interventions and Transfer of Training

The first purpose of this study is to test two post-training transfer interventions in a field setting. A 2 X 2 experimental design is used to examine the effects of a relapse prevention post-training intervention (present or not present) and a transfer enhancement post-training intervention (present or not present). Both post-training interventions are expected to increase self-efficacy, thereby increasing transfer of training. Therefore, while the two interventions combined may be a stronger intervention, an additive effect on transfer is not expected because both self-efficacy and transfer may be limited in the degree they can be increased.

The first post-training intervention to be tested is based on relapse prevention, an intervention to increase the frequency of transferred behaviour (Marx, 1982). Training in relapse prevention should help trainees to identify situations where they may have difficulty in transferring the learned behaviour, and to identify how they can cope with such situations. Use of these coping strategies should heighten self-efficacy for the training task.

The second post-training intervention to be tested is transfer enhancement, a post-training intervention that was designed for this study. This training involves asking subjects to identify situations that are opportunities to perform learned behaviour, and how they can ensure that such opportune times be utilized. The identification of opportunities to perform new learning may later help trainees to recognize these opportunities and to use them as cues to implement what they have learned.

The intervention in transfer enhancement differs from the intervention in relapse prevention in that the focus is on opportunities to use training, as opposed to how to overcome transfer obstacles. Focusing on opportunities may help trainees to give a positive frame to the transfer of training issue, enhancing transfer of training behaviour. Employees may have the motivation and the skill to perform new behaviours in the work place, but may not use these new behaviours in the absence of cues (Mayer and Russell, 1987).

The combined intervention includes both post-training interventions. Trainees were given the relapse prevention training followed by the transfer enhancement training. The control group received the same training content as the other three groups, but did not receive any post-training intervention.

The variables that are expected to be influenced by the post-training interventions are self-efficacy for the training task and transfer of training (operationalized by behaviour, performance, and perceived transfer). The behaviour, performance, and perceived transfer measures are three ways of operationalizing transfer of training. The major focus of this

study is on the supervisor ratings of transfer. The self-reported measures used to operationalize transfer have been the traditional type of measures used in the transfer of training literature, and are used in this study as a secondary measure of transfer.

Self-efficacy for the training task is expected to increase as a result of all of the post-training interventions. By forming strategies to deal with situations where they may have difficulty in transferring the learned behaviour, trainees should develop higher expectations in their belief that they can implement in the work place what they learned in training. As a result, their self-efficacy for implementing their new skills in the work place should increase. In addition, as suggested by Marx (1982), the successful use of a coping strategy should result in heightened self-efficacy, which means that the trainee will again be able to use the coping strategy and implement the new skill.

In the case of transfer enhancement, by identifying opportune times and situations to use the learned behaviour, and by developing strategies to increase the likelihood that these opportune times are utilized, trainees should increase their expectation that they will implement in the workplace what they have learned in training. An increased expectation that they will perform what they have learned should result in a higher self-efficacy for implementing their new skills in the workplace.

Increased self-efficacy for a behaviour should result in increased attempts to use the behaviour. Therefore, trainees with higher self-efficacy for the training task will be more apt to practice new behaviours in the work place than subjects with lower self-efficacy. As a result, trainees that have received a post-training intervention engage in

more attempts to practice what they have learned. A higher frequency of transferred behaviour leads to an improvement in performance.

No hypothesis is advanced regarding a difference in transfer outcomes as a result of receiving the relapse prevention as opposed to the transfer enhancement intervention. Both interventions are designed to increase self-efficacy and both should lead to significantly higher transfer of training. The transfer enhancement intervention was designed for this study, so this is the first study to investigate how focusing on opportunities for transfer compares to focusing on difficulties to transfer. Therefore, comparisons of the relative strengths of the relapse prevention and transfer enhancement interventions are exploratory in nature.

Further, no hypothesis is advanced regarding a difference in transfer outcomes as a result of receiving the combined post-training intervention as opposed to the relapse prevention intervention alone or transfer enhancement intervention alone. This is the first study that is known to investigate the combined use of post-training interventions. Both the relapse prevention and the training enhancement interventions are expected to increase transfer of training by increasing self-efficacy. However, while the two interventions are acting in the same way, their use in combination may result in a ceiling effect, an additive effect, or a synergistic effect on self-efficacy and transfer of training. Therefore, comparisons of the relative strengths of the post-training interventions when used singly and in combination are exploratory in nature..

Specifically, the hypotheses for the effects of post-training interventions are:

Hypothesis 1. Subjects receiving post-training in relapse prevention will show higher post-training self-efficacy immediately following training than subjects not receiving relapse prevention. In addition, they will show higher self-efficacy and transfer of training at two and six months following training than subjects not receiving relapse prevention.

Hypothesis 2. Subjects receiving post-training in transfer enhancement will show higher post-training self-efficacy immediately following training than subjects not receiving transfer enhancement. In addition, they will show higher self-efficacy and transfer of training at two and six months following training than subjects not receiving transfer enhancement.

Hypotheses 1 and 2 predict a main effect for each of the two post-training interventions, in the 2 X 2 experimental design.

Motivation to Learn and Transfer of Training

The second purpose of this study is to examine the relationship between motivation to learn the training content and transfer of training. The trainee's motivation to learn is expected to positively predict transfer of training. Subjects that are motivated to learn the training content are more likely to attend to the workshop content. They may be more motivated to learn because they have already envisioned how they would like to implement the content of the workshop on the job, or because they feel a need to implement the content of the workshop on the job. They may believe that the workshop content can help them with their jobs, and may therefore be more apt to implement skills learned.

Hypothesis 3. Motivation to learn is positively related to transfer of training.

Self-efficacy and Transfer of Training

The third purpose of this study is to examine the role of self-efficacy in the transfer of training process. Self-efficacy immediately following training is expected to predict transfer of training at two months, and self-efficacy at two months is expected to predict transfer of training at six months. Self-efficacy has been shown to be a significant process variable in predicting behaviour (Bandura, 1986).

While a limited number of transfer of training studies have looked at self-efficacy as a process variable, this study will add to the literature in that self-efficacy is examined at three different times, and transfer of training is measured at two and at six months.

Hypothesis 4. Self-efficacy will be positively related to transfer of training.

Transfer Climate and Transfer of Training

The fourth purpose of this study is to examine how transfer of training is influenced by the transfer climate. Coworker and supervisor support for transfer behaviour is considered to be an important aspect of the transfer of training climate (Tracey et al., 1995). It is expected that coworker and supervisor support will positively predict transfer of training. The longitudinal design of the current study allows for testing if perceptions of supervisor and coworker predict transfer of training at a later date.

Hypothesis 5. Perceptions of supervisor and coworker support will be positively related to transfer of training.

METHODOLOGY

Study Design

This field experiment uses a 2 X 2 factorial design. The relapse prevention intervention (received or not received) and the transfer enhancement intervention (received or not received) are crossed to make the four cells of this study. Subjects in one cell will receive relapse prevention, those in a second cell will receive transfer enhancement, and those in a third cell will receive both types of post-training. Subjects in the last cell serve as the control group, and will receive neither post-training intervention. Thirty-four subjects received the relapse prevention intervention, 39 subjects received the training enhancement intervention, 37 subjects received the combined intervention, and 37 subjects were in the control group.

Subjects

Subjects are nurses receiving a two-day workshop in the McGill Model of nursing, and writing nursing care plans based on this model. All subjects are from one medium-sized hospital in the Montreal area, and the majority of these nurses work in only one of 11 different nursing units or work groups within this hospital. The nurses in this hospital had no or very little knowledge of the McGill Model of nursing prior to this study, and practised nursing either from another model of nursing or did not use a model. Nurses on 2 of the 11 units wrote nursing care plans prior to this study, while virtually no nursing care plans were being written on the other 9 units.

The mean age of the nurse trainees was 42.5 years (standard deviation 9.3), and the mean number of years these nurses had worked at their current hospital was 12.4 (standard deviation 6.9). Thus, this sample represents a relatively senior, experienced group of employees. Only 12 of the 148 subjects who filled out the pre-questionnaire had previous knowledge of the training content. The complete sample demographics are shown in Table 2.

Procedure

It was decided by the hospital's director of nursing, who was also the primary researcher of this study, that the nurses' supervisors should attend the workshop before the nurse subjects did. This decision was made for two reasons. The first reason was related to the research project. In order for the supervisors to be able to rate their nurses's performance of the McGill Model of nursing, the supervisors needed training in this model. The second reason was related to the nursing department's desire to facilitate transfer of training. It was felt that in order to optimize supervisor support of the nurses' use of the model, the supervisor's should receive the same training.

The hospital's nursing management team, including the director of nursing, attended a two-day workshop given by an outside nursing consultant who was hired to provide the training sessions of the McGill Model of nursing for the hospital. The two days consisted primarily of lectures that the nurse managers found too theoretical and uninteresting. Following the two day workshop, all nurse managers agreed that the hospital nurses would not enjoy the workshop given by the outside consultant. It was felt

that the workshop should include examples of nursing care that the nurses could relate to, and should include practice exercises in addition to lectures. The director of nursing approached two coordinators, and suggested they could develop a workshop that the hospital's nurses would enjoy, and the coordinators enthusiastically embraced this project. The coordinators developed a two-day workshop involving lectures, small and large group discussions, group activities, and videos where nursing by the McGill Model of nursing is demonstrated. A one-day workshop with the nurse supervisors was then held, focusing on the non-lecture activities that would be included in the two-day workshop designed for the nurses. The nurse managers enjoyed this day, and agreed that the inclusion of the learning activities in a training program about the McGill Model of nursing would facilitate the nurses' interest in this training. Following this, the training sessions for the nurse subjects began.

All subjects were informed that the workshop was being evaluated as part of a Concordia University research study, and that their participation involved completing several questionnaires, each of which would take 20 to 30 minutes of their time. Subjects were told that their participation in the study was voluntary, that their responses would be kept confidential, and that no one who works at the hospital would see their completed questionnaires. They were asked to identify all the questionnaires they completed with a code number that was known only to them, because the research study requires that their responses on all of their questionnaires be linked.

Subjects were asked to complete a research questionnaire immediately before the training began, to measure background variables, self-efficacy for the training task, motivation to learn, behaviour, learning, and support from supervisors and coworkers. The learning measure was used as a check, to verify that learning occurred over the course of the two-day workshop. The post-training questionnaire was completed at the end of the two-day workshop for the control group and immediately following the post-training intervention for the treatment groups. This questionnaire measured reactions, self-efficacy for the training task, intent to transfer, and learning. The intent to transfer measure was used to approximate behaviour at the end of the workshop. The nature of the complex skill that was taught in the workshop did not make it possible to measure actual behaviour and performance of the complex skill immediately following the workshop.

In addition, subjects were asked to complete a research questionnaire at approximately two and six months following their attendance at the two-day workshop. These questionnaires measured self-efficacy, behaviour, perceived transfer, supervisor and coworker support, and performance. Subjects were also asked to give a questionnaire to their head nurse or supervisor at the end of the workshop, and at two and six months following the workshop, and these questionnaires measured behaviour and performance. Trainees wrote their code number on the questionnaires that they gave to their head nurse or supervisor.

The head nurse or supervisor mailed the questionnaire directly to Concordia University, using the stamped envelope that was provided. The instructions for this

questionnaire informed the head nurse or supervisor that no one at the hospital would see the questionnaire after it had been completed.

The workshop was given twelve times over a five-month period from January, 1995, to May, 1995. Each workshop had approximately 12 nurse trainees. Six of the workshops were held in English and six of the workshops were held in French. The English and the French workshops were offered alternatively. The order in which the treatment conditions were offered was fixed in advance, with the first two workshops held set as the control group, the next two workshops set as the combined post-training intervention, the following two workshops set as relapse prevention training, and the subsequent two workshops set as transfer enhancement. Following this, the last four workshops were an English control group, a French combined post-training group, an English relapse prevention group, and a French transfer enhancement group. Thus, each condition has English and French subjects, and subjects completed questionnaires in the same language as the workshop that they attended.

The workshops that were held in French were given by the hospital's education coordinator. The workshops that were held in English were given by one of the hospital's nursing coordinators. The two instructors planned the workshop together, and both attended the first few workshops, in order to ensure that the training given in all groups was the same. The post-training interventions were presented by the same instructors that provide the training content, in order to minimize the possibility that participants would become aware that they did not all receive the same instruction.

Scheduling difficulties in the hospital did not make it possible to assign nurses randomly to conditions. The participants for the workshops were chosen by asking the managers responsible for each of the 10 nursing departments to select one or two nurses for each of the workshops.

The first follow-up questionnaire was completed between two to three months after attending the workshop. Subjects in all four cells attended a one to one and a half hour follow-up session, approximately two months following the workshop. The follow-up sessions were held by the same instructors that gave the workshop. This session began with subjects completing the questionnaire for this study. All trainees had the option of returning the two-month follow-up questionnaire to the instructor or mailing it directly to Concordia University. Following this, there was a half-hour group discussion, allowing group members to share situations where they used the McGill Model of nursing. Subjects who had received a post-training intervention were asked if they had found the plan that they developed to increase transfer of training to be useful. The instructors showed them the copy of the plan that they had written at the end of the second day of the workshop, and suggested that the trainees modify their plan if it had not been found to be useful. Lastly, subjects were asked to provide their head nurse or supervisor with a questionnaire to complete.

Trainees attended a follow-up training session along with trainees that attended the workshop on the same dates. However, since many nurses work evenings and nights and were not in the hospital on the day of the scheduled follow-up training session,

approximately one-half of the nurses were not able to attend the group follow-up session. Instructors held individual follow-up sessions with nurses who were unable to attend the two-month group follow-up session.

The second follow-up questionnaire was completed between six and seven months after attending the workshop. There were no follow-up training sessions at six months. At this time, subjects were handed a follow-up questionnaire, and had the option of returning the six-month follow-up questionnaire to the instructor or mailing it directly to Concordia University. In addition, trainees were asked to give their head nurse or supervisor a questionnaire to complete as part of the six month follow-up.

Response rate. The pre-training questionnaire was completed by 148 nurses and the post-training questionnaire was completed by 147 nurses (one nurse did not complete the workshop). Approximately one-quarter of the nurses were in each of the four treatment conditions, with 37 nurses in both the control and the combined intervention group, and 34 and 39 nurses in the relapse and enhancement intervention groups respectively. The supervisor questionnaire at the time of training was completed by 110 supervisors.

The two and six-month follow-up questionnaires were completed by 118 nurses and 95 nurses, respectively. Supervisor reports were received for 102 nurses at the time of the two month follow-up, and for 63 nurses at the time of the six month follow-up. The return rates for all four treatment conditions ranged from 56 to 87 percent for the self-reports at two months, from 58 to 70 percent for the self-reports at six months, from 59

to 73 percent for the supervisor reports at two months, and from 33 to 54 percent for the supervisor reports at six months.

T-tests were performed to see if there was any significant difference in behaviour and performance scores between respondents and nonrespondents at two and at six months. Only one significant difference was found, for supervisor-rated behaviour of respondents and nonrespondents at 6 months. Those who responded at 6 months had a mean score of 2.32 for supervisor-rated behaviour at the time of training, while those who did not respond at 6 months had a mean score of 2.02 at the time of training.

Training Content

The content of the workshop was the same for all groups, and consists of learning nursing practice by the McGill Model, as well as how to develop nursing care plans based on this model. The practice of nursing in a hospital setting involves "dependent" and "independent" functions. The "dependent" aspects of nursing refer to those parts of the job that are mandated by other professions or by the patient's medical status. For example, giving medication prescribed by a physician, and taking the vital signs of a patient who appears to be deteriorating in status are "dependent" aspects of nursing. "Independent" aspects of nursing refer to those parts of nursing that originate from the knowledge base of the nursing profession. For example, helping a patient to cope with illness and helping a family adjust to the addition of a new member are considered "independent" aspects of nursing. The purpose of a model of nursing is to provide a framework for the "independent" functions of nursing, thereby increasing the likelihood

that nurses perform these "independent" functions. When nurses function without the use of a model, they tend to focus more on the "dependent" aspects of their profession.

The training required that nurses question their current conceptions of what the role and functions of nurses are, and revise their ideas about what the nurse should do. In addition, participants practised writing nursing care plans. Thus, the nature of the training is that characteristic of complex skills, which require participants to integrate learning and to generalize learning to be able to apply it in the work place.

It was expected that all of the workshop participants had either no or very limited knowledge of the McGill Model of nursing. However, since the McGill Model of nursing is a conceptual framework for what the nurse should do, the nurses had prior knowledge for some of the functions that this model says the nurse should do. For example, all nurses have come into contact with families. However, the McGill Model of nursing states that nurses should consider their patients as part of a family unit, and help the family deal with issues related to the patient's hospitalization. Thus, the McGill Model of nursing directs the nurse in how he or she should intervene with a family. A second example is that all nurses have assessed the health status of their patients. However, the McGill Model of nursing directs nurses to conceptualize health as coping and development, as opposed to the absence of illness. As such, the model gives nurses a new view of health, and directs them in what to assess. A final example is that all nurses have helped patients to cope with health related issues. The McGill Model of nursing emphasises that nurses should do this by identifying patients' strengths and not their weaknesses. Further, the

nurse is encouraged to collaborate with the patient and family in planning how to help the patient to cope, as well as to consider the patient's readiness to engage in such a plan.

In short, the McGill Model of nursing represents teaching a model for performing complex skills. The nurse trainees had been practising nursing and had already performed most of the complex skills included in the model prior to this study. However, their view of what the complex skills (e.g., working with families, assessing health, helping patients to cope) involve, and the importance that the model places on performing these skills entails a radical shift in how nurses could perform the "independent" aspects of their profession.

Nurses tend to be task-oriented, and to enjoy action-oriented situations rather than theorizing about situations. Typical comments from nurses asked to participate in discussing a model of nursing would be "I enjoy 'hands-on' nursing, not 'theory' nursing," or "Models of nursing just result in more paperwork." With this in mind, an effort was made in planning the two-day workshop to make it seem interesting and practical to participants. The workshop began with a short discussion on what participants felt was useful and not useful about practising nursing from a model and writing nursing care plans. Instructors tried to help participants to identify the useful aspects, and dealt with misperceptions about what would make the training not useful. The two days consisted of lectures, small and large group discussions, group activities, and videos where nursing by the McGill Model of nursing is demonstrated. Participants practised making assessments and developing nursing care plans based on the McGill Model of nursing.

The two days of workshop were not consecutive days, in order to allow participants time to cover some reading material given to them at the end of the first day.

Experimental Post-Training Transfer Interventions

Subjects in all four cells received the identical two-day workshop. Subjects who received a post-training intervention received this additional training at the end of the second day of the workshop. These interventions took approximately 30 to 60 minutes. The control group had a longer lunch break and left a bit earlier on the second day of the workshop.

Relapse prevention. The relapse prevention intervention used was similar to the one described by Tziner et al., (1991). Post-training in relapse prevention began by informing trainees of the transfer of training problem. Following this, trainees were asked to write down situations where they anticipated trouble with transfer of training. These difficult situations were then discussed in the training group. Next, the instructor gave a brief lecture on three potentially useful coping strategies for dealing with transfer of training: time management, assertiveness, and reliance on peers for support. Trainees were then asked to document coping strategies that they could use to help them with the difficult situations that they identified, in order to develop their individualized plan to deal with the transfer of training problem. Finally, a brief lecture informed trainees that they should not give up when they were unable to follow their plan, but should reflect on the reasons for their failure in order to see if they could do anything differently the next time. Trainees kept a copy of their plan, and submitted a copy to their instructor. Trainees were

informed that they would meet with their instructor in approximately two months time, to discuss how they were able to implement their plan. At this time, instructors discussed adjusting the plan with any trainees who did not find their plan to be useful. The relapse prevention training took approximately 30 to 40 minutes.

This post-training is a refinement of the relapse training used by Tziner et al. (1991), in that trainees were asked to identify and to commit to their own strategies, rather than to discuss potential strategies in general. Further, trainees kept a copy of their plan and submitted a copy to their instructor. They were aware that they would discuss this plan with their instructor in a two month follow-up session.

Transfer enhancement. Post-training in transfer enhancement, like the post-training in relapse prevention, began by informing trainees of the transfer of training issue. Trainees were then asked to reflect on future opportunities for using their new knowledge, instead of on future problematic situations. This training intervention was designed for this study, to test whether focusing on opportunities is as effective as focusing on problems. Each subject was asked to identify opportune times and situations for implementing what had been learned in the workshop, and these opportune times and situations were then discussed by the group. Following this, there was a group discussion on how to ensure that such opportune times were utilized. Trainees then wrote down their personal plan for ensuring that opportune times would be utilized for transfer of training. A brief lecture then instructed trainees to monitor for opportune times, and to continue

developing strategies to ensure they made use of these occasions for using the McGill Model of nursing.

Trainees kept a copy of their plan to make use of opportune times, and submitted a copy to their instructor. Trainees were informed that they would meet with their instructor in approximately two months time, to discuss how they were able to utilize their plan. At this time, instructors helped trainees who had difficulty with their plans to revise them. The transfer enhancement intervention took approximately 30 to 40 minutes.

Combined post-training intervention. The combined post-training intervention consisted of the relapse prevention intervention followed immediately by the transfer enhancement intervention. This condition took approximately one hour.

Control group. Subjects in the control group only received training on the McGill Model of nursing, with no post-intervention. They had a longer lunch break and left a bit earlier on the second day of the workshop.

MEASURES

The pre-training questionnaire that trainees completed at the beginning of the two-day workshop consisted of the following measures: background information, self-efficacy for the training task, motivation to learn, behaviour, and perceptions of supervisor and coworker support (Appendix 1).

The post-training questionnaire that trainees completed at the end of the two day workshop consisted of the following measures: reactions, self-efficacy for the training task, and intent to transfer (Appendix 2).

The follow-up questionnaire that trainees completed at approximately two and six months after attending the workshop consisted of the following measures: self-efficacy for the training task, behaviour, perceived transfer, perceptions of supervisor and coworker support, and performance (Appendix 3).

The questionnaire that the head nurse or supervisor completed at the time the trainee attended the workshop, as well as at approximately two and six months after the training, consisted of behaviour and performance (Appendices 4 and 5).

All measures were developed in English by the researcher, and translated into French by a nurse expert. A second nurse expert, who also has a research background, verified that the translation was accurate. Finally, the translation was reviewed by the researcher. Another method of translation would have involved translating into French, and then back translating into English, verifying that the original and the translated English

questionnaires have the same meaning. This method is particularly useful when the people doing the translation do not understand the meaning of the material being translated, which was not the case with the translators used for this study. In this study, the translation was done by two nurse experts who understood the meaning of the material they were translating, one of whom also had expertise in developing research questionnaires, and the translation was further verified by the researcher. Further, the translation was done by one person and then checked consecutively by two other persons.

An outline of the measures used pre-training, post-training, and at two and six months is shown in Table 1.

Pre-Training Questionnaire

Appendix 1 shows the English version of the pre-training questionnaire that was handed out immediately prior to the workshop. This pre-training questionnaire measured background variables, initial self-efficacy for the training task, motivation to learn the training task, pre-training behaviour related to the McGill Model of nursing, and perceptions of supervisor and coworker support.

Self-efficacy for the McGill Model of nursing. Because self-efficacy refers to a person's belief in his or her capacity to successfully perform a specific task, Bandura (1986) argues that measures of self-efficacy should be specific to the behaviour being investigated. The self-efficacy measure developed for this study consists of 29 items related to the content of the McGill Model of nursing, as presented in the two-day workshop.

The items for the self-efficacy measure cover the entire content of the workshop. Items were developed by asking the two instructors and two nurse experts to list all the skills and content knowledge involved in the McGill Model of nursing. The two instructors were then asked to verify that they planned to cover all of the skills and content knowledge identified on this list. They were asked to add things they were planning to teach that were not on the list, and to delete anything that was on the list but would not be covered in the workshop. This process resulted in the identification of 29 skills and content knowledge areas, which were then developed into the 29 items for the self-efficacy scale. The two workshop instructors were then shown the items developed for this measure, and were asked to again indicate if they were teaching content that was not included on the scale, or if there were items on the scale that they were not covering in their workshop.

Sample items on the self-efficacy scale include asking how confident the subject was that he or she could successfully "Write a nursing care plan that indicates concepts from the McGill model," "Assess how family members are coping with their relative's hospitalization," and "Create a collaborative relationship with your patient's family."

For each of the 29 items on the self-efficacy scale, subjects were asked to rate their degree of confidence that they could perform the task, on a ten-point scale ranging from (1) "not at all confident" to (10) "totally confident."

The Cronbach alpha of the self-efficacy scale was .95 pre-training, .97 immediately following training, and .98 at two and at six months post-training.

Motivation to learn the training task. The motivation to learn measure consists of nine items[1]. Eight of the items were adapted from a previously used motivation scale (Saks et al., 1995), and one item was added for this study. Sample items for measuring motivation to learn the McGill Model of nursing are: "I am motivated to learn the skills emphasized in the McGill Model of nursing workshop" and "The material in this workshop will end up benefiting my patients." Subjects were asked to identify the extent they agreed or disagreed on a five-point scale ranging from (1) "strongly disagree" to (5) "strongly agree." The Cronbach alpha was .83.

Behaviour of the training task. Behaviour related to the training task was measured by asking respondents to rate how frequently they currently performed each of the functions identified by the 29 items on the self-efficacy measure. For example, subjects are asked to rate how frequently they "Access a patient's readiness to change," "Establish a realistic date to evaluate your nursing care plan," and "Identify the strengths of a family." Subjects rated their frequency of behaviour on a five-point scale, ranging from (1) "never" to (5) "always."

The Cronbach alpha of the behaviour scale was .95 on the pre-training questionnaire, and .96 on the two and six month follow-up questionnaires.

Perceptions of supervisor and coworker support for performing the training task. Nine items measured perceptions of supervisor and coworker support for the

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[1] Three items measuring control of patient and family health are included among the nine items measuring motivation to learn the training task.

training[2]. Four items measured support from the trainee's supervisor, four items measured support from the trainee's coworkers, and one item measured support from the trainee's organization. Four of the items used were taken from a five-item scale developed by Saks et al., (1995), and the remaining five items were developed for this study.

Sample items from this scale are: "If I am having difficulty writing a nursing care plan, I know I can obtain _____ **help from my head nurse/supervisor** if I ask him/her," and "If I feel I need time to do a family assessment, I think I can count on _____ **help from my colleagues** in covering my other patients." Subjects indicate their perception of their work situation on a five-point scale ranging from (1) "very little" to (5) "very much."

A factor analysis using the maximum likelihood method was performed on the supervisor and coworker support scale on the pre-training questionnaire, and repeated for both the two- and the six-month follow-up questionnaires. This analysis was performed to see if two factors, one for supervisor support and the other for coworker support, would result. A two factor solution with a oblimin rotation was found in all three cases, with items one, two, five and nine clearly loading on the supervisor factor and items three, six, ten and eleven clearly loading on the coworker factor. Item four had a factor loading of .47 for the coworker factor, and .31 for the supervisor factor, for the data on the pre-training questionnaire. Only variables with loadings of greater than .30 should be

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[2]Items 7 and 8 on the supervisor and coworker support scale are not part of this scale. This is because these items refer to colleagues or supervisors providing "pressure" to implement the training in the work place, and pressure may not be perceived by trainees as supportive.

interpreted (Tabachnick & Fidell, 1989). This item is "Realistically and based on my previous experiences, I think I can count on _____ **support from my organization** in applying the seminar content to my job," and thus refers to more than just the immediate supervisor. Therefore, the decision was made to include this item in the coworker scale, because it implies support from sources outside of the supervisor, and because the factor loading for this item on the coworker scale was .47.

Subsequent analysis involving the support measure were done with the original global measure of supervisor and coworker support, and were then repeated using the supervisor support and then the coworker support measures. Table 3 shows the factor loadings and eigenvalues for the factor analysis done for the supervisor and coworker support measure on the pre-training questionnaire.

The Cronbach alpha of the global supervisor and coworker support measure was .85 at the time of training, .90 two months post-training, and .92 six months post-training. The Cronbach alpha of the supervisor support scale was .84 at the time of training, .85 two months following training, and .87 six months following training. The Cronbach alpha of the coworker support scale was .83 at the time of training, .86 two months following training, and .90 six months following training.

Post-Training Questionnaire

Appendix 2 shows the English version of the post-training questionnaire. The post-training questionnaire measured reactions, self-efficacy for the training task, and intent to

transfer. The self-efficacy measure is the same measure that was used on the pre-training questionnaire.

Reactions to training. Five of the nine[3] items on the reactions to training measure were adapted from a reactions-to-training measure developed by Werner et al. (1994) (Cronbach alphas .81 and .89 in their study). Sample items include: "I would recommend this workshop to others," and "This workshop's learning points clearly showed me how to nurse using the McGill Model of nursing."

The remaining five items on the reactions to training scale were developed for this study, and include items that relate to reasons the nurses may not like this specific workshop. Sample items include "The material in this workshop was practical," and "Implementing what I have learned in this workshop will **not** result in too much paper work."

Respondents were asked to rate the 9 items on this measure on a five-point scale ranging from (1) "strongly disagree" to (5) "strongly agree." The Cronbach alpha was .86.

Intent to transfer. Intent to transfer was measured by asking subjects how likely it was that they would perform the 29 behaviours. Sample items include: "Negotiate nursing care with a family," and "Ask patients how you can assist them during their hospitalization." Subjects were asked to rate how likely it was that they would

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[3]Three items measuring control of patient and family health (items 3, 8, and 14) are included among the 11 items measuring reactions to training. In addition, items 6 and 13 are not part of the reactions scale. Item 6 measures intent to transfer, and item 13 measures an anticipated reaction to using the training in the work place.

perform the trained tasks, on a five-point scale ranging from (1) "never" to (5) "always". The Cronbach alpha was .96.

Two and Six Month Follow-up Questionnaires

The English version of the follow-up questionnaire is shown in Appendix 3. Follow-up questionnaires were completed at approximately two and six months after training. Self-efficacy for the training task, behaviour, perceived transfer, perceptions of supervisor and coworker support, and performance were measured at two and six months. The self-efficacy for the training task, behaviour, and perceptions of supervisor support measures were the same measures that were used in the pre- and post-training questionnaires.

The measures of behaviour, perceived transfer, and performance are three ways of operationalizing transfer of training. A number of studies in the transfer literature have used self-report measures of transfer (Brinkerhoff & Montesino, 1995; Facteau et al., 1995; Ford et al., 1992; Noe et al., 1990; Quinones & Ford, 1993; Saks et al., 1995; Tziner et al., 1991; Wexley & Baldwin, 1986). The majority of these studies measured self-report transfer by asking subjects to report the frequency with which they performed the skills related to the training (Brinkerhoff & Montesino, 1995; Ford et al., 1992; Quinones & Ford, 1993; Saks et al., 1995; Tziner et al., 1991; Wexley & Baldwin, 1986;), a measure that is similar to the behaviour measure of transfer used in the current study. In addition to the frequency of behaviour type of measurement for transfer behaviour (as measured on the pre-training questionnaire), this study supplements this

measure with two other measures, a measure of perceived transfer and a measure of performance.

Perceived transfer. A ten-item scale was developed to measure perceived training transfer. Four of the items used in this measure were modifications of items used by Facteau et al. (1995) and the remaining six items were developed for this study.

Sample items on this measure include: "The McGill Model of nursing workshop has helped me to make better nursing assessments of my patients and their families," "The material in this workshop has been useful to me in my job," and "I have changed my job behaviour in order to be consistent with the material taught in the McGill Model of nursing workshop." Subjects rate their use of the workshop material in their work environment on a five-point scale ranging from (1) "strongly disagree" to (5) "strongly agree."

The Cronbach alpha of the perceived transfer scale was .91 both on the two and the six month questionnaires.

Performance of the training task. Performance is measured by a nine-item scale developed for this study. Eight of the items on this scale are designed to measure how well the trainee has been able to implement the McGill Model of nursing in the work place. Sample items include: "Writing nursing care plans that reflect concepts of the McGill Model of nursing," "Verbalizing interest in patient's psychosocial concerns in change of shift report," and "Identifying the learning needs of my patients." The ninth item is an overall measure of performance that asks subjects to evaluate their overall use

of the McGill Model of nursing. Respondents were asked to rate their performance on a

five point scale ranging from (1) "unsatisfactory" to (5) "very good."

The Cronbach alpha of the performance measure was .85 and .90 on the two and

six month questionnaires, respectively.

Supervisor Questionnaires

The English version of the supervisor questionnaire completed immediately

following training is shown in Appendix 4, and the English version of the supervisor

questionnaire completed at two and six months post-training is shown in Appendix 5. The

supervisor questionnaire measured behaviour related to the training task and performance

of the training task.

Supervisors were asked to rate the frequency of their employees' behaviour, using

the same 29 item frequency of behaviour scale that trainees completed. The supervisor's

measure of trainees' performance at two and six months is the same nine-item scale that

was completed by the trainees. The supervisor's measure of trainees' performance at the

time of training consists of eight of the nine items in this scale. The global item "His or

her overall use of the McGill Model" is excluded at the time of training because the

decision was not made to add this item until the time of the first follow-up.

The supervisor measures of behaviour and performance are two different ways of

operationalizing transfer of training. The supervisor measures of transfer are the prime

focus of this study; the trainee measures of transfer are used as a back-up measure, as well

as to make comparisons with other studies that have used self-reported measures of transfer

of training. Further, self-reported measures were used because perceptions are important in and of themselves because they do influence actual behaviours.

The Cronbach alpha of the supervisor-rated measure of behaviour was .98 at the time of training, as well as on the two and the six month follow-up questionnaires. The Cronbach alpha of the supervisor-rated measure of performance was .93 at the time of training, .85 two months post-training, and .90 six months post-training.

ANALYSIS AND RESULTS

The data was analysed using SPSS for Microsoft windows, version 6.1.2.

Hypotheses 1 and 2 were first tested using repeated measures ANOVA. The model tested was relapse prevention X transfer enhancement X the time(s) that each response was measured. The repeated measures ANOVA procedure in SPSS requires that the data is available at all times in the model. The absence of data reduced the sample size and therefore the power of these tests. For this reason, the analysis was continued using repeated measures ANOVA, using only two response times in each analysis. Tables 6.1 through 6.6 show the analysis for responses at the time of training and two months following training, as well as the analysis for intent to transfer and reactions to training post-training, and pre- and post-training self-efficacy. Tables 7.1 through 7.6 show the analysis for responses at two and six months following training, and Tables 8.1 through 8.4 show the analysis for responses at the time of training and at six months.

Analysis was done to see which of a potential number of covariates were significantly related to a number of the response variables. The variables that were found to be significant covariates for over half of the response variables were simultaneously added into the relapse prevention X transfer enhancement X two response times design, and the results of these ANCOVAs are shown in Figures 6.1 through 8.6.

Hypotheses 3, 4, and 5 were tested using hierarchical multiple regression (Tables 9 through 12).

Measures. Table 4 shows the mean, standard deviation, and range for all measures, as well as the sample size for each measure. While the range of all variables is acceptable, there is only a small increase over time in many of the variables, and in particular self-reported behaviour and performance. Such a small increase in measures of transfer of training lowers the power of the repeated measures ANOVA tests.

Table 5 shows the Pearson correlation coefficients between all measures, with the Cronbach alphas of all measures shown along the diagonal. Cronbach alphas indicated good internal reliability for all measures. In addition, item-total correlations were calculated for all measures and did not indicate that removing any items would improve the reliability of any of the measures.

Equivalency of the treatment groups. The background variables of age, previous experience with the training content, number of years of experience at the hospital, and shift worked, as well as all the pre-training questionnaire measures of self-efficacy, supervisor and coworker support, motivation to learn, and behaviour frequency were tested by MANOVA to examine the equivalency of the four treatment conditions. In addition, the supervisor ratings for performance and behaviour frequency were tested by MANOVA to confirm equivalency of the four groups. There were no significant differences in the four treatment conditions in the background variables or pre measures from self-reports or supervisor reports.

Preliminary Analysis, Using a 2 X 2 X All Response Times Design.

Hypotheses 1 and 2 were first tested using repeated measures ANOVA, using a relapse prevention X transfer enhancement X all response times design. The model for the analysis involved the factors of the two post-training interventions and time. A 2 X 2 design was used to examine the effects of the relapse prevention post-training intervention (present or not present) and the transfer enhancement intervention (present or not present). In addition to this treatment effect, the longitudinal design involved four times: 1) pre-training, 2) post-training, 3) two months post-training, and 4) six months post-training. While there are four levels of time, not all of the responses were measured at all four times. The response in the ANOVA model is the average score on one of the response measures. A separate ANOVA was run for each response.

The responses tested in this model were self-efficacy, reactions to training, intent to transfer, and perceived transfer from self-reports, and behaviour and performance from both self-reports and supervisor reports. While there were four levels of time, not all of the responses were measured at all four times. For example, reactions to training were measured only at one time, so the analysis for this response used only one level of time.

The assumptions of ANOVA are that the sample size in each cell is equal, and that the variances in each cell, and for each time in the repeated measures ANOVA model, are the same. Equivalency of variances was tested using *Bartlet-Box F* for between-groups

designs, and *Mauchly's W* for within-groups designs. On the few occasions where the *Mauchly's W* test was significant, a *Huynh-Felddt Epsilon* correction was done, both in the current analysis and in subsequent analyses.

The results of the within subjects ANOVAs indicated that there was an increase in self-efficacy, self-reported behaviour, supervisor-reported behaviour, and supervisor-reported performance over time, and these changes are shown graphically in Figures 2, 3, 4, and 5, using the mean responses from all returned questionnaires. There was a significant difference in the response variables of self-efficacy pre- and post-training. Further, there was a significant difference between self-reported behaviour, supervisor-reported behaviour, and supervisor-reported performance from the time of training and the two-month follow-up. There was no significant difference between post-training self-efficacy and self-efficacy at two and six months, between self-reported behaviour, supervisor-reported behaviour, and supervisor-reported at two and at six months, or between self-rated performance and perceived transfer at two and six months.

Figures 2, 3, 4, and 5, along with the means of variables for each post-training condition shown in Tables 13 and 14, show that supervisors noticed a bigger change in behaviour over time than did the trainees. This could be because of a tendency of people to rate themselves favourably. Alternatively, the trainees may have felt they performed at a certain level, but in the course of the workshop learned what it meant to perform at a certain level. This results in a response-shift bias, or a beta change, where the true

(alpha) change is not detected because subjects have recalibrated the scale (Howard &

Dailey, 1979).

The results of the between subjects ANOVAs did not find support for Hypotheses

1 and 2. However, the power of many of the tests was low, a result of the small

differences in response means for the four conditions (Figures 2, 3, 4, and 5), and the

sample size was reduced by the SPSS ANOVA procedure to the number of subjects where

data was available for all of the response times. For example, for the response of self-

efficacy, the power was approximately 0.18, 0.05, and 0.20 for the two main effects and

the interaction, respectively. In this analysis, 82 cases were accepted and 66 cases were

rejected because of missing data. For the response of behaviour as measured by

supervisors, the power was 0.06, 0.40, and 0.06 for the two main effects and the

interaction, respectively. In this case, only 35 cases were accepted and 113 cases were

rejected because of missing questionnaires. For this reason, it was decided that the

subsequent analysis would repeat the ANOVAs, using only two response times in each

analysis.

Repeated Measures ANOVAs at Two Response Times

Hypotheses 1 and 2 were tested using repeated measures ANOVA at only two

response times, in an attempt to increase the sample size and the power of the analysis,

using a 2 X 2 X 2 times design. Tables 15 and 16 shows the means, standard deviations,

and sample sizes for the responses available for the analysis pre-training and post-training,

at the time of training and at 2 months, at 2 months and at 6 months, and at the time of training and at 6 months.

ANOVAs for time of training and 2 months. Tables 6.1 through 6.6 show the results of the repeated measures ANOVAs done for responses at the time of training and the two month follow-up. In the case of intent to transfer and reactions to training, a 2 X 2 analysis was performed because these responses were measured at only one time (Tables 6.1 and 6.2). In the case of self-efficacy, the ANOVAs were done for pre- and post-training responses (Table 6.3.1), post-training and 2 months (Table 6.3.2), and for pre-training, post-training, and 2 months (Table 6.3.3).

The within-subjects analysis shows that self-efficacy post-training is significantly higher than self-efficacy pre-training ($P = 0.001$, Table 6.3.1), and that self-efficacy post-training is not significantly different than self-efficacy at 2 months (Table 6.3.2). Further, self-rated behaviour is significantly higher at 2 months than at the time of training ($P = 0.001$, Table 6.4), supervisor-rated behaviour is significantly higher at 2 months than at the time of training $(P = 0.001$, Table 6.5), and supervisor-rated performance is significantly higher at 2 months than at the time of training ($P = 0.001$, Table 6.6).

The between subjects analysis shows an interaction for the response of reactions to training ($P = 0.010$, *eta squared* = 0.046, Table 6.2). The control and the combined conditions had higher reactions to training than the relapse prevention and the transfer enhancement conditions. There was a main effect for transfer enhancement for supervisor-rated performance at the time of training and 2 months ($P = 0.040$, *eta squared* = 0.060,

Table 6.6). Contrary to expectation, Table 16 indicates that the combined and the transfer enhancement groups showed lower scores for supervisor-rated performance than did the control and the relapse prevention groups.

ANOVAs for 2 months and 6 months.   Tables 7.1 through 7.6 show the results of the repeated measures ANOVAs for responses at the 2 and 6 month follow-ups. The within-subjects analyses show that there is no significant difference in self-efficacy, perceived transfer, or in self- and supervisor-ratings of behaviour and performance.

The between-subjects analysis for the data at 2 and 6 months shows no significant main effects of interactions.

ANOVAs for time of training and 6 months.   Tables 8.1 through 8.4 show the results of the repeated measures ANOVAs for the responses at the time of training and the 6 month follow-ups. The results of the within-subjects analyses indicates that self-efficacy, self-rated behaviour, and self- and supervisor-rated performance are significantly higher at 6 months following training than at the time of training.

The results of the between-subjects analyses for the repeated measures ANOVAs at the time of training and at 6 months showed no significant differences.

Summary of ANOVA results for two response times.   The   within-subjects results of the repeated measures ANOVAs performed for two response times indicates that all subjects demonstrated transfer of training at 2 months post-training, and this transfer was maintained up to 6 months following training.

The between-subjects results of the repeated measures ANOVAs performed for two response times did not find support for Hypotheses 1 and 2. The only significant result related to transfer of training was a main effect in the direction opposite to that hypothesised, for the response of supervisor-rated performance at the time of training and 2 months. Therefore, it was decided to add covariates to the repeated-measures ANOVAs at two response times, to see if factoring out variance explained by covariates would find support for Hypotheses 1 and 2.

Selection of Covariates to Use in ANCOVAs

Potential covariates that are structural in nature (i.e. session of the workshop that the nurse attended, unit the nurse worked in, language, shift the nurse worked, and tenure) were tested as potential covariates as a control test, to ensure that these variables did not have a direct effect on the responses.

Test for effect of session. The effect of session was tested using repeated measures ANOVA in a session X time design. If the session factor were significant, it could be because some of the workshops developed a better group dynamic than others, an "instructor effect" occurred, there was a language difference, peer support on the nursing units developed over time, or other changes occurred within the hospital over time. The only response variable that showed a significant session effect was reactions to training. Here, one French control group had significantly higher reactions (mean of 4.49) than one English enhancement group (mean of 3.82) and one English relapse group (mean

of 3.73). Session was not used as a covariate in the subsequent analysis, because it was significant for only one response, reactions to training.

Test for effect of unit. The effect of unit was tested using repeated measures ANOVA in a unit X time design. Unit was tested as a covariate, as each unit has a different supervisor and it is possible that different supervisor are more or less favourable in the ratings they give employees. In addition, unit was tested as a covariate because work groups may have provided different amounts of support for transfer. Therefore, unit may be considered an objective measure of transfer support. The only response variables that showed a significant unit effect was self-reported behaviour and intent to transfer. Therefore, unit was not selected as a covariate in the subsequent analysis.

Test for effect of language and shift. Language and shift were tested as potential covariates by adding each separately in a relapse prevention X transfer enhancement X response at one time ANCOVA design. Language was used as a covariate, to rule out any effects that may be related to language issues. Shift was used as a covariate, because nurses who work on the day shift may have more opportunities to transfer than nurses who work on other shifts. Language was only found to be a significant covariate for pre-training self-efficacy, post-training self-efficacy, and reactions to training. Shift was only found to be a significant covariate for supervisor-rated behaviour and performance, at 6 months post-training. Therefore, language and shift were not used as covariates in the subsequent analyses.

Test for effect of tenure. Tenure at the hospital was tested as a potential covariate in a relapse prevention X transfer enhancement X response at one time ANCOVA design. This was done in order to see if the post-training interventions were more effective for nurses with less experience. Tenure was not found to be a significant covariate.

Test for effect of self-efficacy, motivation to learn, global support, coworker support, and supervisor support. Pre-training self-efficacy, motivation to learn, global support, coworker support, and supervisor support were tested as potential covariates by adding each separately in a relapse prevention X transfer enhancement X response at one time ANCOVA design. These variables were tested as covariates because they may factor out variance in the subsequent ANCOVA analyses that may be explained by these variables. Only pre-training self-efficacy was considered as a covariate, as while pre-training self-efficacy is an individual difference, self-efficacy following training may be related to the post-training interventions. Measures of support at the time of the response rather than at the time of training were used, because this is the support that the trainee has actually experienced.

It was found that self-efficacy, motivation to learn, global support, coworker support, and supervisor support were all significant for more than half of the response variables. Therefore, the decision was made to simultaneously add self-efficacy, motivation to learn, and global support in one set of ANCOVAs (Tables 6.1a through

8.4a), and to simultaneously add self-efficacy, motivation to learn, coworker support, and supervisor support in another set of ANCOVAs (Tables 6.1 through 8.4).

Repeated Measures ANCOVAs at Two Response Times

ANCOVAs were performed for the responses pre- and post-training, at the time of training and 2 months, at 2 months and 6 months, and at the time of training and 6 months, and these analyses are shown at the bottom of Tables 6.1 through 8.4. T h e means, standard deviations, and sample sizes for the data analysed for these time periods are shown in Tables 15 and 16.

ANCOVAs for time of training and 2 months. The ANCOVAs for the time of training and 2 months with the covariates pre-training self-efficacy, motivation to learn, coworker support, and supervisor support added simultaneously to the model are shown in Tables 6.1 through 6.6, and the ANCOVAs for the covariates pre-training self-efficacy, motivation to learn, and global support added simultaneously to the model are shown in Tables 6.1a through 6.6a.

A significant interaction was found for the ANCOVA with the response intent to transfer *(P = 0.05, eta squared = 0.029*, Table 6.1). Contrary to prediction, subjects in the control and combined post-training intervention showed higher intent to transfer than subject receiving only the relapse prevention or the transfer enhancement intervention.

For the response of reactions to training, the same interaction that was found in the ANOVA analysis was found in the ANCOVA analysis (*P = 0.02, eta squared = 0.037,* Tables 6.2 and 6.2a).

For the response of supervisor-rated behaviour, a main effect was found for transfer enhancement $(P = 0.054$, eta squared $= 0.066$, Table 6.5a). Contrary to prediction, subjects receiving the transfer enhancement intervention showed less transfer of training than did subjects who did not receive this intervention.

The main effect found for transfer enhancement in the ANOVA for the response supervisor-rated performance approached significance in the ANCOVA analysis $(P = 0.062$, eta squared $= 0.062$, Table 6.6a). Again, this main effect was in the direction opposite to that hypothesised.

ANCOVAs for 2 months and 6 months. A significant interaction was found for the response of self-efficacy at 2 and 6 months $(P = 0.045$, eta squared $= 0.057$, Table 7.1a). This is because subjects in the enhancement group did less well than other subjects, contrary to what was hypothesised.

A significant main effect was found for transfer enhancement for the response of supervisor-rated performance $(P = 0.050$, eta squared $= 0.102$, Table 7.5a). Subjects receiving the transfer enhancement intervention showed lower transfer than those not receiving this intervention.

ANCOVAs for time of training and 6 months. The interaction approaches significance for the ANCOVA with the response of self-efficacy $(P = 0.072$, eta squared $= 0.043$, Table 8.1). However, this trend is in the direction opposite to that hypothesised, with the control subjects showing higher self-efficacy than other subjects.

No significant results were found for the between-subjects analysis of the ANCOVA's for the time of training and 6 months.

Summary of ANCOVA Results for two response times.   The ANCOVA analysis did not find support for Hypotheses 1 and 2.

The responses intent to transfer and reactions to training showed an interaction, with the control and combined post-training intervention groups showing higher responses than relapse prevention and transfer enhancement groups. Support was found for a main effect for transfer enhancement for the responses of supervisor-rated behaviour and performance at the time of training and at two months, and for supervisor-rated performance at 2 and at 6 months. However, this main effect was not in the hypothesised direction. There was a significant interaction for self-efficacy at 2 and at 6 months, and at the time of training and at 6 months, but again this interaction did not support Hypotheses 1 and 2.

Analysis for Hypotheses 3, 4, and 5

The analysis for the role of motivation to learn, self-efficacy, and supervisor and coworker support in transfer of training was done using hierarchical multiple regression. A measure of transfer at the time of training was forced into the first block of the equation, and motivation to learn, self-efficacy, supervisor and coworker global support or supervisor support and coworker support were entered into the second block of the regression, using a stepwise procedure.

Regression analysis was performed for the dependent variables of behaviour at two and at six months post training, for both self-reported measures and supervisor measures; the dependent variable of performance, at two and at six months post training, for both self-reported measures and supervisor measures; and for the dependent measure of perceived transfer, at two and at six months, in order to see if motivation to learn, self-efficacy, and supervisor and coworker support predicted transfer of training.

An earlier measure of the dependent variable used to operationalize transfer of training was forced into the first block of each hierarchical regression, in order to test how motivation to learn, self-efficacy, and supervisor and coworker support predicted transfer of training after accounting for behaviour related to the training task that was exhibited prior to attending the workshop. The exception to this was for self-reported performance and perceived transfer at two months, where no measure of these self-reported variables were available for at the time of training. For self-reported performance, the measure of supervisor-reported performance at the time of training was entered into the first block of the regression. For perceived transfer, the self-reported measure of behaviour was entered into the first block of the regression.

The analysis was performed with measures of self-efficacy and supervisor and coworker support taken at the same time as the transfer of training measure (Tables 9 and 10). In addition, the analysis used measures of self-efficacy and supervisor and coworker support taken at a time prior to the measure of the dependent variable, in order to suggest that these variables led to transfer of training (Tables 11 and 12).

The results provide strong support for Hypotheses 3, that motivation to learn is positively related to transfer of training. Motivation to learn at the time of the training predicts transfer as measured by self-reports and supervisor reports up to six months later. Supervisor-ratings of performance six months following training are predicted by supervisor-ratings of performance at the time of training ($P =$ < 0.001, *standardized beta* $= 0.5063$, *R squared adjusted* $= 0.289$), and motivation to learn ($P = 0.009$, *standardized beta* $= 0.3506$, and *R squared adjusted* increases from 0.289 to 0.396) (Table 10). Supervisor-ratings of behaviour six months following training are predicted by supervisor-ratings of behaviour at the time of training ($P = 0.008$, *standardized beta* $= 0.3623$, *r squared adjusted* $= 0.143$), and motivation to learn ($P =$ <0.001, *standardized beta* $= 0.4790$, *R squared adjusted* increases from 0.143 to 0.360) (Table 10). Further, motivation to learn predicts the majority of self-rated responses in Tables 9 through 12.

Strong support was also found for Hypothesis 4, that self-efficacy is positively related to transfer of training. Self-efficacy predicts transfer as measured by self-reports and supervisor reports both when the measures are taken at the same time as the transfer measures, and when the measures are taken at the time prior to transfer. Supervisor-ratings of behaviour six months following training is predicted by supervisor-ratings of behaviour at the time of training ($P = 0.005$, *standardized beta* $= 0.3591$, *R squared adjusted* $= 0.141$). Motivation to learn and self-efficacy two months following training are also significant predictors of supervisor ratings of behaviour at six months ($P = 0.034$,

standardized beta = 0.3015, and P = .028, standardized beta = 0.3160, respectively), and *R squared adjusted* increases from 0.141 to 0.402 (Table 12). Self-reported behaviour at 2 months is predicted by self-reported behaviour at the time of training *(P = <0.001, standardized beta = 0.5599, R squared adjusted = 0.389)* and post-training self-efficacy *(P = 0.004, standardized beta = 0.2196, R squared adjusted* increases from *0.389 to 0.428)* (Table 11).

Moderate support was found for Hypothesis 5, that perceptions of supervisor and coworker support will be positively related to transfer of training. Supervisor and coworker support predict transfer as measured by self-reports but not as measured by supervisor reports, both when support is measured at the same time as transfer and when support is measured at a time prior to the transfer measure. Self-ratings of performance two months following training is predicted by supervisor ratings of performance at the time of training *(P = 0.013, standardized beta = 0.2307, R squared adjusted = 0.072),* motivation to learn *(P = 0.019, standardized beta = 0.2214),* self-efficacy post-training *(P = <0.001, standardized beta = 0.3427),* and coworker support at the time of training *(P = 0.035, standardized beta = 0.3427) (R squared adjusted increases from 0.072 to 0.330)* (Table 11). Self-ratings of behaviour at six months following training are predicted by self-ratings of behaviour at the time of training *(P = <0.001, standardized beta = 0.3806, R squared adjusted = 0.441),* self-efficacy *(P = <0.001, standardized beta = 0.3537),* motivation to learn *(P = 0.035, standardized beta = 0.1681),* and coworker

support *(P = 0.039, standardized beta = 0.1648, R squared adjusted increases from 0.441 to 0.617)* (Table 10).

Summary of Results

Hypotheses 1 and 2 were not supported. Subjects who received post-training in relapse prevention and/or training enhancement did not have higher self-efficacy for the training task than control subjects, either immediately following the intervention or at the two- and the six- month follow-ups. Further, subjects who received a post-training intervention did not show higher transfer of training than subjects who did not receive this intervention. Contrary to expectation, trainees who received the training enhancement intervention showed some evidence of lower transfer of training than trainees who did not receive training enhancement.

The training program was effective in producing transfer of training for trainees in experimental and control groups. Self-efficacy immediately following training was significantly higher than self-efficacy pre-training, and remained high up to six months following the training (Figure 2). Self-rated behaviour increased between the time of training and two months following training, and remained high at six months (Figure 3). Supervisor-rated behaviour and performance increased between the time of training and two months, and remained high between two and six months (Figures 4 and 5). Therefore, the trainees in the experimental and in the control groups showed no evidence of relapse.

Strong support was found for Hypotheses 3 and 4. Motivation to learn and self-efficacy predicted supervisor- and self-reports of transfer of training up to six months following training.

There was moderate support for Hypotheses 5. Supervisor and coworker support predicted some of the self-reported measures used to operationalize transfer of training up to six months following training, but did not predict supervisor-reported transfer.

DISCUSSION

This study had four main purposes. The first purpose was to test two post-training interventions, singly and in combination, to see if these interventions could prevent relapse of the training task and/or increase transfer of training. The other three objectives of this study were to examine the role of motivation to learn, self-efficacy, and supervisor and coworker support in predicting transfer of training, in a longitudinal field study.

Relapse Prevention Intervention

The assumption made in using a post-training intervention is that training alone is not expected to result in trainees implementing new skills in the workplace, nor to maintain these skills over time. Geogenson (1982) estimated that only around ten percent of training results in work performance changes, and this statistic has been quoted frequently in the transfer of training literature (Baldwin & Ford, 1988; Noe et al., 1990; Quinones, 1993; Werner et al., 1994; Wexley & Baldwin, 1986). This study demonstrates that workshops can make a difference in work performance, up to six months following training. The control group maintained higher self-efficacy and transfer of training at the time of the six month follow-up, indicating that the training alone was successful in transfer of training. Relapse prevention may work best in situations when the training alone does not result in transfer of training.

Further evidence that the training program was effective comes from examining the outcomes of the training using the four criteria that Kirkpatrick (1967) suggested for

evaluating training programs: reactions, learning, behaviour, and organizational results. In this study, the mean reactions to training was high (4.1 on a five-point scale), and supervisor ratings of transfer indicated behavioural change. In addition, a variety of organizational results related to the training have been noted. Nursing care plans are being utilized more frequently, there is more discussion about the inclusion of families in care, nurses speak with pride that they practice their profession based on the McGill Model of nursing, and nurses have insisted that the model be written into the Nursing Department's philosophy. A model of nursing practice defines what nurses should do, and may help empower them to function differently. Evidence that these nurses are functioning differently comes from other professional groups, as well as from nurses who have not yet attended the workshop. Nursing Assistants at the hospital are upset that they have not received training in the McGill Model of nursing. At a meeting of staff nurses one year following the training given in this study, several nurses demanded their right to attend this workshop, saying they could not be expected to nurse the same way as the nurses who had attended the workshop until they had received training.

Hypothesis 1 stated that subjects receiving post-training in relapse prevention will show higher self-efficacy and transfer of training than subjects not receiving relapse prevention. The lack of support for this hypothesis seems surprising, given that engaging in the coping plan developed in the relapse prevention training is hypothesised to increase self-efficacy (Marx, 1982) and self-efficacy predicts behaviour (Bandura, 1986). In addition, there is some empirical support for relapse prevention being a useful intervention

to increase transfer of training. Tziner et al. (1991) found that two hours of relapse prevention training following a two-week military training program resulted in more positive reactions to training, higher motivation to transfer, and an increase in the use of trained behaviour. Noe et al. (1990) found that relapse prevention training led to use of the transfer of training plan. Wexley and Baldwin (1986) did not find that a two and a half hour relapse prevention intervention following a three-hour training program in time management given to university students resulted in improved transfer over a two-month period. However, they noted that subjects were not asked to state or document which coping strategies they would use in their anticipated high-risk situations. In the current study, subjects were asked to document their coping plan, kept a copy of this plan and submitted a copy to their instructor. In addition, they were told that their instructor would meet with them in two months time, and discuss their plan.

One possible reason why relapse prevention did not lead to higher transfer than the control group is that the training program itself was successful in increasing self-efficacy for the training task and transfer of training for the control group. Figures 2 and 3, and Tables 13 and 14 indicate that the training increased self-efficacy and self-rated behaviour for all four treatment conditions, and that self-efficacy and self-rated behaviour were maintained six months following the training. Figures 4 and 5, and Tables 13 and 14 indicate that behaviour and performance as measured by supervisors was improved by the training and maintained over six months, i.e., that the training program led to transfer for all four treatment groups. The trainees in this study showed no relapse in implementing

the training skills in the work place. It is feasible that the training itself served to raise self-efficacy, and that the relapse prevention training was redundant. Behavioural modelling and physiological arousal are sources of self-efficacy (Bandura, 1986). The training program included behavioural modelling in the videos shown to trainees. Instructors made every effort to make the training interesting and relevant to the nurses, and the training program was well received by the nurses in the hospital, as evidenced in the post-training reactions to training measure.

A second reason why relapse prevention did not lead to higher transfer than the control group may be because all trainees and their supervisors were motivated to implement the training. All nurses were aware that their professional order advocates that nurses base their practice on a model of nursing. In addition, they were all aware that their supervisors had received training in the McGill model of nursing, and that their trainers were enthusiastic about the use of the model in the hospital. Thus, the trainees' knowledge that their professional order, their immediate supervisor, and their trainer supported the training and wished to see the training implemented at the hospital may have acted as a pre-training intervention that increased motivation to learn and motivation to transfer.

The trainees' knowledge that the training was being evaluated may also have acted as a pre-training intervention that increased motivation to learn and motivation to transfer. Trainees may have valued the training and transferred what they learned because they were

aware they were being studied by their director of nursing, thus resulting in a Hawthorne effect.

Motivation to learn was high in this study (*mean* = 3.8), a finding that was surprising to the director of nursing and the two trainers, given that they had felt trainees would find the workshop too theoretical, with minimal practical. The expectations of the professional order, supervisors, trainers, and director of nursing regarding the implementation of the McGill model of nursing may have operated for trainees in all four conditions, wiping out the experimental effects.

Further, the training appeared to lead to a positive effect on the nurses' identity with the nursing profession. Nurses throughout the hospital became united in their common professional mandate. This unexpected outcome of the training program could be responsible for the effectiveness of transfer for experimental and control subjects. and may have been a stronger force on transfer than the post-training interventions.

A third possible reason why relapse prevention did not result in higher transfer of training than the control group is that relapse prevention addresses the obstacles and difficulties one might encounter in the transfer environment, and how to anticipate them and cope with them. The nurse trainees had no difficulty in identifying obstacles in their work environment, with obstacles such as lack of time and patients' acute needs being cited frequently. It could be that such obstacles are well known and difficult to overcome. Further, nurses have probably faced these obstacles throughout their career, as many nurses complain they are unable to "get to know patients' and comfort patients because

they are too busy meeting patients' acute needs. Thus, nurses may already have devised coping strategies for dealing with obstacles in their environment, to the extent that these obstacles can be overcome. If this is the case, control subjects will have the same skills as experimental subjects in dealing with obstacles to implementing the training task.

A fourth possible reason why relapse prevention did not result in higher transfer of training than the control group is that contamination of treatment and control groups may have occurred. While no evidence was observed that subjects realized their training may have been different, it is likely that subjects using their relapse prevention strategies were observed and emulated by their coworkers. For example, if a relapse prevention trainee dealt with his or her obstacle of "not enough time to do the McGill model of nursing" by asking a coworker to watch the trainee's patients so that the trainee could meet with a patient's family, it is possible that the coworker was a member of the control group. This control subject may then feel free to ask his or her coworkers for help. Thus, the transfer of the control group may have been boosted by their learning the transfer strategies from experimental subjects.

Another reason relapse prevention did not lead to higher transfer of training than the control group in the current study is that self-efficacy may be more malleable for simple tasks than for complex tasks (Gist & Mitchell, 1993). The current study used relapse prevention following a two-day workshop in a complex skill.

It is possible that the relapse prevention intervention did not result in higher transfer of training than the control group because it was too short and did not make

sufficient impact on the trainees. However, this intervention was continued at the time of the two-month follow-up.

A final reason why the relapse prevention intervention did not lead to higher transfer of training than the control group in this study may be related to the sample demographics. The average age of the nurses was 42.5 years and their average tenure at the hospital was 12.4 years. Thus, this sample represents a relatively experienced group of employees, who had already performed most of the complex skills included in the McGill Model of nursing prior to this study. Experienced employees may be less apt to feel the need to use a plan that they developed to change their work practices. For this reason, the multiple regressions were repeated with tenure added as a predictor of transfer, both as a main effect and as an interaction with each of the three post-training intervention groups. Tenure was not found to be significant in any of these analyses.

Transfer Enhancement Intervention

Contrary to Hypothesis 2, the training enhancement intervention did not result in higher self-efficacy or transfer of training than the control group. In fact, there was some evidence of a main effect for training enhancement intervention, indicating less transfer for subjects that received this intervention.

The training enhancement intervention was designed for this study. This intervention required nurses to identify opportune situations and times in their environment to implement training. Instructors suggested three occasions when trainees might find opportunities to use their new skills. It is feasible that the nurses did not find that the

opportunities outlined by their instructor were realistic opportunities for them, and that when asked to think of opportune situations and times for transfer, these nurses became painfully aware of how few opportunities for transfer they felt they had. Recent nursing workload measurements performed by this hospital's nursing administration showed that many of the nursing units had only seventy per cent of the staff required for their patient complement. When asked to identify opportunities in their work environment, their failure to see many opportunities for transfer in their environment may have led these nurses to become discouraged and to engage in fewer attempts to use their new skills.

In an attempt to see if nurses had difficulty identifying opportunities to transfer, the copies of the trainees' plans that were submitted to their instructors were reviewed. Virtually all trainees identified at least three opportunities in their environment, and these opportunities represented a wide variety of ideas. Nevertheless, the strength of the nurses' convictions that these were real opportunities may have been weak.

It is possible that the transfer enhancement intervention works only when subjects are easily able to identify a variety of opportunities for transfer in their work environment, and have a high degree of conviction that these are realistic opportunities.

No a priori prediction was made that transfer enhancement would lead to lower transfer of training than a control group. In the absence of this prediction and the absence of a measure of post-training "discouragement" or any other mechanism which may lend to transfer enhancement having a negative effect on transfer of training, it is difficult to

say that training enhancement leads to lower transfer. It is feasible that the results found in this study are a Type II error.

It is possible that transfer enhancement did not result in higher transfer of training than the control group because contamination of the treatment and control groups occurred. For example, a nurse receiving the transfer enhancement intervention may identify morning report as an opportunity to gather and share information related to nursing his or her patients by the McGill model of nursing. It is likely that control subjects are present during this morning report, and they may benefit from the discussion. The control subjects may then come to see morning report as a good time to discuss patient care as it relates to the McGill model of nursing.

Another feasible reason why transfer enhancement did not result in higher transfer than the control group is that transfer enhancement asks nurses to identify opportunities in their environment and to develop strategies to ensure that these opportunities are used. It could be that nurses are already aware of the opportunities in their work environment, as they have identified these in the past in order to be able to do things at work that they wanted to do. The nurses may have already developed strategies to make the best use of opportunities in their work environment.

Boundaries of Pre- and Post-Training Interventions

The finding that the post-training interventions did not result in higher transfer than the control group is an important one. Much of the work in transfer of training has focused on lab studies, using students as subjects, measuring transfer soon after the

training, and/ or devoting a high percentage of the training time to the post-training intervention. If post-training interventions are to remain a viable topic in the organizational literature, studies demonstrating the boundaries of when they may be of benefit are required.

For example, motivation to learn and to transfer, reactions to training, self-efficacy for the training task, the actual training, characteristics of the trainees, supervisor and coworker support, and organizational support for the training are potential boundaries that may determine when post-training interventions will be useful. If trainees are highly motivated to learn and to transfer, pre- and post-training interventions designed to increase motivation to learn or motivation to transfer can be superfluous. When trainees react very positively to the training, they will probably be eager to implement this training in their work place. In the event that self-efficacy for the training task is high, interventions such as relapse prevention or transfer enhancement that are designed to increase self-efficacy for the training task can be redundant. Aspects of the training, such as whether the training task is simple or complex or whether the trainees believe the training task is relevant for their work situation also determine when pre- and post-training interventions will work. Simple skills that are relatively easy for trainees to implement in the work place may be more responsive to training interventions, while complex skills that require more thought and energy on the part of the trainee may be less so. The involvement of trainees in the selection of training may increase how trainees perceive the relevance of the training, and their acceptance of changing how they work. In contrast, failure to involve

employees in the selection of the training may antagonize employees, leading them to resist the changes in work behaviours and attitudes that the training had targeted. Trainees with low job commitment or high tenure are potentially less motivated to change how they work. Supervisor and coworker support predict transfer, and the degree that they are present may determine when a pre- or post- training intervention is required. When a majority of trainees in a work group receive the same training, and when these trainees, their supervisor, and their organization all foster the training, pre- and post-training interventions are less likely to provide additional value.

In the current study, a number of boundary characteristics for when transfer is likely without pre- or post-training interventions were present. Motivation to learn was high (*mean* = 3.8), reactions to training was high, (*mean* = 4.1), and post-training self-efficacy was moderately high for all four conditions (*mean* = 7.4). The training task had been selected by a committee composed primarily of staff nurses with representation from most nursing units. This committee choose the McGill model of nursing for use by the nursing department, in response to a professional inspection report on the nursing department made by the provincial nursing order that suggested the hospital choose to implement a model. Further, the committee recommended to the director of nursing that inservice be given on the McGill model of nursing. The hospital education coordinator discussed the use of education money for this project with the hospital's nursing union representatives, and they agreed in the value of the project. Thus, the hospital's nurses agreed in principal with the training project, prior to their attendance at the workshop.

The nursing supervisors and 147 nurses received the same training, and supervisor and coworker support was shown in this study to predict transfer. Finally, the director of nursing was known to be a McGill nurse graduate, and the stream of research questionnaires the nurses and their supervisors were given demonstrated her interest in the implementation of this training. Finally, the content of the training was such that there were immediate and frequent opportunities to transfer the training material upon returning to the work environment.

In short, many boundary conditions related to when pre- and post-training interventions will be useful for transfer of training were optimal for transfer without the use of interventions in the current study. Thus, conditions existed that fostered all trainees implementing the training in the work place. It is likely that in this study, the post-training interventions were not required for transfer because of the conditions for transfer already in place. Alternatively, the post-training interventions may have been useful in the transfer process, but the strategies developed by experimental trainees to increase transfer may have become shared among all trainees.

The selection of a pre- and post-training intervention that will add to the transfer process requires careful consideration of the boundary conditions for transfer that are in place. In the current study, relapse prevention and transfer enhancement may not have led to higher transfer than the control group because post-training self-efficacy was moderately high for subjects in all conditions. Further, all subjects may be experienced in identifying and dealing with obstacles and opportunities in their environment. Supervisor and

coworker support may have assisted all trainees to deal with obstacles and make use of opportunities, particularly since all trainees were trying to transfer at the same time. In this training program, another post-training intervention such as goal setting may have been beneficial. Goal setting has been found to be an effective post-training intervention in a number of studies (Gist, Bavetta, & Stevens, 1990; Reber & Wallin, 1984; Wexley & Baldwin, 1986; Wexley & Nemeroff, 1995). Goal setting may be beneficial in situations where environmental obstacles and opportunities are well known, and trainees have pre-conceived ideas about the extent they will be able to implement new training. Trainees may ignore their beliefs concerning the extent they will be able to transfer, as they strive to meet the goal that has been set.

It is of interest to note that in this study, the perceptions of supervisor and coworker support were higher at the time of training (*mean* = 3.3) than at two months (*mean* = 2.6) and at six months (*mean* = 2.6). Thus, expectations of supervisor and coworker support were higher than actual supervisor and coworker support. Under these conditions, an intervention designed to increase perceptions of actual supervisor and coworker support may be beneficial. The drop in the mean score of supervisor and coworker support from the time of training to the two and six month follow-ups may reflect trainees' frustrations regarding support they received for transfer. If the support received had met the trainees expectations, it is feasible that transfer would have been higher. Tracey et al. (1995) found that social support was a central component of the training climate and the continuous learning climate, both or which were directly related

to transfer of training. Brinkerhoff and Montesino (1995) designed a pre- and post-training intervention where trainees met with their supervisors before and after training. These interventions were designed to help trainees form goals as well as maximize the support trainees would receive from their supervisors.

In summary, the boundary conditions determine if transfer will occur. When these conditions are less than ideal for transfer, a pre- or post-training intervention may be beneficial. The selection of this intervention should be done after considering the conditions already in place for transfer. Interventions designed to increase self-efficacy will be most beneficial when post-training self-efficacy is low, interventions designed to increase motivation to transfer will have the most value when employees have not been involved in the selection of the training and do not see the value of the training, and interventions to increase supervisor and coworker support will add the most value to the transfer process when trainees perceive this support as low or when few trainees in the work place receive the training.

A Model of Transfer of Training -- Hypotheses 3, 4, and 5

Hypothesis 3 stated that motivation to learn predicts transfer of training, and strong support was found for this hypothesis. Motivation to learn predicted transfer of training as measured by supervisors six months following training (Tables 9 through 12). Previous studies have shown that motivation to learn affects learning (Baldwin et al., 1991; Quinones, 1995; Tannenbaum et al., 1991) and performance (Mathieu et al., 1992). Facteau et al. (1995) found that motivation to learn predicted self-reported transfer in a

cross-sectional survey. The current study adds to these findings by demonstrating that motivation to learn predicts transfer as measured by supervisors in a longitudinal study.

Hypothesis 4 stated that self-efficacy predicts transfer of training. The multiple regression analyses shown in Tables 9 through 12 indicate strong support for this hypothesis. Only one other transfer of training study is known to have looked at self-efficacy as a process variable in the transfer of training literature, finding that post-training self-efficacy predicted transfer four months later in managers who attended a one-day workshop on performance appraisals (Saks et al., 1995). The current study demonstrates that self-efficacy immediately post-training predicts supervisor ratings of transfer two months following the training, and that self-efficacy at two months following training predicts supervisor ratings of transfer up to six months following training.

Hypothesis 5 states that supervisor and coworker support predict transfer of training. This hypothesis was supported, when transfer was measured by self-reports but not when transfer was measured by supervisor reports. It is possible that the significant results found for support predicting transfer were caused by common method bias. However, while most of the support for this hypothesis came when support was measured at the same time as self-reported transfer, the measure of coworker support at the time of training predicted self-reported performance two months following training (Table 11).

Georgenson (1992) suggested that training results in few performance changes in the workplace. One hundred and forty-seven of the approximately four hundred nurses in the hospital in which this study was conducted received the same training, and transfer

of training was found to be effective. When a significant core of employees receive the same training, coworker support facilitates transfer of training. Figure 6 illustrates the significant findings of Hypotheses 3, 4, and 5. Training results in post-training self-efficacy. Post-training self-efficacy, self-efficacy at the time transfer of training is measured, motivation to learn, supervisor and coworker support at the time of training and at the time transfer of training is measured, and previous behaviour are predictors of transfer of training.

This study adds to what is known about the antecedents of transfer of training, by finding support for the model shown in Figure 6. This is the first transfer of training study that is known to demonstrate the relationships shown in Figure 6 in a field setting using supervisor reports of transfer of training, a longitudinal design, and a complex training task. Motivation to learn was found to predict supervisor ratings of transfer up to six months following training. Further, this study found that self-efficacy immediately following training predicted supervisor ratings of transfer at two months following training, and that self-efficacy two months following training predicted supervisor ratings of transfer at six months following training. Coworker support at the time of training was found to predict self-reported performance two months following training.

LIMITATIONS

This study has a number of limitations. First, the measures used were developed either entirely or in part for this study, and their reliability and validity have not been established. The self-efficacy for the training task, behaviour, performance, and intent to transfer measures had to be developed for this study, as they relate to the specific content of the training. While a number of measures for motivation to learn, environmental variables, and reactions to training have been used in other studies, it was felt that they did not contain items that clearly reflected the concepts in the model being tested. Face validity of the self-efficacy, behaviour, and performance measures was established by having the items reviewed by two nurse experts. The Cronbach alphas of all measures were high, providing evidence of good internal reliability of the measures used in this study.

A second limitation is that the study was done with fairly experienced members of one occupation, in one organization, and used a specific, complex training program. This limits the study's external validity, in that the results may not be applicable to more junior employees, other occupations, organizations, or training programs. Therefore, the results of this study may not be generalizable to other training programs. Further research is required to see if relapse prevention and transfer enhancement are useful interventions under different conditions, such as when training alone is ineffective in leading to transfer.

This study provided a strong test of the antecedents of transfer of training in that the training task was a complex skill, trainees were mature, experienced employees, supervisor ratings of transfer were used, and trainees were followed up to six months. Therefore, the significant findings of this study as illustrated in Figure 6 are likely to hold for other training programs.

A third limitation is that contamination of experimental treatments may have occurred if subjects discussed the post interventions with their colleagues that attended different conditions. However, no evidence was noted to suggest that colleagues noticed that they had received different post-interventions or had not received a post-intervention. Neither the two instructors nor the director of nursing heard from any of the nurses who attended the workshop, either directly or through their head nurses or supervisors, that they had noticed that one of their colleagues had received different instruction than they had received.

Nevertheless, the strategies used by experimental subjects were visible to their coworkers, and may have been copied by them. For example, a trainee in the relapse prevention condition may have dealt with the obstacle of not enough time to implement training by asking a coworker to watch his or her patients in order that the relapse prevention trainee could attend a family meeting. A control trainee who assisted a relapse prevention trainee in this way would then feel entitled to ask for similar assistance. A relapse prevention subject who dealt with the obstacle of patients being discharged quickly by telephoning a patient after discharge may have been observed by a control subject, and

the control subject could then have emulated this behaviour. A transfer enhancement subject may have chosen morning report as an opportune time to share and gather patient information related to the McGill model of nursing, and this behaviour would be visible to other trainees. Reactions to the workshop was high (*mean* = 4.09), and coworker support predicted transfer in this study. Therefore, it is likely that trainees discussed the workshop among themselves, and that as their coworkers were observed implementing the McGill model of nursing, other trainees followed suit.

A fourth limitation is that subjects were not randomly assigned to experimental conditions, due to scheduling difficulties in a hospital setting. However, no significant differences were found in background variables or pre-measures for the four conditions.

A fifth limitation is that a demand effect may occur if participants and their supervisors want to provide evidence that the instructors are well-liked, or if they wish to support the research project, the goal of which they were told was"to evaluate the workshop." In addition, the researcher's role as director of nursing of the hospital where the research was done meant that she was the superior of the supervisors and the nurse trainees. This may have led to a demand effect. Supervisors may have wanted to demonstrate that the nurses in their departments were effective in implementing the training task. Nurses may have wished to provide a good impression regarding their ability to perform and their actual performance. However, all subjects were told that the individual questionnaires would not be seen by anyone who worked at the hospital, and that the director of nursing would only work with the aggregated data. Therefore, it is less

likely that the data was contaminated because of the role of the researcher within the hospital. In addition, anecdotal observation of changes that occurred in the nursing department lead support to the training's effectiveness. For example, nurses in the day surgery department began phoning patients at home, and nurses in the Intensive Care Unit began discussing discharge planning in morning report.

A sixth limitation is the workshop instructors' awareness of the expected findings for the post-training interventions. The instructors gave the relapse prevention and transfer enhancement interventions, and their awareness of the purpose of the post-training interventions could have led to an experimenter expectancy effect. An experimenter expectancy effect refers to the finding that a researcher's expectations may affect subjects' performance. However, in this study, an experimenter expectancy effect was less likely to occur than it would be if the researcher gave the workshop. The workshop instructors, as managers working in the hospital, were highly motivated to see that *all* subjects learned and implemented the content of the workshop. Further, the instructors had not read the specific study hypotheses as outlined in the proposal. In addition, transfer of training was not measured by the instructors, but by each trainee's supervisor. Finally, the lack of support for Hypotheses 1 and 2 indicates that an experimenter expectancy effect for the post-training interventions did not occur. However, it is possible that the instructor's desire for all trainees to transfer may have led to an experimenter expectancy effect across all four conditions.

A seventh limitation is that two of the measures that operationalized transfer of training -- behaviour and frequency -- may be considered as indicators of transfer of training, rather than as direct measures of transfer of training. These measures tap performance of the McGill Model of nursing, and the trainee may not have learned how to implement the McGill Model of nursing at the workshop. For example, a trainee may have learned the workshop content from colleagues and begun implementing this learning because of supervisor and/or peer expectations.

An eighth limitation is that the measure for intent to transfer asks subjects to estimate the likelihood that they will perform specific actions. As such, this measure is really an estimate of likelihood, as opposed to an intention, that is either present or absent.

A final limitation is that the power of the ANOVA analyses was reduced by the relatively small difference in the response means for the four treatment conditions. Such small differences in means necessitate a large sample size in order to ascertain statistical differences. However, Figures 2, 3, 4, and 5 indicate that the small difference in the means of the four treatment conditions was not in the hypothesized direction, in that the control group showed higher (not significantly) transfer than the treatment groups. Therefore, it is improbable that increasing the sample size will result in support for Hypotheses 1 and 2 for this training program.

IMPLICATIONS FOR RESEARCH AND FOR PRACTICE

Recommendations for Research

The current study found that relapse prevention and training enhancement did not lead to higher transfer of training than the control group. The subjects in this study were experienced employees, and the training task was complex. The duration of the post-training interventions was from 30 to 60 minutes, with a follow-up discussion after two months. It may be that post-training interventions increase self-efficacy more for simple tasks than for complex tasks, that post-training interventions are most effective in employees who are inexperienced or who have attended few training programs in the past, or that the time of the post-training intervention was insufficient for trainees to feel they should take their individual plan seriously. Alternatively, post-training self-efficacy was moderately high for all trainees in this study, and the post-training interventions may have been redundant. Research is required to determine if interventions designed to increase self-efficacy work for complex tasks and for experienced employees, as well as to determine the optimal duration of the interventions.

The actual use of the post-training interventions by trainees was not measured in this study. It is feasible that some trainees reacted positively to the training of the McGill model of nursing but not to the training of the post-interventions, and that they implemented the training content but not the post-intervention content. Future research

should consider measuring reactions to the transfer intervention, as well as actual use of the intervention.

The training program included videos of behavioural modelling, and the instructors made efforts to make the two-day workshop seem interesting and practical to the participants. The workshop was enthusiastically received by the nurses at the hospital, and the mean post-training reactions measure of 4.1 is an indicator of this. Trainees were not passive observers, but were active participants in small- and large-group discussions and group activities. Thus, it may be that the training program itself had a strong effect on self-efficacy, and that the interventions designed to increase self-efficacy were not required. Future research could measure self-efficacy prior to the relapse prevention or transfer enhancement intervention, and immediately following these interventions. It may be that relapse prevention and transfer enhancement are useful only when the training itself does not sufficiently increase self-efficacy.

Future research may determine that relapse prevention and transfer enhancement work, but only for a particular subset of trainees. Given the topic of the workshop in this study, one group of trainees that may have benefited more from the training are those who have a high commitment to the nursing profession. Future work should consider measuring moderators such as commitment to the profession and commitment to the organization.

The training enhancement intervention should be tested over a range of work environments, offering different levels of opportunity to transfer. It may be that training

enhancement decreases transfer when there is little opportunity for transfer, has a positive effect when there is a moderate opportunity for transfer, and is not required when there are many opportunities for transfer.

The current study was done in one organization, and 75 percent of all trainees received a post-training intervention. It is feasible that there was contamination of the strategies the experimental subjects devised as their transfer plan. In order to avoid a possible contamination problem, future research should consider testing post-training interventions with subjects that do not have contact with each other.

As mentioned in the discussion, a number of boundary conditions may determine when transfer of training will occur. Many of these boundary conditions were optimal for transfer in this study. Motivation to learn and to transfer, reactions to training, self-efficacy for the training task, the actual training, characteristics of the trainees, supervisor and coworker support, and organizational support of the training are key factors in determining transfer of training. Future research needs to measure these boundary conditions whenever feasible, and to provide a rich description of all these boundary conditions. This description of boundary conditions may explain why a pre- or post-training intervention increased transfer, or why it may not have done so. In addition, it is feasible that when key boundary conditions are optimal, pre- and post-training interventions are not required for effective transfer. Further, the nature of the boundary conditions may suggest where a particular transfer intervention will be useful. For example, interventions designed to increase motivation to learn and to transfer may be

beneficial when employees are not involved in planning the training content, while interventions designed to increase supervisor and coworker support may be most beneficial when employees perceive the organization does not support implementation of the training, and/or few members of the work group receive the same training.

Baldwin and Ford (1988) suggested five types of "maintenance curves" for transfer of training as a function of time from the training program. They say that transfer may slowly taper off (Type A), that there may be a failure of transfer to occur (Type B), that there may be initial transfer with rapid failure to transfer (Type C), that skills may not be learned in the training program (Type D), and that skills may be increased as they are practised in the work place, leading to maintenance of transfer and eventual increase in transfer over time (Type E). Baldwin and Ford (1988) say that the "type" of maintenance curve for a training program is influenced by the training task, the level of skill at the end of the program, and the supportiveness of the work environment for transfer.

It is feasible that post-training interventions will be successful depending on the type of maintenance curve. Post-training interventions may prevent the gradual decline in transfer seen in the Type A maintenance curve, prevent the failure for transfer to occur in the Type B maintenance curve, and prevent the failure of transfer after initial transfer attempts seen in the Type C maintenance curve. In cases where training does not result in skill acquisition (Type D) it would be pointless to offer post-training interventions unless the post-training intervention is designed to lead to skill acquisition. When skills

actually increase as they are practised on the job (Type E), post-training interventions may not be able to further increase transfer of training.

In the current study, transfer of training was successful and was maintained over six months following training. The maintenance of transfer curve seen in this study most closely resembles Type E transfer. If the trainees in the current study are followed beyond six months post-training, they may eventually show a decline in transfer. At this point in time, the use of an intervention designed to increase transfer may be beneficial. Future research in the area of post-training interventions could consider timing the intervention with the time of relapse of transfer in the work place, as opposed to offering the post-training intervention immediately following training.

Kirkpatrick (1967) proposed four criteria for evaluating training programs: reactions, learning, behaviour, and organizational results. The current study was not designed to measure organizational results, but a number of anecdotal observations have been made relating the training program with organizational change. These changes may be even more important for the organization than the actual changes in behaviour that the training program targeted. Nurses in the hospital have formed an identity related to their use of the McGill Model of nursing. This identity has given them the courage to become more visible in their role of patient advocates. By defining what nurses should do, the McGill Model of nursing has empowered nurses to assert themselves, leading to a shift in professional roles in the hospital's multidisciplinary teams. Such changes in the assertiveness of nurses ultimately lead to different plans being made for patient care.

Future work in transfer of training should consider the issue of organizational change, and include indicators of success of a training program that lie beyond the implementation of new skills in the work place.

This study found empirical support for a model of transfer of training (Figure 6). Future research should enlarge on this model. For example, this study looked at motivation to learn, but did not look at motivation to transfer. Motivation to transfer may explain more of the variance for transfer than motivation to learn. Further, post-training interventions may be particularly beneficial for people with high motivation to transfer.

Recommendations for Practice

The relapse prevention post-training intervention did not lead to higher transfer of training than that of the control subjects in this study. The training alone probably caused a ceiling effect on post-training self-efficacy. Trainers should consider relapse prevention when the training alone does not lead to higher self-efficacy and to transfer of training.

In the current study, the post-training interventions were designed to increase self-efficacy, but post-training self-efficacy was not particularly low for trainees in all four conditions. Practitioners should try to evaluate motivation to learn, post-training self-efficacy for the training task, and supervisor and coworker support. Interventions could then be targeted to increase the antecedents of transfer that may be problematic for transfer. If a number of sessions of a workshop were to be offered, the first group could be assessed to get a feel for employee motivation to learn, post-training self-efficacy, and supervisor and coworker support.

Motivation to learn, self-efficacy for the training task, and supervisor and coworker support were shown to predict transfer of training in this study. Practitioners should consider developing pre- and post-training interventions that target these antecedents of transfer. Relatively few pre- and post-training interventions have been developed and tested to date.

Organizations offer training programs because they wish to change employee skills, behaviours, and/or attitudes. Employers frequently find employees do not transfer training to the work place, and say that management initiatives are being met with resistance to change. The training program in this study was highly effective in leading to behavioural changes in the work place. Trainees welcomed the training program, and training outcomes surpassed what the supervisors and trainees had expected.

It is easy to envision an entirely different scenario, where nurses are reluctant to attend a workshop on a model of nursing, do not transfer training to the workplace, and managers complain that their staff are resistant to new ideas. It is difficult to isolate any one factor that made this training a positive change experience for the nursing department. Rather, it is probable that the combination of a number of things led to the training in this study, and practitioners should consider the presence of these in their training programs.

First, representatives of the trainees were involved in selecting the model to be used, and recommended to the director of nursing that training be given. Adult learners are known to be most motivated to learn when they perceive a need for the learning (Nadler, 1989), and motivation to learn was seen to be high and to predict transfer in this

study. Practitioners should consider setting up an inservice committee consisting of employees and managers. Members of this committee should be provided with such documentation as the organization's strategic plan, and the reports of professional organizations, in order to facilitate the members' acceptance of the need for change. The process of having a committee formulate training needs can seem to be a long one, but more time may be used in effecting change when employees resist training content and fail to transfer it to the work place.

Second, in this training program the education coordinator consulted with the nurses' union representatives regarding the use of education money for the training. The union agreed with the training. This prevented a situation where union representatives resented not being consulted, and discouraged their members from taking the project seriously. Consulting a union about training programs may be risky, in that the union may not support the program. In this event, practitioners would do well to delay training, and work on building a common vision with union representatives regarding desired changes.

Third, there was a high degree of connectedness between the trainees, trainers, and supervisors in this training program. Supervisors attended the workshop prior to their employees, and so were aware of the training content and desired changes. Trainers were hospital employees, who were familiar with the trainees' work environment, and were able to provide material at the level the trainees found understandable, as well as to provide examples the trainees could relate to. Reactions to training were high in this training program, as was post-training self-efficacy. In developing training programs, practitioners

should consider using trainees that are familiar with the work of the trainees. If this is not possible, time should be spent with trainees in an effort to familiarize them with how trainees are currently functioning, and examples that trainees will find relevant. Further, practitioners should consider the importance of providing supervisors with the learning content. A high degree of connectedness between the trainees, trainers, and supervisors may not only lead to high reactions to training, but may lead to high post-training self-efficacy, an antecedent of transfer.

Fourth, a major portion of the hospital's nurses received the same training, as did all the supervisors. Therefore, supervisors and coworkers were knowledgable of trainees' attempts to implement the training content. Supervisor and coworker support predicted transfer in this study. Practitioners should consider the need for all managers and employees to receive training when there is a desired change in the work place. In the event that not all employees can receive the same extensive training, a mechanism whereby trainees share their knowledge with their coworkers should be considered.

Finally, trainees were aware that their director of nursing was evaluating the training program. This signified to trainees that the director found the training to be of significant value, and was her vision for the nursing department. Practitioners could facilitate transfer of training by having senior managers endorse the training and state their vision for the future. To be most effective, this could be done not only before and during the training, but during the time that trainees are attempting to transfer.

CONCLUSION

This study found that post-training in relapse prevention and training enhancement did not lead to higher self-efficacy or transfer of training than that of the control subjects for the complex training task of the McGill Model of nursing. Self-efficacy increased and transfer of training was successful for control and for treatment subjects in this study. Thus, the training program alone was successful in increasing self-efficacy and transfer of training. Alternatively, there may have been contamination of the relapse prevention and transfer enhancement strategies. Control subjects may have learned the relapse prevention and transfer enhancement strategies from experimental subjects.

An unexpected finding was that there was some evidence that post-training in transfer enhancement led to lower transfer of training. It may be that trainees became discouraged when they received the transfer enhancement intervention, because they perceived few opportunities for transfer in their environment.

Trainees in this study showed successful transfer with no decline in transfer up to six months following training. It is possible that decline in transfer would occur at a time beyond six months post-training for this training program. If this is the case, offering a post-training intervention to prevent relapse of transfer at the time of decline in transfer may be beneficial in maintaining transfer.

A contribution to the emerging post-training intervention literature was made by finding that relapse prevention and transfer enhancement did not lead to higher transfer than that seen in the control group, for experienced trainees learning a complex skill. If the study of post-training interventions is to remain a viable area in the organizational literature, the boundaries of when these interventions are useful in a field setting need to be determined. In determining the boundaries of when an intervention is useful, negative findings make as valid a contribution to the literature as do positive findings.

This study makes a valuable addition to the transfer of training literature by finding support for the antecedents of transfer of training, as illustrated in Figure 6. Motivation to learn, self-efficacy, and supervisor and coworker support predict transfer of training. A strong test of the antecedents of transfer of training was provided in this study, in that transfer was measured by self-reports and supervisor reports, outcomes were measured at two and six months, and subjects were experienced employees in a complex training program.

Training Inputs   Training Outputs   Conditions of Transfer

Trainee characteristics
  *Ability
  *Personality
  *Motivation

Training design ———→ Learning and ———→ Generalization
  *Principles of   Retention   and Maintenance
    Learning
  *Sequencing
  *Training Content

Work environment
  *Support
   *Opportunity to Use
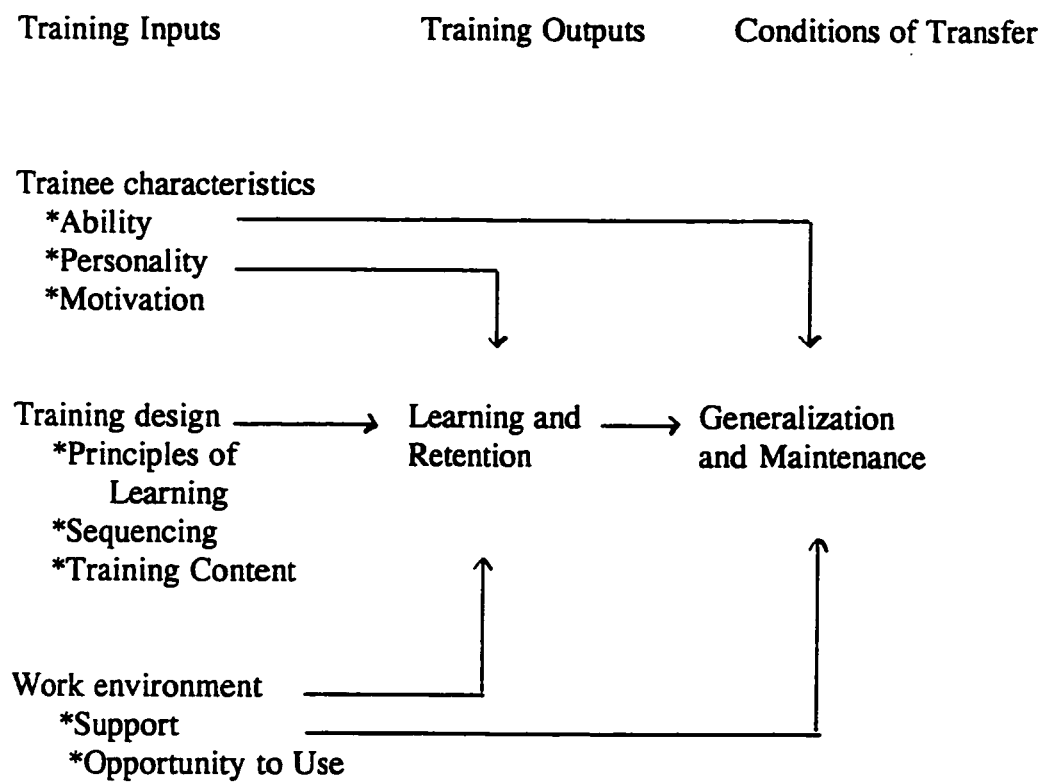
Figure 1. Model of Transfer Process (Baldwin & Ford, 1988)
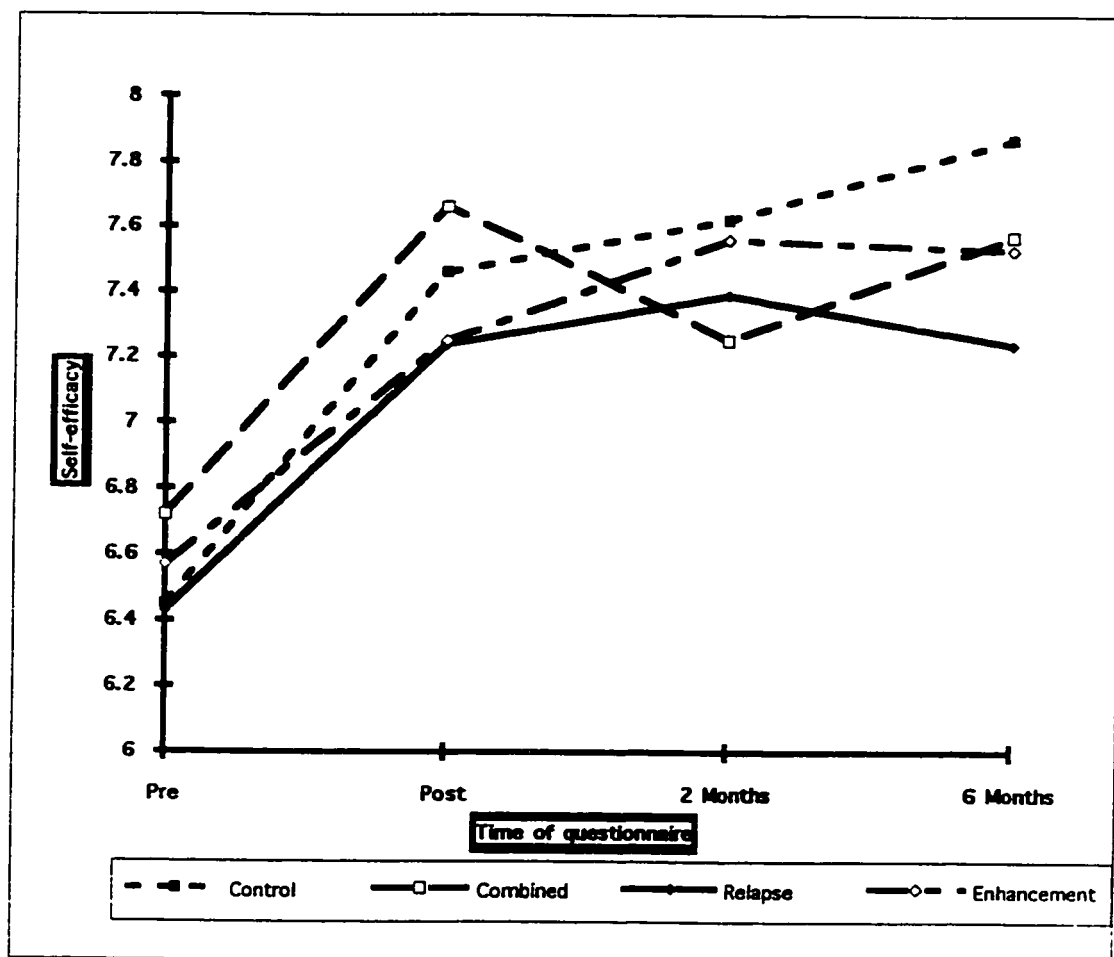
Figure 2. Self-efficacy as a function of time
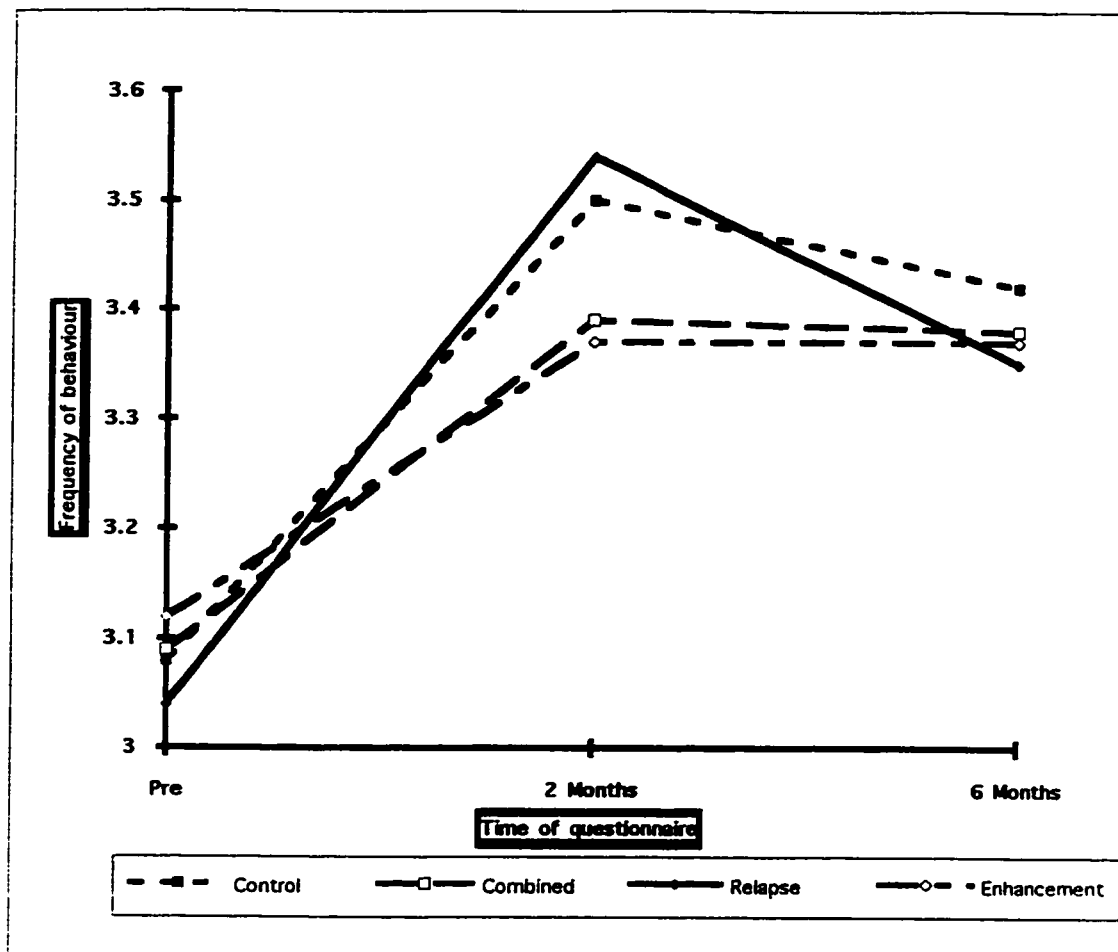
Figure 3. Self-rated frequency of behaviour as a function of time
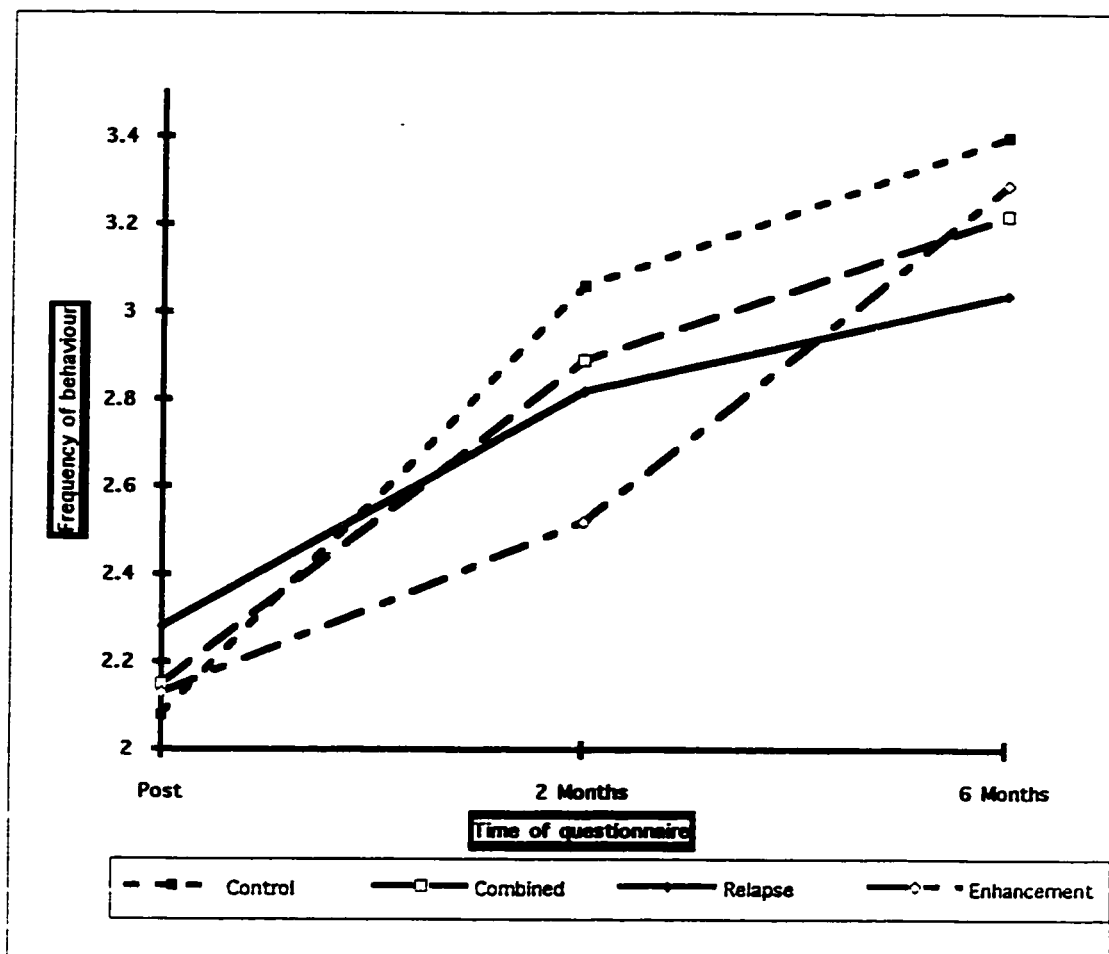
Figure 4. Supervisor-rated frequency of behaviour as a function of time
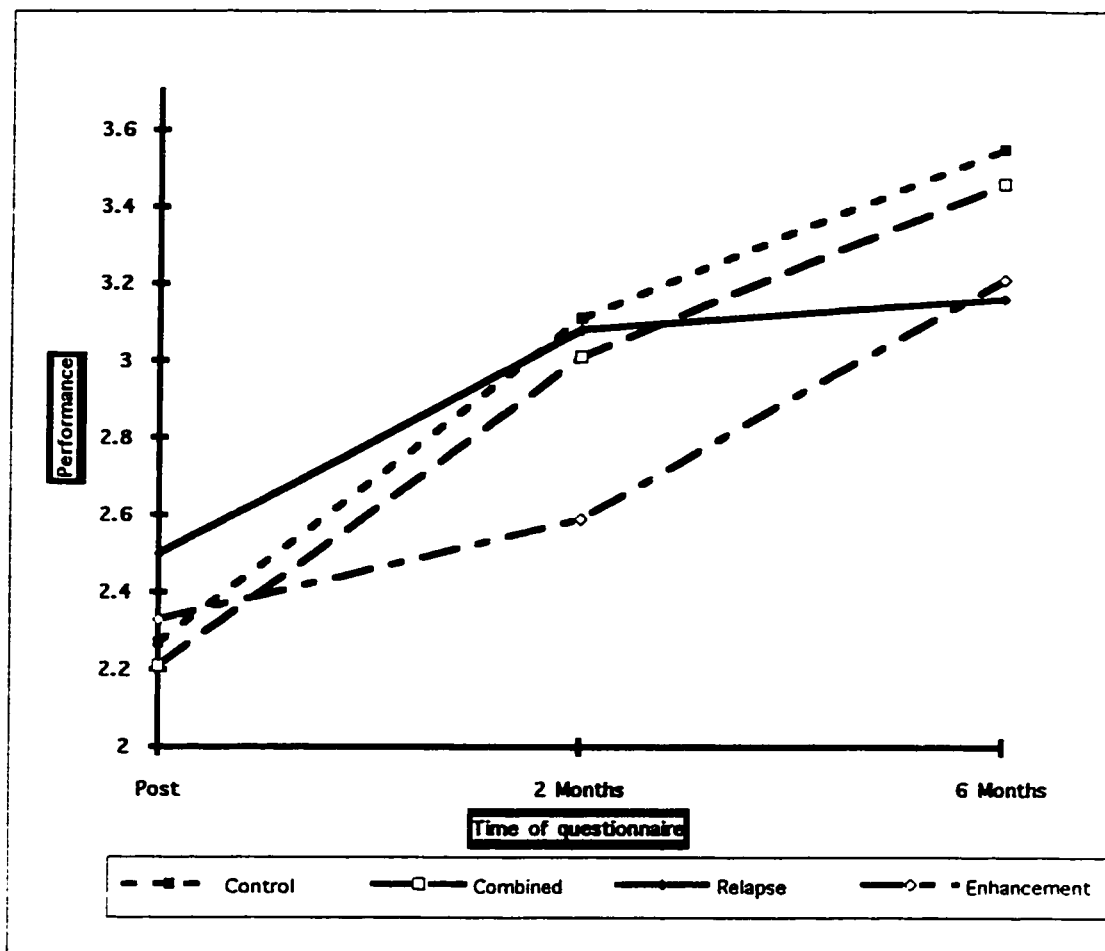
Figure 5. Supervisor-rated performance as a function of time
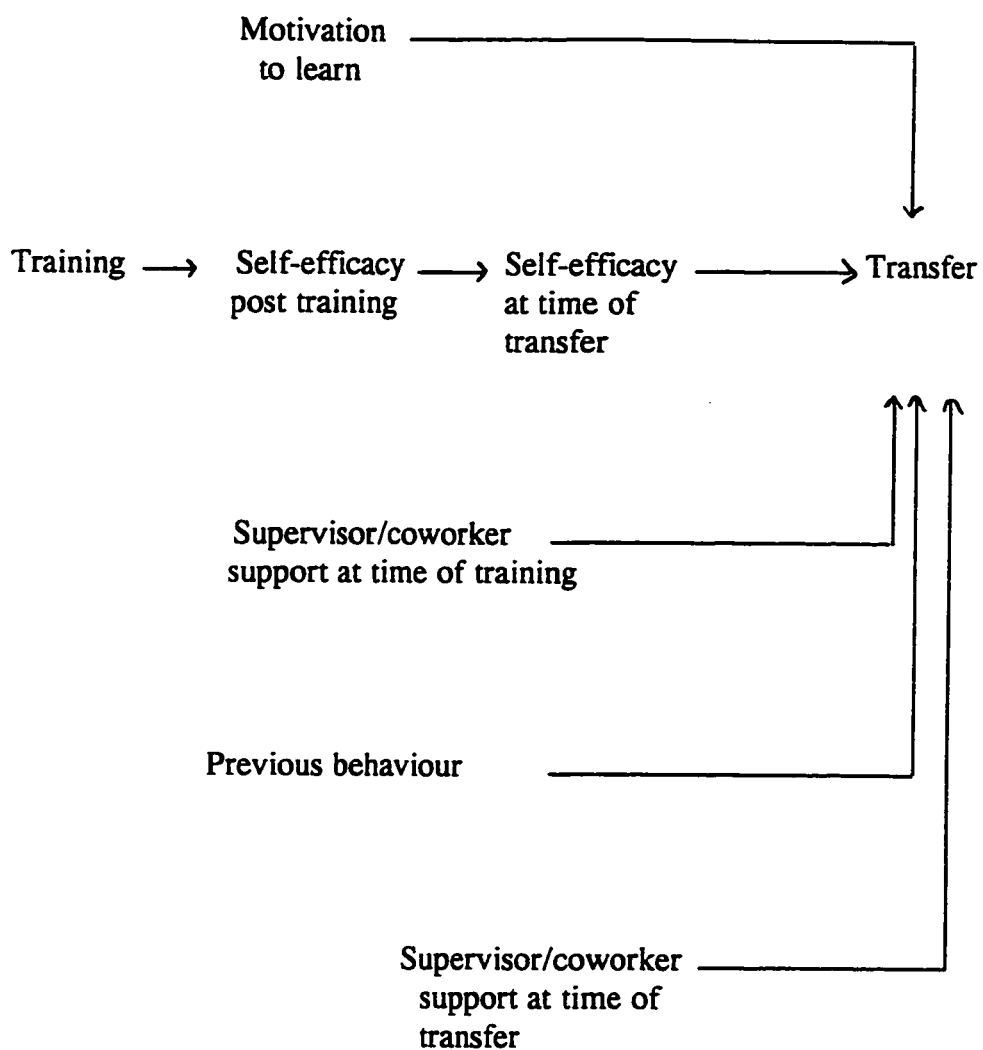
Figure 6. A Model of Transfer of Training

Table 1. Measures obtained pre-training, post-training, and at two months and six months post-training

	PRE-TRAINING	POST-TRAINING	2 MONTHS	6 MONTHS
Self measures				
Background variables	✔			
Self-efficacy for the training task	✔	✔	✔	✔
Motivation to learn	✔			
Behaviour	✔		✔	✔
Support from supervisors/ coworkers	✔		✔	✔
Reactions		✔		
Intent to transfer		✔		
Perceived training transfer			✔	✔
Performance			✔	✔
Supervisor ratings				
Behaviour		✔	✔	✔
Performance		✔	✔	✔

Table 2. Descriptive statistics of demographic variables

Variable Label	Mean	Standard	
Age	42.5	9.3	139
Tenure	12.37	6.93	148

Value Label	Frequency	Percent
Gender		
Female	144	97.3
Male	4	2.7
Education		
Nursing Diploma	119	80.4
B.Sc.N.	12	8.1
Other Degree	15	10.1
Nursing Unit		
5 East	7	4.7
4 South	12	8.1
4 North	18	12.2
Psychiatry	10	6.8
Surgury	24	16.2
Operating Room	7	4.7
Post Partum	10	6.8
2 South	8	5.4
Emergency	12	8.1
Case room	14	9.5
Float	10	6.8
Intensive Care	11	7.4
Shift		
Days	64	43.2
Evenings	36	24.3
Nights	14	9.5
Rotation	34	23.0

Table 2 (Cont'd)

Work Status		
Full time	92	62.2
Part time	55	37.2
Previous exposure		
Yes	12	8.1
No	136	91.9
Language		
English	71	48.0
French	77	52.0

Table 3. Eigenvalues and pattern matrix for supervisor and coworker support pre-training measure[1]

Variable	Factor 1 loading	Factor 2 loading
1	-.07315	.78968
2	-.09550	.92822
3	.73506	-.02875
4	.46807	.31061
5	.10336	.59394
6	.93330	-.07271
9	.14534	.67280
10	.78312	-.04913
11	.52584	.11780
Eigenvalues	4.209	1.657

[1]Oblimin rotation

Table 4. Descriptive Statistics of measurement variables

Measure	Mean	Standard Deviation	Range	Sample size
Pre-training questionnaire				
Self-efficacy	6.55	1.22	6.34	147
Motivation to learn	3.80	.50	2.67	148
Behaviour, self-rated	3.08	.61	3.33	144
Learning	14.66	2.02	11.00	134
Support from supervisors/coworkers	3.34	.67	3.67	145
Support from supervisors	3.58	.79	4.00	145
Support from coworkers	3.15	.77	3.80	145
Post-training questionnaire				
Self-efficacy	7.40	1.06	5.50	146
Learning	16.67	1.76	9.00	147
Reactions	4.09	.47	3.33	147
Intent to transfer	3.81	.54	3.24	144
Behaviour, supervisor rated	2.16	.75	2.97	105
Performance, supervisor rated	2.32	.79	4.13	105
2 month follow up				
Self efficacy	7.46	1.13	7.24	117
Behaviour, self rated	3.45	.63	3.38	118
Support from supervisors/coworkers	2.63	.81	3.67	105
Support from supervisors	2.79	.98	4.00	104
Support from coworkers	2.54	.82	4.00	104

Table 4 (Cont'd)

Perceived transfer	3.32	.62	3.50	118
Performance, self rated	3.41	.60	3.00	110
Behaviour, supervisor rated	2.84	.69	3.45	97
Performance, supervisor rated	2.95	.71	3.11	97
6 month follow up				
Self efficacy	7.58	1.10	6.24	93
Behaviour, self rated	3.39	.68	3.45	94
Support from supervisors/coworkers	2.64	.85	3.78	88
Support from supervisors	2.84	1.01	4.00	87
Support from coworkers	2.49	.86	3.80	85
Perceived transfer	3.34	.57	3.50	95
Performance, self rated	3.45	.63	3.22	87
Behaviour, supervisor rated	3.26	.68	2.79	62
Performance, supervisor rated	3.38	.78	2.78	63

Table 5. Cronbach alphas and Pearson correlations for measurement variables

	Self-efficacy, pre	Self-efficacy, post	Self-efficacy, 2 months	Self-efficacy, 6 months	Motivation
Self-efficacy, pre	.9546				
Self-efficacy, post	.5450*	.9746			
Self-efficacy, 2 months	.5553*	.7031*	.9773		
Self-efficacy, 6 months	.5212*	.5473*	.6969*	.9762	
Motivation	.1218	.1811	.2035*	.2841*	.8262
Behaviour, self, pre	.5102*	.2873*	.4417*	.3956*	.2597*
Behaviour, super, post	.1757	.0789	.1922	.2813*	-.0180
Behaviour, self, 2 mon	.3745*	.4131*	.6074*	.3227*	.3146*
Behaviour, super, 2 mon	.1737	.2117*	.3311*	.1777	.1570
Behaviour, self, 6 mon	.4231*	.2400*	.4770*	.4440*	.4679*
Behaviour, super, 6 mon	.3124*	.3624*	.5235*	.4995*	.4164*
Learning, pre	-.0962	-.0631	-.1132	-.0616	.1176
Learning, post	-.0909	.0368	.0202	.0070	-.0260
Support, pre supervisors/ coworkers,	.2377*	.2705*	.3579*	.3018*	.3587*
Support from supervisors/ coworkers, 2 months	.1356	.2022*	.3121*	.0935	.2764*
Support from supervisors/ coworkers, 6 months	.1387	.1671	.2121*	.1657	.2866*

Table 5 (Cont'd)

	Self-efficacy, pre	Self-efficacy, post	Self-efficacy, 2 months	Self-efficacy, 6 months	Motivation
Support from coworkers, pre	.2400*	.2673*	.3648*	.3309*	.3230*
Support from coworkers, 2 months	.1563	.1600	.2731*	.1168	.1901*
Supoort from coworkers, 6 months	.2324*	.2027	.2519*	.2658*	.3918*
Support from supervisors, pre	.1591	.1872*	.2319*	.1608	.0371*
Support from supervisors, 2 months	.1178	.2302*	.2834*	.0694	.2259*
Support from supervisors,6 months	.0496	.1419	.1468	.0847	.1984*
Reactions, post	.1439	.4265*	.4022*	.1088	.4631*
Intent to Transfer	.3089*	.4332*	.4722*	.2819*	.4231*

Table 5 (Cont'd)

	Self-efficacy, pre	Self-efficacy, post	Self-efficacy, 2 months	Self-efficacy, 6 months	Motivation
Performance, super, post	.1445	.0363	.1673	.2571*	-.0912
Performance, self, 2 mon	.2611*	.3964*	.4549*	.5807*	.2879*
Performance, super, 2 mon	.1579	.2391*	.2899*	.1737	.1581
Performance, self, 6 mon	.4150*	.2880*	.4950*	.6665*	.3529*
Performance, super, 6 mon	.3168*	.3381*	.4735*	.4890*	.3132*
Perceived transfer, 2 months	.1074	.1980*	.4085*	.1379	.3556*
Perceived transfer, 6 months	.2148*	.0829	.2466*	.2846*	.4717*

Table 5 (Cont'd)   120

	Behaviour, self, pre	Behaviour, super, post	Behaviour, self, 2 mon	Behaviour, super, 2 mon	Behaviour, self, 6 mon
Behaviour, self, pre	.9465				
Behaviour, super, post	.4004*	.9798			
Behaviour, self, 2 mon	.6505*	.2883*	.9638		
Behaviour, super, 2 mon	.3989*	.2522	.4018*	.9793	.
Behaviour, self, 6 mon	.7240*	.3366*	.7630*	.3916*	.9646
Behaviour, super, 6 mon	.4457*	.4432*	.5505*	.7221*	.5481*
Learning, pre	.0392	.2093*	.0285	.0078	.1415
Learning,post	-.0836	.0038	.0658	.1356	-.0465
Support from super/coworkers, pre	.3587*	.0647	.3511*	.2205*	.2726*
Support from supervisors/ coworkers, 2	.2449*	.1752	.3677*	.1688	.1908
Support from supervisors/ coworkers, 6	.2951*	.0557	.2630*	.3212*	.3872*
Support from coworkers, pre	.3662*	.1093	.3815*	.2118*	.3224*
Support from coworkers, 2 months	.2604*	.2566*	.3986 *	.1451	.1690
Support from coworkers, 6 months	.3258*	.1411	.3272*	.2381	.4389*
Support from supervisors, pre	.2361*	-.0139	.1962*	.1597	.1173
Support from supervisors, 2 months	.1636*	.0378	.2669*	.1348	.1614

Table 5 (Cont'd)

	Behaviour, self, pre	Behaviour, super, post	Behaviour, self, 2 months	Behaviour, super, 2 months	Behaviour, self, 6 months
Support from supervisors, 6 months	.2155*	-.0121	.1223	.3535*	.2866*
Reactions	.1375	-.1390	.3104*	.1205	.1664
Intent to transfer	.5924*	.0757	.7508*	.2659*	.6802*
Performance, super, post	.4078*	.9120*	.2529*	.3695*	.3467*
Performance, self, 2 mon	.4304*	.3057*	.6668*	.2448*	.5328*
Performance, super, 2 mon	.3801*	.3052*	.4604*	.8315*	.3998*
Performance, self, 6 mon	.3869*	.4034*	.4109*	.1041	.6287*
Performance, super, 6 mon	.4356*	.4418*	.4457*	.6436*	.4500*
Perceived transfer, 2 months	.1691	.0063	.4795*	.2335*	.3364*
Perceived transfer, 6 months	.3030*	.1383	.3078*	.2809*	.4878*

Table 5 (Cont'd) 122

	Behaviour, super, 6 months	Learning, pre	Learning, post	Support from supervisors/ coworkers, pre	Support from supervisors/ coworkers, 2 months
Behaviour, super, 6 mon	.9832				
Learning, pre	.1576	.2538			
Learning, post	.0213	.4052*	.3940		
Support from supervisors/ coworkers, pre	.3370*	.1706*	-.1468	.8536	
Support from supervisors/ coworkers, 2 months	.3277*	.1593	.0338	.4995*	.9035
Support from supervisor/ coworkers, 6 months	.3110*	.0321	.0124	.5399*	.7118*
Support from coworkers, pre	.2814*	.1768*	-.1752*	.8845*	4049*
Support from coworkers, 2 months	.3262*	.1573	-.0187	.5016*	.9152*
Support from coworkers, 6 months	.2577	.0576	-.0225	.5911*	.6473*
Support from supervisors, pre	.3081*	.1050	-.0650	.8217*	.4664*
Support from supervisors, 2 months	.2351	.0677	.0655	.4363*	.8998*
Support from supervisors, 6 months	.3102*	.0149	.0200	.4290*	.6580*
Reactions	.2308	.0877	-.0569	.4183*	.2468*
Intent to	.4182*	.0757	-.0046	.2945*	.2749*

Table 5 (Cont'd)

	Behaviour, super, 6 months	Learning, pre	Learning, post	Support from supervisors/ coworkers, pre	Support from supervisors/ coworkers, 2 months
Performance, super, post	.5638*	.2197*	.0512	-.0100	.1498
Performance, self, 2 mon	.5628*	.0279	.1427	.3607*	.5030*
Performance, super, 2 mon	.6358*	.0612	.1220	.2246*	.2366*
Performance, self, 6 mon	.3534*	.0597	.1517	.2321*	.2398*
Performance, super, 6 mon	.9054*	.0903	.0075	.3005*	.2826*
Perceived transfer, 2 months	.4520*	.0363	.1011	.2461*	.5144*
Perceived transfer, 6 months	.4707*	.1862	.1318	.3360*	.3106*

Table 5 (Cont'd)

	Support from supervisors/ coworkers, 6 months	Support from coworkers, pre	Support from coworkers, 2 months	Support from coworkers, 6 months	Support from supervisor pre
Support from supervisors/co workers, 6 mon	.9196				
Support from coworkers, pre	.4473*	.8274			
Support from coworkers, 2 months	.6096*	.4858*	.8644		
Support from coworkers, 6 months	.9267*	.5939*	.6543*	.8951	
Support from supervisors, pre	.4689*	.4610*	.3646*	.3862*	.8414
Support from supervisors, 2 months	.6535*	.2604*	.6495*	.4924*	.5274*
Support from supervisors, 6 months	.9170*	.2553*	.4590*	.6949*	.4977*
Reactions	.3164*	.3615*	.1560	.3007*	.3530*
Intent to transfer	.2749*	.2715*	.2396*	.3116*	.1707*

Table 5 (Cont'd)

	Support from supervisors/co workers, 6 months	Support from coworkers, pre	Support from coworkers, 2 months	Support from coworkers, 6 months	Support from supervisor, pre
Performance, super, post	.0218	.0328	.2257*	.1039	-.0600
Performance, self, 2 months	.3135*	.3743*	.5297*	.3620*	.2249*
Performance, super, 2 mon	.3172*	.1929	.2274*	.2437	.1898
Performance, self, 6 months	.3145*	.3230*	.1901	.3918*	.0371
Performance, super, 6 mon	.3001*	.2386	.2609	.2384	.2929*
Perceived transfer, 2 months	.2461*	.2623*	.4818*	.2017	.1439
Perceived transfer, 6 months	.5897*	.3275*	.2682*	.5901*	.2316*

Table 5 (Cont'd)

	Support from supervisors, 2 months	Support from supervisors, 6 months	Reactions	Intent to transfer	Performance, super, post
Support from supervisors, 2 months	.8453				
Support from supervisors, 6 months	.7181*	.8657			
Reactions	.2993*	.2891*	.8648		
Intent to transfer	.2840*	.2132*	.4355*	.9628	
Performance, super, post	-.0043	-.0526	-.2087*	.0600	.9286
Performance, self, 2 months	.3781*	.2019	.1491	.4176*	.2885*
Performance, super, 2 mon	.1811	.3460*	.0364	.2933*	.4338*
Performance, self, 6 months	.2259	.1984	-.0303	.2354*	.3690*
Performance, super, 6 mon	.2110	.3244*	.2585*	.3858*	.5684*
Perceived transfer, 2 months	.4412*	.2332*	.3034*	.3314*	-.0263
Perceived transfer, 6 months	.2980*	.5190*	.1944	.2822*	.1498

Table 5 (Cont'd)

	Performance, self, 2 months	Performance, super, 2 months	Performance, self, 6 months	Performance, super, 6 months	Perceived transfer, 2 months
Performance, self, 2 months	.8511				
Performance, super, 2 mon	.3101*	.9254			
Performance, self, 6 months	.6729*	.1688	.8989		
Performance, super, 6 mon	.4876*	.6878*	.2977*	.9570	
Perceived transfer, 2 months	.5093*	.3370*	.2768*	.4678*	.9126
Perceived transfer, 6 months	.3760*	.3669*	.5124*	.4606*	.5535*

Table 6.1

Analysis of variance of intent to transfer at post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training coworker support, supervisor support, motivation to learn, and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 140	0.01	0.904	0.035
Treatment 2	1, 140	0.11	0.741	0.048
T1 * T2	1, 140	2.48	0.117	0.346
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 132	0.09	0.765	0.046
Treatment 2	1, 132	1.42	0.235	0.217
T1 * T2	1, 132	3.93	0.050	0.501
Covariates:				
Self-efficacy for the training task, pre-training	1, 132	7.51	0.007	0.774
Motivation to learn, pre-training	1, 132	20.6	0.001	0.995
Support from coworkers, pre-training	1, 132	2.15	0.145	0.307
Support from supervisors, pre-training	1, 132	0.52	0.470	0.128

Table 6.1a
Analysis of variance of intent to transfer at post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training global support, motivation to learn, and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 140	0.01	0.904	0.035
Treatment 2	1, 140	0.11	0.741	0.048
T1 * T2	1, 140	2.48	0.117	0.346
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 133	0.01	0.922	0.034
Treatment 2	1, 133	1.70	0.194	0.252
T1 * T2	1, 133	3.13	0.079	0.419
Covariates:				
Self-efficacy for the training task, pre-training	1, 133	7.93	0.006	0.796
Motivation to learn, pre-training	1, 133	20.6	0.001	0.995
Support, global, pre-training	1, 133	0.57	0.449	0.149

Table 6.2

Analysis of variance of reactions to transfer at post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training coworker support, supervisor support, motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 143	0.79	0.370	0.172
Treatment 2	1, 143	0.02	0.880	0.036
T1 * T2	1, 143	6.83	0.010	0.735
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 135	0.56	0.456	0.143
Treatment 2	1, 135	0.01	0.958	0.033
T1 * T2	1, 135	5.23	0.024	0.619
Covariates:				
Self-efficacy for the training task, pre-training	1, 135	0.18	0.676	0.049
Motivation to learn, pre-training	1, 135	23.5	0.001	0.998
Support from coworkers, pre-training	1, 135	4.60	0.034	0.564
Support from supervisors, pre-training	1, 135	2.15	0.145	0.307

Table 6.2a

Analysis of variance of reactions to transfer at post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training global support, motivation to learn, and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 143	0.79	0.377	0.172
Treatment 2	1, 143	0.02	0.880	0.036
T1 * T2	1, 143	6.83	0.010	0.735
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 136	0.53	0.470	0.128
Treatment 2	1, 136	0.01	0.944	0.033
T1 * T2	1, 136	5.26	0.023	0.621
Covariates:				
Self-efficacy for the training task, pre-training	1, 136	0.19	0.663	0.048
Motivation to learn, pre-training	1, 136	23.7	0.001	0.998
Support, global, pre-training	1, 136	11.3	0.001	0.913

Table 6.3.1

Analysis of variance of self-efficacy pre- and post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training coworker support, supervisor support, and motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 141	0.25	0.615	0.042
Treatment 2	1, 141	1.04	0.310	0.178
T1 * T2	1, 141	1.06	0.304	0.179
Within-subjects effects:				
Self-efficacy	1, 141	88.9	0.001	1.000
Treatment 1 * Self-efficacy	1, 141	0.05	0.817	0.042
Treatment 2 * Self-efficacy	1, 141	0.72	0.399	0.172
T1 * T2 * Self-efficacy	1, 141	2.01	0.158	0.290
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 135	0.16	0.693	0.049
Treatment 2	1, 135	0.99	0.320	0.175
T1 * T2	1, 135	0.74	0.390	0.172
Within-subjects effects:				
Self-efficacy	1, 138	85.8	0.001	1.000
Treatment 1 * Self-efficacy	1, 138	0.31	0.577	0.041
Treatment 2 * Self-efficacy	1, 138	0.79	0.376	0.172
T1 * T2 * Self-efficacy	1, 138	1.63	0.203	0.243
Covariates:				
Motivation to learn, pre-training	1, 135	0.94	0.333	0.173
Support from coworkers, pre-training	1, 135	6.36	0.013	0.704
Support from supervisors, pre-training	1, 135	0.24	0.624	0.043

Table 6.3.1a

Analysis of variance of self-efficacy at pre- and post-training as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with pre-training global support and motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 141	0.25	0.615	0.042
Treatment 2	1, 141	1.04	0.310	0.178
T1 * T2	1, 141	1.06	0.304	0.179
Within-subjects effects:				
Self-efficacy	1, 141	88.9	0.001	1.000
Treatment 1 * Self-efficacy	1, 141	0.05	0.817	0.042
Treatment 2 * Self-efficacy	1, 141	0.72	0.399	0.172
T1 * T2 * Self-efficacy	1, 141	2.01	0.158	0.290
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 136	0.35	0.555	0.046
Treatment 2	1, 136	0.84	0.361	0.172
T1 * T2	1, 136	0.50	0.483	0.113
Within-subjects effects:				
Self-efficacy	1, 138	85.8	0.001	1.000
Treatment 1 * Self-efficacy	1, 138	0.31	0.577	0.041
Treatment 2 * Self-efficacy	1, 138	0.79	0.376	0.172
T1 * T2 * Self-efficacy	1, 138	1.63	0.203	0.243
Covariates:				
Motivation to learn, pre-training	1, 136	0.98	0.325	0.174
Support, global, pre-training	1, 136	8.13	0.005	0.806

Table 6.3.2

Analysis of variance of self-efficacy post-training and at 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 113	0.13	0.720	0.049
Treatment 2	1, 113	0.03	0.871	0.038
T1 * T2	1, 113	0.10	0.756	0.047
Within-subjects effects:				
Self-efficacy	1, 113	0.09	0.769	0.046
Treatment 1 * Self-efficacy	1, 113	7.13	0.009	0.751
Treatment 2 * Self-efficacy	1, 113	0.90	0.344	0.172
T1 * T2 * Self-efficacy	1, 113	1.83	0.179	0.267
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 93	0.45	0.502	0.091
Treatment 2	1, 93	0.01	0.967	0.034
T1 * T2	1, 93	0.01	0.989	0.033
Within-subjects effects:				
Self-efficacy	1, 96	0.29	0.590	0.043
Treatment 1 * Self-efficacy	1, 96	3.19	0.077	0.423
Treatment 2 * Self-efficacy	1, 96	0.78	0.380	0.171
T1 * T2 * Self-efficacy	1, 96	0.41	0.525	0.067
Covariates:				
Motivation to learn, pre-training	1, 93	2.19	0.142	0.310
Support from coworkers, 2 months	1, 93	1.59	0.211	0.236
Support from supervisors, 2 months	1, 93	0.52	0.473	0.125

Table 6.3.2a

Analysis of variance of self-efficacy post-training and at 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 113	0.13	0.720	0.049
Treatment 2	1, 113	0.03	0.871	0.038
T1 * T2	1, 113	0.10	0.756	0.047
Within-subjects effects:				
Self-efficacy	1, 113	0.09	0.769	0.046
Treatment 1 * Self-efficacy	1, 113	7.13	0.009	0.751
Treatment 2 * Self-efficacy	1, 113	0.90	0.344	0.172
T1 * T2 * Self-efficacy	1, 113	1.83	0.179	0.267
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 99	0.19	0.664	0.049
Treatment 2	1, 99	0.01	0.979	0.033
T1 * T2	1, 99	0.06	0.800	0.044
Within-subjects effects:				
Self-efficacy	1, 101	0.22	0.640	0.047
Treatment 1 * Self-efficacy	1, 101	4.90	0.029	0.589
Treatment 2 * Self-efficacy	1, 101	0.67	0.415	0.168
T1 * T2 * Self-efficacy	1, 101	1.07	0.303	0.179
Covariates:				
Motivation to learn, pre-training	1, 99	1.81	0.182	0.264
Support, global, 2 months	1, 99	5.66	0.019	0.651

Table 6.3.3
Analysis of variance of self-efficacy at pre-, post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 112	0.01	0.972	0.033
Treatment 2	1, 112	0.01	0.940	0.034
T1 * T2	1, 112	0.01	0.960	0.033
Within-subjects effects:				
Self-efficacy	2, 224	52.8	0.001	1.000
Treatment 1 * Self-efficacy	2, 224	3.13	0.046	0.597
Treatment 2 * Self-efficacy	2, 224	0.56	0.571	0.145
T1 * T2 * Self-efficacy	2, 224	1.13	0.326	0.246
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 92	0.07	0.795	0.045
Treatment 2	1, 92	0.01	0.907	0.036
T1 * T2	1, 92	0.09	0.762	0.047
Within-subjects effects:				
Self-efficacy	2, 190	45.1	0.001	1.000
Treatment 1 * Self-efficacy	2, 190	1.92	0.149	0.394
Treatment 2 * Self-efficacy	2, 190	0.27	0.764	0.096
T1 * T2 * Self-efficacy	2, 190	0.48	0.616	0.132
Covariates:				
Motivation to learn, pre-training	1, 92	2.51	0.117	0.347
Support from coworkers, 2 months	1, 92	2.22	0.140	0.313
Support from supervisors, 2 months	1, 92	0.13	0.721	0.050

Table 6.3.3a

Analysis of variance of self-efficacy at pre-, post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 112	0.01	0.972	0.033
Treatment 2	1, 112	0.01	0.940	0.034
T1 * T2	1, 112	0.01	0.960	0.033
Within-subjects effects:				
Self-efficacy	2, 224	52.8	0.001	1.000
Treatment 1 * Self-efficacy	2, 224	3.13	0.046	0.597
Treatment 2 * Self-efficacy	2, 224	0.56	0.571	0.145
T1 * T2 * Self-efficacy	2, 224	1.13	0.326	0.246
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 98	0.01	0.984	0.033
Treatment 2	1, 98	0.02	0.885	0.037
T1 * T2	1, 98	0.02	0.896	0.036
Within-subjects effects:				
Self-efficacy	2, 200	44.5	0.001	1.000
Treatment 1 * Self-efficacy	2, 200	2.40	0.093	0.480
Treatment 2 * Self-efficacy	2, 200	0.53	0.590	0.140
T1 * T2 * Self-efficacy	2, 200	0.80	0.452	0.185
Covariates:				
Motivation to learn, pre-training	1, 98	2.11	0.150	0.300
Support, global, 2 months	1, 98	4.65	0.034	0.567

Table 6.4

Analysis of variance of behaviour (self) at pre-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 110	0.01	0.947	0.034
Treatment 2	1, 110	0.12	0.735	0.049
T1 * T2	1, 110	0.42	0.517	0.074
Within-subjects effects:				
Behaviour	1, 110	50.4	0.001	1.000
Treatment 1 * Behaviour	1, 110	0.20	0.659	0.048
Treatment 2 * Behaviour	1, 110	6.23	0.014	0.694
T1 * T2 * Behaviour	1, 110	0.44	0.506	0.085
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 90	0.04	0.840	0.041
Treatment 2	1, 90	0.01	0.988	0.034
T1 * T2	1, 90	0.01	0.974	0.034
Within-subjects effects:				
Behaviour	1, 94	49.9	0.001	1.000
Treatment 1 * Behaviour	1, 94	0.30	0.583	0.043
Treatment 2 * Behaviour	1, 94	3.07	0.083	0.410
T1 * T2 * Behaviour	1, 94	0.16	0.686	0.050
Covariates:				
Self-efficacy for the training task, pre-training	1, 90	31.1	0.001	1.000
Motivation to learn, pre-training	1, 90	3.88	0.052	0.494
Support from coworkers, 2 months	1, 90	8.35	0.005	0.814
Support from supervisors, 2 months	1, 90	0.77	0.384	0.171

Table 6.4a
Analysis of variance of behaviour (self) at pre-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 110	0.01	0.947	0.034
Treatment 2	1, 110	0.12	0.735	0.049
T1 * T2	1, 110	0.42	0.517	0.074
Within-subjects effects:				
Behaviour	1, 110	50.4	0.001	1.000
Treatment 1 * Behaviour	1, 110	0.20	0.659	0.048
Treatment 2 * Behaviour	1, 110	6.23	0.014	0.694
T1 * T2 * Behaviour	1, 110	0.44	0.506	0.085
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 96	0.27	0.604	0.043
Treatment 2	1, 96	0.09	0.762	0.047
T1 * T2	1, 96	0.34	0.561	0.046
Within-subjects effects:				
Behaviour	1, 99	50.8	0.001	1.000
Treatment 1 * Behaviour	1, 99	0.34	0.563	0.046
Treatment 2 * Behaviour	1, 99	4.17	0.044	0.522
T1 * T2 * Behaviour	1, 99	0.19	0.668	0.049
Covariates:				
Self-efficacy, pre-training	1, 96	23.7	0.001	0.998
Motivation to learn, pre-training	1, 96	3.26	0.074	0.431
Support, global, 2 months	1, 96	7.16	0.009	0.752

Table 6.5

Analysis of variance of behaviour (supervisor) at post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 69	0.71	0.403	0.168
Treatment 2	1, 69	3.58	0.063	0.461
T1 * T2	1, 69	1.11	0.296	0.181
Within-subjects effects:				
Behaviour	1, 69	47.9	0.001	1.000
Treatment 1 * Behaviour	1, 69	0.02	0.901	0.037
Treatment 2 * Behaviour	1, 69	0.53	0.468	0.132
T1 * T2 * Behaviour	1, 69	3.95	0.051	0.499
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 52	0.39	0.536	0.066
Treatment 2	1, 52	3.15	0.082	0.414
T1 * T2	1, 52	0.49	0.488	0.111
Within-subjects effects:				
Behaviour	1, 56	35.2	0.001	1.000
Treatment 1 * Behaviour	1, 56	0.01	0.951	0.036
Treatment 2 * Behaviour	1, 56	0.59	0.446	0.150
T1 * T2 * Behaviour	1, 56	3.49	0.067	0.449
Covariates:				
Self-efficacy for the training task, pre-training	1, 52	1.07	0.305	0.177
Motivation to learn, pre-training	1, 52	0.26	0.612	0.049
Support from coworkers, 2 months	1, 52	4.50	0.039	0.546
Support from supervisors, 2 months	1, 52	0.01	0.983	0.035

Table 6.5a

Analysis of variance of behaviour (supervisor) at post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 69	0.71	0.403	0.168
Treatment 2	1, 69	3.58	0.063	0.461
T1 * T2	1, 69	1.11	0.296	0.181
Within-subjects effects:				
Behaviour	1, 69	47.9	0.001	1.000
Treatment 1 * Behaviour	1, 69	0.02	0.901	0.037
Treatment 2 * Behaviour	1, 69	0.53	0.468	0.132
T1 * T2 * Behaviour	1, 69	3.95	0.051	0.499
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 55	0.56	0.458	0.141
Treatment 2	1, 55	3.87	0.054	0.487
T1 * T2	1, 55	0.38	0.538	0.063
Within-subjects effects:				
Behaviour	1, 58	40.6	0.001	1.000
Treatment 1 * Behaviour	1, 58	0.09	0.767	0.048
Treatment 2 * Behaviour	1, 58	0.18	0.677	0.052
T1 * T2 * Behaviour	1, 58	20.4	0.130	0.326
Covariates:				
Self-efficacy, pre-training	1, 55	1.57	0.216	0.231
Motivation to learn, pre-training	1, 55	0.09	0.765	0.049
Support, global, 2 months	1, 55	5.51	0.023	0.632

Table 6.6

Analysis of variance of performance (supervisor) at post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 69	0.98	0.325	0.173
Treatment 2	1, 69	4.38	0.040	0.539
T1 * T2	1, 69	0.61	0.436	0.158
Within-subjects effects:				
Performance	1, 69	49.3	0.001	1.000
Treatment 1 * Performance	1, 69	1.06	0.307	0.177
Treatment 2 * Performance	1, 69	0.55	0.462	0.137
T1 * T2 * Performance	1, 69	3.04	0.085	0.405
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 52	0.26	0.609	0.049
Treatment 2	1, 52	2.80	0.101	0.375
T1 * T2	1, 52	0.51	0.478	0.121
Within-subjects effects:				
Performance	1, 56	37.4	0.001	1.000
Treatment 1 * Performance	1, 56	0.38	0.540	0.062
Treatment 2 * Performance	1, 56	0.29	0.594	0.048
T1 * T2 * Performance	1, 56	0.96	0.331	0.171
Covariates:				
Self-efficacy for the training task, pre-training	1, 52	1.14	0.290	0.183
Motivation to learn, pre-training	1, 52	0.15	0.703	0.052
Support from coworkers, 2 months	1, 52	2.75	0.103	0.370
Support from supervisors, 2 months	1, 52	0.01	0.956	0.036

Table 6.6a
Analysis of variance of performance (supervisor) at post-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 69	0.98	0.325	0.173
Treatment 2	1, 69	4.38	0.040	0.539
T1 * T2	1, 69	0.61	0.436	0.158
Within-subjects effects:				
Performance	1, 69	49.3	0.001	1.000
Treatment 1 * Performance	1, 69	1.06	0.307	0.177
Treatment 2 * Performance	1, 69	0.55	0.462	0.137
T1 * T2 * Performance	1, 69	3.04	0.085	0.405
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 55	0.48	0.492	0.106
Treatment 2	1, 55	3.64	0.062	0.465
T1 * T2	1, 55	0.55	0.463	0.137
Within-subjects effects:				
Performance	1, 58	41.3	0.001	1.000
Treatment 1 * Performance	1, 58	0.35	0.558	0.053
Treatment 2 * Performance	1, 58	0.26	0.615	0.048
T1 * T2 * Performance	1, 58	0.94	0.336	0.170
Covariates:				
Self-efficacy for the training task, pre-training	1, 55	1.65	0.204	0.241
Motivation to learn, pre-training	1, 55	0.03	0.871	0.040
Support, global, 2 months	1, 55	3.74	0.058	0.475

Table 7.1

Analysis of variance of self-efficacy at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 78	3.57	0.062	0.462
Treatment 2	1, 78	0.10	0.750	0.049
T1 * T2	1, 78	1.81	0.183	0.263
Within-subjects effects:				
Self-efficacy	1, 78	1.11	0.295	0.182
Treatment 1 * Self-efficacy	1, 78	1.27	0.264	0.197
Treatment 2 * Self-efficacy	1, 78	0.90	0.346	0.170
T1 * T2 * Self-efficacy	1, 78	0.43	0.514	0.079
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 63	3.01	0.088	0.401
Treatment 2	1, 63	0.08	0.780	0.047
T1 * T2	1, 63	3.29	0.075	0.430
Within-subjects effects:				
Self-efficacy	1, 66	0.91	0.343	0.170
Treatment 1 * Self-efficacy	1, 66	0.79	0.377	0.169
Treatment 2 * Self-efficacy	1, 66	1.10	0.297	0.181
T1 * T2 * Self-efficacy	1, 66	0.11	0.745	0.049
Covariates:				
Motivation to learn, pre-training	1, 63	18.6	0.001	0.989
Support from coworkers, 2 months	1, 63	1.75	0.085	0.406
Support from supervisors, 2 months	1, 63	2.31	0.134	0.322

Table 7.1a

Analysis of variance of self-efficacy at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 78	3.57	0.062	0.462
Treatment 2	1, 78	0.10	0.750	0.049
T1 * T2	1, 78	1.81	0.183	0.263
Within-subjects effects:				
Self-efficacy	1, 78	1.11	0.295	0.182
Treatment 1 * Self-efficacy	1, 78	1.27	0.264	0.197
Treatment 2 * Self-efficacy	1, 78	0.90	0.346	0.170
T1 * T2 * Self-efficacy	1, 78	0.43	0.514	0.079
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 69	2.33	0.131	0.325
Treatment 2	1, 69	0.01	0.973	0.035
T1 * T2	1, 69	4.16	0.045	0.519
Within-subjects effects:				
Self-efficacy	1, 71	1.47	0.230	0.220
Treatment 1 * Self-efficacy	1, 71	1.56	0.215	0.232
Treatment 2 * Self-efficacy	1, 71	0.65	0.422	0.164
T1 * T2 * Self-efficacy	1, 71	0.47	0.497	0.098
Covariates:				
Motivation to learn, pre-training	1, 69	14.4	0.001	0.962
Support, global, 2 months	1, 69	0.07	0.798	0.045

Table 7.2
Analysis of variance of behaviour (self) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 79	0.32	0.570	0.046
Treatment 2	1, 79	0.01	0.923	0.035
T1 * T2	1, 79	0.16	0.686	0.051
Within-subjects effects:				
Behaviour	1, 79	1.59	0.211	0.236
Treatment 1 * Behaviour	1, 79	0.32	0.573	0.045
Treatment 2 * Behaviour	1, 79	0.64	0.427	0.162
T1 * T2 * Behaviour	1, 79	0.01	0.909	0.036
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 62	0.26	0.611	0.047
Treatment 2	1, 62	0.01	0.926	0.036
T1 * T2	1, 62	1.12	0.293	0.182
Within-subjects effects:				
Behaviour	1, 66	1.79	0.185	0.260
Treatment 1 * Behaviour	1, 66	0.14	0.711	0.051
Treatment 2 * Behaviour	1, 66	0.88	0.352	0.169
T1 * T2 * Behaviour	1, 66	0.20	0.658	0.050
Covariates:				
Self-efficacy for the training task, pre-training	1, 62	11.9	0.001	0.923
Motivation to learn, pre-training	1, 62	8.04	0.006	0.795
Support from coworkers, 2 months	1, 62	3.14	0.081	0.415
Support from supervisors, 2 months	1, 62	0.87	0.356	0.169

Table 7.2a
Analysis of variance of behaviour (self) at pre-training and 2 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 79	0.32	0.570	0.046
Treatment 2	1, 79	0.01	0.923	0.035
T1 * T2	1, 79	0.16	0.686	0.051
Within-subjects effects:				
Behaviour	1, 79	1.59	0.211	0.236
Treatment 1 * Behaviour	1, 79	0.32	0.573	0.045
Treatment 2 * Behaviour	1, 79	0.64	0.427	0.162
T1 * T2 * Behaviour	1, 79	0.01	0.909	0.036
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 68	0.75	0.390	0.169
Treatment 2	1, 68	0.28	0.598	0.046
T1 * T2	1, 68	0.18	0.673	0.051
Within-subjects effects:				
Behaviour	1, 71	1.64	0.204	0.242
Treatment 1 * Behaviour	1, 71	0.09	0.769	0.047
Treatment 2 * Behaviour	1, 71	1.25	0.267	0.195
T1 * T2 * Behaviour	1, 71	0.14	0.712	0.051
Covariates:				
Self-efficacy, pre-training	1, 68	7.83	0.007	0.785
Motivation to learn, pre-training	1, 68	7.73	0.008	0.766
Support, global, 2 months	1, 68	2.03	0.159	0.288

Table 7.3
Analysis of variance of behaviour (supervisor) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.01	0.976	0.037
Treatment 2	1, 42	1.73	0.196	0.249
T1 * T2	1, 42	1.35	0.251	0.204
Within-subjects effects:				
Behaviour	1, 42	2.83	0.100	0.376
Treatment 1 * Behaviour	1, 42	0.03	0.865	0.041
Treatment 2 * Behaviour	1, 42	0.01	0.931	0.038
T1 * T2 * Behaviour	1, 42	0.21	0.646	0.053
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 34	0.01	0.947	0.038
Treatment 2	1, 34	1.83	0.185	0.259
T1 * T2	1, 34	2.02	0.165	0.281
Within-subjects effects:				
Behaviour	1, 38	1.05	0.313	0.173
Treatment 1 * Behaviour	1, 38	0.58	0.451	0.145
Treatment 2 * Behaviour	1, 38	0.01	0.904	0.039
T1 * T2 * Behaviour	1, 38	0.47	0.496	0.105
Covariates:				
Self-efficacy for the training task, pre-training	1, 34	0.01	0.980	0.038
Motivation to learn, pre-training	1, 34	4.12	0.050	0.504
Support from coworkers, 2 months	1, 34	1.04	0.316	0.172
Support from supervisors, 2 months	1, 34	0.01	0.988	0.038

Table 7.3a
Analysis of variance of behaviour (supervisor) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.01	0.976	0.037
Treatment 2	1, 42	1.73	0.196	0.249
T1 * T2	1, 42	1.35	0.251	0.204
Within-subjects effects:				
Behaviour	1, 42	2.83	0.100	0.376
Treatment 1 * Behaviour	1, 42	0.03	0.865	0.041
Treatment 2 * Behaviour	1, 42	0.01	0.931	0.038
T1 * T2 * Behaviour	1, 42	0.21	0.646	0.053
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 36	0.01	0.962	0.038
Treatment 2	1, 36	2.95	0.095	0.386
T1 * T2	1, 36	2.48	0.124	0.335
Within-subjects effects:				
Behaviour	1, 39	1.60	0.214	0.232
Treatment 1 * Behaviour	1, 39	0.36	0.551	0.062
Treatment 2 * Behaviour	1, 39	0.01	0.947	0.037
T1 * T2 * Behaviour	1, 39	0.28	0.603	0.052
Covariates:				
Self-efficacy, pre-training	1, 36	0.01	0.961	0.038
Motivation to learn, pre-training	1, 36	4.19	0.048	0.511
Support, global, 2 months	1, 36	1.53	0.225	0.223

Table 7.4

Analysis of variance of performance (self) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 70	0.33	0.568	0.048
Treatment 2	1, 70	0.47	0.497	0.098
T1 * T2	1, 70	0.22	0.638	0.048
Within-subjects effects:				
Performance	1, 70	0.22	0.643	0.049
Treatment 1 * Performance	1, 70	0.34	0.562	0.049
Treatment 2 * Performance	1, 70	0.02	0.880	0.038
T1 * T2 * Performance	1, 70	0.01	0.949	0.035
ANCOVA:				
Between-subjects effectsTreatment 1	1, 59	0.02	0.880	0.039
Treatment 2	1, 59	0.04	0.842	0.042
T1 * T2	1, 59	0.22	0.638	0.050
Within-subjects effects:				
Performance	1, 63	0.18	0.669	0.051
Treatment 1 * Performance	1, 63	0.16	0.694	0.052
Treatment 2 * Performance	1, 63	0.27	0.603	0.047
T1 * T2 * Performance	1, 63	0.09	0.763	0.048
Covariates:				
Self-efficacy for the training task, pre-training	1, 59	4.84	0.032	0.578
Motivation to learn, pre-training	1, 59	12.2	0.001	0.928
Support from coworkers, 2 months	1, 59	4.41	0.040	0.539
Support from supervisors, 2 months	1, 59	0.01	0.999	0.035

Table 7.4a

Analysis of variance of performance (self) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 70	0.33	0.568	0.048
Treatment 2	1, 70	0.47	0.497	0.098
T1 * T2	1, 70	0.22	0.638	0.048
Within-subjects effects:				
Performance	1, 70	0.22	0.643	0.049
Treatment 1 * Performance	1, 70	0.34	0.562	0.049
Treatment 2 * Performance	1, 70	0.02	0.880	0.038
T1 * T2 * Performance	1, 70	0.01	0.949	0.035
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 64	0.01	0.989	0.035
Treatment 2	1, 64	0.32	0.573	0.048
T1 * T2	1, 64	0.20	0.654	0.050
Within-subjects effects:				
Performance	1, 67	0.13	0.722	0.051
Treatment 1 * Performance	1, 67	0.27	0.603	0.046
Treatment 2 * Performance	1, 67	0.21	0.650	0.050
T1 * T2 * Performance	1, 67	0.18	0.673	0.051
Covariates:				
Self-efficacy for the training task, pre-training	1, 64	7.43	0.008	0.763
Motivation to learn, pre-training	1, 64	8.13	0.006	0.800
Support, global, 2 months	1, 64	5.63	0.021	0.644

Table 7.5

Analysis of variance of performance (supervisor) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.75	0.391	0.165
Treatment 2	1, 42	2.90	0.096	0.383
T1 * T2	1, 42	1.45	0.236	0.215
Within-subjects effects:				
Performance	1, 42	0.60	0.442	0.151
Treatment 1 * Performance	1, 42	0.03	0.873	0.041
Treatment 2 * Performance	1, 42	0.27	0.606	0.051
T1 * T2 * Performance	1, 42	1.66	0.205	0.240
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 34	0.57	0.456	0.141
Treatment 2	1, 34	2.94	0.096	0.384
T1 * T2	1, 34	1.68	0.204	0.241
Within-subjects effects:				
Performance	1, 38	0.11	0.742	0.052
Treatment 1 * Performance	1, 38	0.05	0.825	0.045
Treatment 2 * Performance	1, 38	0.64	0.429	0.157
T1 * T2 * Performance	1, 38	2.22	0.144	0.306
Covariates:				
Self-efficacy for the training task, pre-training	1, 34	0.01	0.985	0.038
Motivation to learn, pre-training	1, 34	3.08	0.088	0.400
Support from coworkers, 2 months	1, 34	0.11	0.743	0.052
Support from supervisors, 2 months	1, 34	0.06	0.810	0.047

Table 7.5a
Analysis of variance of performance (supervisor) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.75	0.391	0.165
Treatment 2	1, 42	2.90	0.096	0.383
T1 * T2	1, 42	1.45	0.236	0.215
Within-subjects effects:				
Performance	1, 42	0.60	0.442	0.151
Treatment 1 * Performance	1, 42	0.03	0.873	0.041
Treatment 2 * Performance	1, 42	0.27	0.606	0.051
T1 * T2 * Performance	1, 42	1.66	0.205	0.240
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 36	0.90	0.348	0.166
Treatment 2	1, 36	4.11	0.050	0.503
T1 * T2	1, 36	2.16	0.150	0.298
Within-subjects effects:				
Performance	1, 39	0.39	0.534	0.071
Treatment 1 * Performance	1, 39	0.01	0.959	0.037
Treatment 2 * Performance	1, 39	0.30	0.588	0.053
T1 * T2 * Performance	1, 39	1.60	0.214	0.232
Covariates:				
Self-efficacy for the training task, pre-training	1, 36	0.01	0.883	0.041
Motivation to learn, pre-training	1, 36	3.21	0.082	0.414
Support, global, 2 months	1, 36	0.56	0.461	0.137

Table 7.6

Analysis of variance of perceived training transfer (self) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 80	1.10	0.298	0.181
Treatment 2	1, 80	0.04	0.835	0.041
T1 * T2	1, 80	0.26	0.610	0.045
Within-subjects effects:				
Perceived training	1, 80	2.69	0.105	0.367
Treatment 1 * Perceived training	1, 80	2.17	0.145	0.306
Treatment 2 * Perceived training	1, 80	1.79	0.185	0.260
T1 * T2 * Perceived training	1, 80	0.51	0.476	0.122
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 63	0.02	0.885	0.038
Treatment 2	1, 63	0.20	0.653	0.050
T1 * T2	1, 63	0.48	0.492	0.104
Within-subjects effects:				
Perceived training	1, 67	3.89	0.053	0.492
Treatment 1 * Perceived training	1, 67	0.77	0.383	0.169
Treatment 2 * Perceived training	1, 67	1.16	0.285	0.189
T1 * T2 * Perceived training	1, 67	1.91	0.172	0.274
Covariates:				
Self-efficacy for the training task, pre-training	1, 63	0.25	0.620	0.048
Motivation to learn, pre-training	1, 63	12.6	0.001	0.936
Support from coworkers, 2 months	1, 63	2.08	0.154	0.295
Support from supervisors, 2 months	1, 63	0.20	0.658	0.051

Table 7.6a
Analysis of variance of perceived training transfer (self) at 2 and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 2 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 80	1.10	0.298	0.181
Treatment 2	1, 80	0.04	0.835	0.041
T1 * T2	1, 80	0.26	0.610	0.045
Within-subjects effects:				
Perceived training	1, 80	2.69	0.105	0.367
Treatment 1 * Perceived training	1, 80	2.17	0.145	0.306
Treatment 2 * Perceived training	1, 80	1.79	0.185	0.260
T1 * T2 * Perceived training	1, 80	0.51	0.476	0.122
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 69	0.10	0.754	0.049
Treatment 2	1, 69	0.06	0.815	0.044
T1 * T2	1, 69	0.23	0.631	0.048
Within-subjects effects:				
Perceived training	1, 72	1.32	0.255	0.203
Treatment 1 * Perceived training	1, 72	1.78	0.186	0.259
Treatment 2 * Perceived training	1, 72	3.52	0.065	0.455
T1 * T2 * Perceived training	1, 72	0.82	0.368	0.169
Covariates:				
Self-efficacy, pre-training	1, 69	0.31	0.582	0.046
Motivation to learn, pre-training	1, 69	12.6	0.001	0.937
Support, global, 2 months	1, 69	5.90	0.018	0.666

Table 8.1

Analysis of variance of self-efficacy at pre-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 6 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 89	0.67	0.415	0.167
Treatment 2	1, 89	0.42	0.520	0.072
T1 * T2	1, 89	1.87	0.175	0.271
Within-subjects effects:				
Self-efficacy	1, 89	72.3	0.001	1.000
Treatment 1 * Self-efficacy	1, 89	0.99	0.323	0.174
Treatment 2 * Self-efficacy	1, 89	1.33	0.252	0.205
T1 * T2 * Self-efficacy	1, 89	0.11	0.746	0.049
ANCOVA:				
Between-subjects effects				
Treatment 1	1, 74	0.85	0.360	0.170
Treatment 2	1, 74	0.01	0.989	0.034
T1 * T2	1, 74	3.34	0.072	0.437
Within-subjects effects:				
Self-efficacy	1, 77	58.4	0.001	1.000
Treatment 1 * Self-efficacy	1, 77	0.85	0.359	0.170
Treatment 2 * Self-efficacy	1, 77	1.77	0.187	0.258
T1 * T2 * Self-efficacy	1, 77	0.01	0.922	0.036
Covariates:				
Motivation to learn, pre-training	1, 74	8.49	0.005	0.818
Support from coworkers, 6 months	1, 74	5.57	0.021	0.642
Support from supervisors, 6 months	1, 74	3.74	0.057	0.478

Table 8.1a

Analysis of variance of self-efficacy at pre-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 6 months and pre-training motivation to learn as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 89	0.67	0.415	0.167
Treatment 2	1, 89	0.42	0.520	0.072
T1 * T2	1, 89	1.87	0.175	0.271
Within-subjects effects:				
Self-efficacy	1, 89	72.3	0.001	1.000
Treatment 1 * Self-efficacy	1, 89	0.99	0.323	0.174
Treatment 2 * Self-efficacy	1, 89	1.33	0.252	0.205
T1 * T2 * Self-efficacy	1, 89	0.11	0.746	0.049
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 80	0.33	0.570	0.046
Treatment 2	1, 80	0.01	0.927	0.035
T1 * T2	1, 80	1.83	0.180	0.266
Within-subjects effects:				
Self-efficacy	1, 82	66.9	0.001	1.000
Treatment 1 * Self-efficacy	1, 82	0.49	0.488	0.108
Treatment 2 * Self-efficacy	1, 82	1.61	0.208	0.239
T1 * T2 * Self-efficacy	1, 82	0.08	0.774	0.047
Covariates:				
Motivation to learn, pre-training	1, 80	8.71	0.004	0.829
Support, global, 6 months	1, 80	0.08	0.778	0.046

Table 8.2
Analysis of variance of behaviour (self) at pre-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 87	0.36	0.548	0.052
Treatment 2	1, 87	0.01	0.965	0.034
T1 * T2	1, 87	0.02	0.875	0.038
Within-subjects effects:				
Behaviour	1, 87	34.4	0.001	1.000
Treatment 1 * Behaviour	1, 87	0.12	0.733	0.049
Treatment 2 * Behaviour	1, 87	0.02	0.877	0.038
T1 * T2 * Behaviour	1, 87	0.01	0.979	0.034
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 72	0.20	0.660	0.050
Treatment 2	1, 72	0.25	0.616	0.046
T1 * T2	1, 72	0.43	0.515	0.079
Within-subjects effects:				
Behaviour	1, 76	41.0	0.001	1.000
Treatment 1 * Behaviour	1, 76	0.69	0.409	0.168
Treatment 2 * Behaviour	1, 76	0.02	0.887	0.037
T1 * T2 * Behaviour	1, 76	0.10	0.758	0.048
Covariates:				
Self-efficacy for the training task, pre-training	1, 72	25.6	0.001	0.999
Motivation to learn, pre-training	1, 72	4.39	0.040	0.541
Support from coworkers, 6 months	1, 72	2.30	0.134	0.321
Support from supervisors, 6 months	1, 72	0.48	0.490	0.106

Table 8.2a
Analysis of variance of behaviour (self) at pre-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 87	0.36	0.548	0.052
Treatment 2	1, 87	0.01	0.965	0.034
T1 * T2	1, 87	0.02	0.875	0.038
Within-subjects effects:				
Behaviour	1, 87	34.4	0.001	1.000
Treatment 1 * Behaviour	1, 87	0.12	0.733	0.049
Treatment 2 * Behaviour	1, 87	0.02	0.877	0.038
T1 * T2 * Behaviour	1, 87	0.01	0.979	0.034
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 78	0.17	0.678	0.050
Treatment 2	1, 78	1.58	0.213	0.234
T1 * T2	1, 78	0.66	0.419	0.166
Within-subjects effects:				
Behaviour	1, 81	41.9	0.001	1.000
Treatment 1 * Behaviour	1, 81	0.53	0.470	0.128
Treatment 2 * Behaviour	1, 81	0.04	0.834	0.041
T1 * T2 * Behaviour	1, 81	0.01	0.982	0.034
Covariates:				
Self-efficacy, pre-training	1, 78	17.6	0.001	0.985
Motivation to learn, pre-training	1, 78	7.82	0.007	0.786
Support, global, 6 months	1, 78	7.04	0.010	0.743

Table 8.3
Analysis of variance of behaviour (supervisor) at post-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 43	0.08	0.785	0.048
Treatment 2	1, 43	0.20	0.657	0.053
T1 * T2	1, 43	0.13	0.718	0.053
Within-subjects effects:				
Behaviour	1, 43	60.8	0.001	1.000
Treatment 1 * Behaviour	1, 43	0.21	0.649	0.053
Treatment 2 * Behaviour	1, 43	0.12	0.726	0.052
T1 * T2 * Behaviour	1, 43	1.54	0.222	0.226
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 33	0.06	0.813	0.047
Treatment 2	1, 33	0.31	0.583	0.056
T1 * T2	1, 33	0.04	0.836	0.045
Within-subjects effects:				
Behaviour	1, 37	51.6	0.001	1.000
Treatment 1 * Behaviour	1, 37	0.26	0.614	0.053
Treatment 2 * Behaviour	1, 37	0.27	0.609	0.053
T1 * T2 * Behaviour	1, 37	1.35	0.252	0.203
Covariates:				
Self-efficacy for the training task, pre-training	1, 33	1.68	0.204	0.240
Motivation to learn, pre-training	1, 33	2.21	0.147	0.303
Support from coworkers, 6 months	1, 33	0.02	0.902	0.040
Support from supervisors, 6 months	1, 33	0.06	0.809	0.047

Table 8.3a

Analysis of variance of behaviour (supervisor) at post-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 43	0.08	0.785	0.048
Treatment 2	1, 43	0.20	0.657	0.053
T1 * T2	1, 43	0.13	0.718	0.053
Within-subjects effects:				
Behaviour	1, 43	60.7	0.001	1.000
Treatment 1 * Behaviour	1, 43	0.21	0.649	0.053
Treatment 2 * Behaviour	1, 43	0.12	0.726	0.052
T1 * T2 * Behaviour	1, 43	1.54	0.222	0.226
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 36	0.16	0.695	0.054
Treatment 2	1, 36	0.10	0.753	0.051
T1 * T2	1, 36	0.01	0.974	0.037
Within-subjects effects:				
Behaviour	1, 39	57.5	0.001	1.000
Treatment 1 * Behaviour	1, 39	0.28	0.598	0.052
Treatment 2 * Behaviour	1, 39	0.17	0.685	0.054
T1 * T2 * Behaviour	1, 39	1.86	0.181	0.263
Covariates:				
Self-efficacy for the training task, pre-training	1, 36	1.51	0.227	0.221
Motivation to learn, pre-training	1, 36	2.23	0.144	0.306
Support, global, 6 months	1, 36	0.08	0.775	0.049

Table 8.4

Analysis of variance of performance (supervisor) at post-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with coworker support and supervisor support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.43	0.514	0.086
Treatment 2	1, 42	0.70	0.407	0.164
T1 * T2	1, 42	0.52	0.474	0.126
Within-subjects effects:				
Performance	1, 42	63.9	0.001	1.000
Treatment 1 * Performance	1, 42	0.05	0.822	0.045
Treatment 2 * Performance	1, 42	1.05	0.311	0.174
T1 * T2 * Performance	1, 42	0.53	0.472	0.128
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 32	0.28	0.598	0.055
Treatment 2	1, 32	1.23	0.276	0.188
T1 * T2	1, 32	0.18	0.677	0.055
Within-subjects effects:				
Performance	1, 36	55.6	0.001	1.000
Treatment 1 * Performance	1, 36	0.05	0.821	0.045
Treatment 2 * Performance	1, 36	1.41	0.243	0.209
T1 * T2 * Performance	1, 36	0.78	0.384	0.164
Covariates:				
Self-efficacy for the training task, pre-training	1, 32	0.46	0.504	0.098
Motivation to learn, pre-training	1, 32	2.32	0.138	0.315
Support from coworkers, 6 months	1, 32	0.69	0.412	0.160
Support from supervisors, 6 months	1, 32	0.28	0.604	0.055

Table 8.4a

Analysis of variance of performance (supervisor) at post-training and 6 months as predicted by the presence or absence of relapse prevention (treatment 1) and enhancement of training (treatment 2), with global support at 6 months, and pre-training motivation to learn and self-efficacy as covariates.

Source of variation	df	F	p	power
ANOVA:				
Between-subjects effects:				
Treatment 1	1, 42	0.43	0.514	0.086
Treatment 2	1, 42	0.70	0.407	0.164
T1 * T2	1, 42	0.52	0.474	0.126
Within-subjects effects:				
Performance	1, 42	63.9	0.001	1.000
Treatment 1 * Performance	1, 42	0.05	0.822	0.045
Treatment 2 * Performance	1, 42	1.05	0.311	0.174
T1 * T2 * Performance	1, 42	0.53	0.472	0.128
ANCOVA:				
Between-subjects effects:				
Treatment 1	1, 35	0.81	0.375	0.164
Treatment 2	1, 35	0.73	0.398	0.163
T1 * T2	1, 35	0.33	0.571	0.057
Within-subjects effects:				
Performance	1, 38	59.8	0.001	1.000
Treatment 1 * Performance	1, 38	0.01	0.920	0.039
Treatment 2 * Performance	1, 38	1.63	0.209	0.236
T1 * T2 * Performance	1, 38	0.82	0.372	0.165
Covariates:				
Self-efficacy, pre-training	1, 35	0.30	0.587	0.054
Motivation to learn, pre-training	1, 35	2.27	0.141	0.311
Support, global, 6 months	1, 35	0.07	0.799	0.048

Table 9   Multiple regression with transfer of training at 2 months, self-efficacy and support at 2 months

Dependent variable	Independent variable	β	t	P	Model adjusted R²
Behaviour, supervisor*	Behaviour, supervisor, time of training	0.228	1.88	0.065	0.063
	Self-efficacy	0.149	1.991	0.051	0.108
Behaviour, supervisor**	Behaviour, supervisor, time of training	0.211	1.795	0.078	0.056
	Self-efficacy	0.157	2.161	0.035	0.110
Performance,supervisor*	Performance, supervisor, time of training	0.503	4.512	<0.001	0.247
Performance, supervisor**	Performance, supervisor, time of training	0.510	4.639	<0.001	0.252
Performance, self*	Performance, supervisor, time of training	0.136	1.823	0.073	0.092
	Motivation to learn	0.232	2.261	0.027	
	Self-efficacy	0.151	3.145	0.003	
	Support, coworkers	0.268	3.826	<0.001	0.411
Performance, self**	Performance, supervisor, time of training	0.186	2.529	0.014	0.111
	Self-efficacy	0.169	3.441	<0.001	
	Support, global	0.263	3.634	<0.001	0.367
Behaviour, Self*	Behaviour, self, time of training	0.305	4.538	<0.001	0.363
	Self-efficacy	0.252	6.723	<0.001	
	Support, coworkers	0.110	2.368	0.020	0.604
Behaviour, self**	Behaviour, self, time of training	0.398	5.666	<0.001	0.340
	Self-efficacy	0.262	6.602	<0.001	0.578
Perceived transfer*	Behaviour, self, time of training	0.120	2.106	0.038	.008
	Motivation to learn	0.367	3.536	<0.001	
	Self-efficacy	0.180	3.443	<0.001	
	Support, coworkers	0.298	4.581	<0.001	0.384
Perceived transfer**	Behaviour, self, time of training	0.118	1.248	0.215	.025
	Motivation to learn	0.294	2.748	0.007	
	Self-efficacy	0.176	3.286	0.001	
	Support, global	0.311	4.523	<0.001	0.361

Note: Multiple regression. Measures of transfer of training at time of training were forced into model and remaining variables entered using stepwise regression.

* Stepwise variables: Coworker support (2 months), Supervisor support (2 months), Motivation to learn, self-efficacy (2 months)
** Stepwise variables: Global support (2 months), Motivation to learn, self-efficacy (2 months)

Table 10   Multiple regression with transfer of training at 6 months, self-efficacy and support at 6 months

Dependent variable	Independent variable	β	t	P	Model adjusted R²
Behaviour, supervisor*	Behaviour, supervisor, time of training	0.371	2.815	0.008	0.143
	Motivation to learn	0.728	3.722	<0.001	0.360
Behaviour, supervisor**	Behaviour, supervisor, time of training	0.372	2.856	0.007	0.141
	Motivation to learn	0.728	3.758	<0.001	0.354
Performance, supervisor*	Performance, supervisor, time of training	0.533	3.979	<0.001	0.289
	Motivation to learn	0.560	2.756	0.009	0.396
Performance, supervisor**	Performance, supervisor, time of training	0.539	4.084	<0.001	0.290
	Motivation to learn	0.554	2.755	0.009	0.392
Behaviour, self*	Behaviour, self, time of training	0.343	4.485	<0.001	0.441
	Self-efficacy	0.184	4.238	<0.001	
	Motivation to learn	0.204	2.144	0.035	
	Support, coworkers	0.110	2.100	0.039	0.617
Behaviour, self**	Behaviour, self, time of training	0.500	6.264	<0.001	0.473
	Self-efficacy	0.119	2.664	0.009	
	Motivation to learn	0.277	2.659	0.009	0.553
Performance, self*	Performance, supervisor, time of training	0.206	2.550	0.014	0.142
	Self-efficacy	0.348	6.252	<0.001	0.482
Performance, self**	Performance, supervisor, time of training	0.207	2.606	0.012	0.141
	Self-efficacy	0.353	6.502	<0.001	0.491
Perceived transfer*	Behaviour, self, time of training	0.070	0.849	0.399	0.093
	Motivation to learn	0.348	3.159	0.002	
	Support, coworkers	0.182	2.222	0.029	
	Support, supervisors	0.162	2.398	0.019	0.456
Perceived transfer**	Behaviour, self, time of training	0.086	1.092	0.278	0.105
	Motivation to learn	0.368	3.392	0.001	
	Support, global	0.316	5.346	<0.001	0.439

Note: Multiple regression. Previous measures were forced into model and remaining variables entered using stepwise regression.

* Stepwise variables: Coworker support (6 months), Supervisor support (6 months), Motivation to learn, Self-efficacy (6 months)

** Stepwise variables: Global support (6 months), Motivation to learn, Self-efficacy (6 months)

Table 11   Multiple regression with transfer of training at 2 months, self-efficacy immediately post-training, and support at time of training

Dependent variable	Independent variable	β	t	P	Model adjusted R²
Behaviour, supervisor*	Behaviour, supervisor, time of training	0.250	2.196	0.031	0.050
Behaviour, supervisor**	Behaviour, supervisor, time of training	0.250	2.196	0.031	0.050
Performance, supervisor*	Performance, supervisor	0.423	4.057	<0.001	0.177
Performance,supervisor**	Performance, supervisor	0.423	4.057	<0.001	0.177
Behaviour, self*	Behaviour, self, time of training	0.559	7.446	<0.001	0.389
	Self-efficacy	0.127	2.920	0.004	0.428
Behaviour, self**	Behaviour, self, time of training	0.559	7.446	<0.001	0.389
	Self-efficacy	0.127	2.920	0.004	0.428
Performance, self*	Performance, supervisor, time of training	0.182	2.556	0.013	0.072
	Motivation to learn	0.249	2.389	0.019	
	Self-efficacy	0.185	3.704	<0.001	
	Support, coworkers	0.153	2.149	0.035	0.330
Performance, self**	Performance, supervisor, time of training	0.196	2.703	0.008	0.072
	Motivation to learn	0.304	2.942	0.004	
	Self-efficacy	0.208	4.165	<0.001	0.300
Perceived transfer*	Behaviour, self, time of training	0.101	1.073	0.286	0.028
	Motivation to learn	0.400	3.575	<0.001	0.122
Perceived transfer**	Behaviour, self, time of training	0.101	1.073	0.286	0.028
	Motivation to learn	0.400	3.575	<0.001	0.122

Note: Multiple regression. Previous measures were forced into model and remaining variables entered using stepwise regression.

* Stepwise variables: Coworker support (time of training), Supervisor support (time of training), Motivation to learn, Self-efficacy (immediately post-training)
** Stepwise variables: Global support (time of training), Motivation to learn, Self-efficacy (immediately post-training

Table 12   Multiple regression with transfer of training at 6 months, self-efficacy and support at 2 months

Dependent variable	Independent variable	β	t	P	Model adjusted R²
Behaviour, supervisor*	Behaviour, supervisor, time of training	0.316	2.269	0.029	0.081
	Self-efficacy	0.342	3.596	0.001	0.301
Behaviour, supervisor**	Behaviour, supervisor, time of training	0.373	2.996	0.005	0.141
	Motivation to learn	0.464	2.193	0.034	
	Self-efficacy	0.233	2.291	0.028	0.402
Performance, supervisor*	Performance, supervisor, time of training	0.498	3.504	0.001	0.211
	Motivation to learn	0.493	2.365	0.024	0.298
Performance, supervisor**	Performance, supervisor, time of training	0.536	4.063	<0.001	0.263
	Motivation to learn	0.556	2.750	0.009	0.367
Behaviour, self*	Behaviour, self, time of training	0.469	4.995	<0.001	0.445
	Motivation to learn	0.300	2.288	0.025	
	Self-efficacy	0.162	2.364	0.021	0.539
Behaviour, self**	Behaviour, self, time of training	0.528	5.768	<0.001	0.484
	Motivation to learn	0.274	2.140	0.036	
	Self-efficacy	0.144	2.136	0.036	0.552
Performance, self*	Performance, supervisor, time of training	0.098	0.913	0.366	0.029
	Motivation to learn	0.714	4.490	<0.001	0.302
Performance, self**	Performance, supervisor, time of training	0.127	1.273	0.209	0.048
	Motivation to learn	0.473	2.895	0.006	
	Self-efficacy	0.167	2.089	0.042	0.294
Perceived transfer*	Behaviour, self, time of training	0.117	1.177	0.243	0.065
	Motivation to learn	0.553	3.849	<0.001	0.223
Perceived transfer**	Behaviour, self, time of training	0.136	1.448	0.152	0.086
	Motivation to learn	0.537	3.975	<0.001	0.242

Note: Multiple regression. Previous measures were forced into model and remaining variables entered using stepwise regression.

* Stepwise variables: Coworker support (2 months), Supervisor support (2 months), Motivation to learn, Self-efficacy (2 months)

** Stepwise variables: Global support (2 months), Motivation to learn, Self-efficacy (2 months)

Table 13 Means, standard deviations, and sample sizes of self measures pre- and post-training, at 2 and 6 months as collected from questionnaires.

Measures	Pre-training	Post-training	2 Months	6 Months
Self-efficacy for the training task:				
Control	6.5, 1.3, 38	7.5, 1.1, 37	7.6, 1.1, 31	7.9, 1.0, 26
Combined	6.7, 1.2, 37	7.7, 1.1, 37	7.2, 1.3, 32	7.6, 1.2, 26
Relapse	6.4, 1.0, 33	7.2, 1.0, 34	7.4, 1.1, 24	7.2, 1.1, 19
Enhancement	6.6, 1.4, 39	7.2, 1.1, 38	7.6, 1.1, 30	7.5, 1.2, 22
Behaviour				
Control	3.1, 0.7, 38		3.5, 0.7, 32	3.4, 0.8, 26
Combined	3.1, 0.7, 36		3.4, 0.7, 32	3.4, 0.7, 26
Relapse	3.0, 0.5, 32		3.5, 0.5, 24	3.4, 0.7, 34
Enhancement	3.1, 0.6, 38		3.4, 0.5, 30	3.4, 0.6, 23
Reactions				
Control		4.2, 0.4, 37		
Combined		4.2, 0.4, 37		
Relapse		4.0, 0.6, 34		
Enhancement		4.0, 0.4, 39		
Intent to transfer				
Control		3.9, 0.6, 37		
Combined		3.9, 0.6, 35		
Relapse		3.7, 0.5, 34		
Enhancement		3.7, 0.5, 38		
Perceived training transfer				
Control			3.3, 0.7, 32	3.5, 0.7, 27
Combined			3.2, 0.7, 32	3.3, 0.5, 26
Relapse			3.5, 0.6, 24	3.2, 0.5, 19
Enhancement			3.3, 0.5, 30	3.4, 0.5, 23
Performance				
Control			3.4, 0.6, 30	3.5, 0.7, 26
Combined			3.4, 0.7, 28	3.4, 0.6, 22
Relapse			3.5, 0.5, 24	3.5, 0.6, 17
Enhancement			3.3, 0.6, 28	3.3, 0.6, 22

Table 14 Means, standard deviations, and sample sizes of supervisor ratings post-training, at 2 and 6 months as collected from questionnaires.

	Pre-training	Post-training	2 Months	6 Months
Supervisor ratings				
Behaviour				
Control		2.1, 0.8, 30	3.1, 0.8, 27	3.4, 0.7, 20
Combined		2.1, 0.8, 28	2.9, 0.7, 27	3.2, 0.7, 18
Relapse		2.3, 0.7, 23	2.8, 0.5, 20	3.0, 0.5, 11
Enhancement		2.1, 0.8, 24	2.5, 0.7, 23	3.3, 0.8, 13
Performance				
Control		2.3, 0.9, 31	3.1, 0.7, 27	3.6, 0.8, 20
Combined		2.2, 0.8, 27	3.0, 0.8, 27	3.5, 0.8, 19
Relapse		2.5, 0.7, 23	3.1, 0.5, 20	3.2, 0.7, 11
Enhancement		2.3, 0.7, 24	2.6, 0.6, 23	3.2, 0.9, 13

Table 15   Means, standard deviations, and sample sizes of the self measures pre- and post-training, at 2 and 6 months as analysed.

Variables compared	Control	Combined	Relapse	Enhancement
Self-efficacy for the training task:				
Pre-training &	6.5, 1.2, 36	6.7, 1.3, 37	6.5, 1.0, 32	6.7, 1.3, 37
Post training	7.5, 1.1, 36	7.7, 1.1, 37	7.3, 0.9, 32	7.3, 1.1, 37
Post training &	7.5, 1.2, 30	7.5, 1.6, 27	7.4, 0.9, 23	7.5, 1.0, 20
At 2 months	7.6, 1.1, 30	7.2, 1.3, 27	7.3, 1.1, 23	7.5, 1.1, 20
Pre-training &	6.4, 1.3, 30	6.5, 1.2, 27	6.7, 1.0, 22	6.6, 1.4, 20
Post-training &	7.5, 1.2, 30	7.5, 1.2, 27	7.4, 0.9, 22	7.5, 1.0, 20
At 2 months	7.6, 1.1, 30	7.2, 1.3, 27	7.3, 1.1, 22	7.5, 1.1, 20
At 2 months &	7.8, 0.9, 22	7.3, 0.9, 21	6.9, 1.1, 14	7.6, 1.0, 13
At 6 months	7.9, 0.9, 22	7.5, 1.1, 21	7.1, 1.0, 14	7.5, 1.4, 13
Pre-training &	6.6, 1.3, 24	6.8, 1.3, 24	6.2, 1.0, 18	6.6, 1.3, 20
At 6 months	7.9, 1.0, 24	7.6, 1.2, 24	7.3, 1.1, 18	7.5, 1.3, 20
Behaviour:				
Pre-training &	3.1, 0.6, 30	3.1, 0.7, 28	3.1, 0.6, 21	3.2, 0.6, 24
At 2 months	3.5, 0.7, 30	3.4, 0.7, 28	3.6, 0.5, 21	3.5, 0.5, 24
Pre-training &	3.2, 0.7, 24	3.0, 0.7, 23	3.1, 0.6, 17	3.1, 0.6, 21
At 6 months	3.5, 0.7, 24	3.4, 0.7, 23	3.5, 0.5, 17	3.4, 0.5, 21
At 2 months &	3.6, 0.6, 22	3.4, 0.7, 22	3.4, 0.6, 14	3.5, 0.5, 17
At 6 months	3.5, 0.7, 22	3.4, 0.7, 22	3.3, 0.8, 14	3.4, 0.6, 17
Reactions	4.2, 0.4, 36	4.2, 0.4, 37	3.9, 0.6, 32	4.0, 0.4, 38
Intent to transfer	3.9, 0.5, 36	3.9, 0.6, 35	3.7, 0.6, 32	3.7, 0.5, 37
Perceived training transfer:				
At 2 months &	3.5, 0.5, 23	3.4, 0.6, 22	3.4, 0.5, 14	3.4, 0.6, 17
At 6 months	3.4, 0.7, 23	3.4, 0.5, 22	3.1, 0.6, 14	3.4, 0.6, 17
Performance				
At 2 months &	3.5, 0.6, 23	3.3, 0.7, 19	3.4, 0.6, 12	3.4, 0.6, 17
At 6 months	3.5, 0.6, 23	3.4, 0.6, 19	3.4, 0.5, 12	3.4, 0.7, 17

Table 16   Means, standard deviations, and sample sizes of the supervisor ratings of bahviour and performance pre- and post-training, at 2 and 6 months, as analysed.

Variables compared	Control	Combined	Relapse	Enhancement
Behaviour:				
Post-training &	2.2, 0.8, 22	2.0, 0.9, 16	2.4, 0.5, 12	1.9, 0.6, 12
At 2 months	3.2, 0.7, 22	2.8, 0.8, 16	2.9, 0.5, 12	2.5, 0.7, 12
Post-training &	2.4, 0.6, 15	2.3, 0.9, 14	2.4, 0.3, 7	2.4, 0.7, 7
At 6 months	3.6, 0.7, 15	3.2, 0.7, 14	3.1, 0.5, 7	3.2, 0.7, 7
At 2 months &	3.3, 0.7, 15	2.9, 0.8, 14	3.0, 0.5, 8	2.8, 0.6, 6
At 6 months	3.4, 0.7, 15	3.1, 0.6, 14	3.1, 0.5, 8	2.8, 0.2, 6
Performance:				
Post-training &	2.5, 0.8, 22	2.2, 0.9, 16	2.5, 0.4, 12	2.1, 0.5, 12
At 2 months	3.2, 0.7, 22	2.9, 0.8, 16	3.1, 0.6, 12	2.5, 0.5, 12
Post-training &	2.6, 0.6, 15	2.4, 0.9, 13	2.3, 0.2, 7	2.5, 0.7, 7
At 6 months	3.7, 0.8, 15	3.2, 0.6, 13	3.3, 0.7, 7	3.1, 0.8, 7
At 2 months &	3.3, 0.8, 15	3.1, 0.8, 14	3.3, 0.7, 8	2.8, 0.6, 6
At 6 months	3.6, 0.8, 15	3.2, 0.6, 14	3.3, 0.7, 8	2.7, 0.2, 6

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APPENDIX 1. Pre-training questionnaire for trainees

MCGILL MODEL OF NURSING WORKSHOP

A research study is looking at the evaluation of workshops. Your participation in this study involves completing several questionnaires. We would be grateful for your participation in this study. You will be asked to complete this questionnaire now, as well as to complete a questionnaire at the end of the seminar and several months later. Also, you will be asked to have your head nurse/supervisor complete a questionnaire now and in several months.

It is crucial that we be able to link your responses from all the questionnaires that you complete. To that end, we ask that you think of a code number or a code name, known only to you, and write it on the next page beside "ID#". Please be sure to remember your code number/name so that you can write it on the second questionnaire -- we suggest that you write it down on a piece of paper and save it.

Your individual questionnaire responses are strictly confidential. Your instructors (Suzanne Rheaume and Donna McIntosh) will not be looking at the questionnaires, but will give them to Dr. Alan Saks, at Concordia University. The questionnaires that your head nurse/supervisor complete will be mailed directly to Dr. Alan Saks. After the data has been entered into a computer, Alice Gaudine will analyse the data, as part of her work for her doctoral studies at Concordia University.

We thank you for your participation. Please be assured that your participation is voluntary, and you may choose to not participate at any time.

PRE

SECTION 1

The questions in this section gather background information which will enable accurate comparisons among groups of individuals with similar characteristics. All of the information you provide will be used in combination with that of other respondents, and your responses will always remain confidential.

1. ID#: _____

2. Age: _____years

3. Gender: _____Female _____Male

4. Education: _____Nursing diploma B.Sc.N._____

_____Other degree
(Please specify: _____)

5. Years worked in your Hospital: _____

6. Current nursing unit: _____

7. Current position: _____

8. Shift usually worked: _____Days _____Evenings

_____Nights _____Rotation

9. Full time: _____ Part time: _____

10. Have you previously participated in a McGill Model of Nursing workshop or seminar? _____Yes _____No

SECTION 2

In this section a number of tasks are given below which are related to nursing based on the McGill model. Please indicate how <u>confident</u> you feel in your ability to <u>successfully</u> perform each of these tasks. There are no right or wrong answers, we are simply interested in your honest responses.

Indicate your degree of confidence by entering a number from 1 to 10 based on the following scale:

How **confident** are you that you can successfully perform the task?

1	2	3	4	5	6	7	8	9	10
Not at all				**Moderately**					**Totally**
Confident				**Confident**					**Confident**

____1. Assess how a patient is coping with hospitalization.

____2. Assess how a patient is coping with an illness event.

____3. Assess how a patient usually copes with a stressful life event.

____4. Assess how family members usually cope with stressful life events

____5. Assess how family members are coping with their relative's hospitalization.

____6. Assess how a patient usually learns best.

____7. Assess a patient's readiness to learn.

____8. Assess a patient's readiness to change.

____9. Motivate a patient to learn.

____10. Collaborate with a patient in planning his/her nursing care.

____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

____12. Write a nursing care plan that includes concepts from the McGill model.

How **confident** are you that you can successfully perform the task?

1   2   3   4   5   6   7   8   9   10

Not at all   Moderately   Totally

Confident   Confident   Confident

____13. Describe the nursing care you give, relating it to the McGill model.

____14. Facilitate a patient's learning of new ways to cope.

____15. Identify the strengths of a family.

____16. Negotiate nursing care with a family.

____17. Establish realistic goals with patients.

____18. Establish realistic goals with family members.

____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

____20. Write a nursing care plan for your patients that have a specific, unusual concern.

____21. Establish a realistic date to evaluate your nursing care plan.

____22. Create a collaborative relationship with your patient.

____23. Create a collaborative relationship with your patient's family.

____24. Apply the material from the McGill Model workshop when nursing on your unit.

____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

____26. Ask patients how you can assist them during their hospitalization.

____27. Improve the quality of patient care you give through your use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of your patient's family.

SECTION III

The following statements indicate different feelings people might have about a workshop on the McGill Model of Nursing. Please respond to each of the following statements by selecting the scale number that best represents your feelings about such a workshop. Please remember, there are no right or wrong answers, we are simply interested in your true feelings.

Write a number in the blank beside each statement, based on the following scale:

How do you feel about a seminar on the McGill Model of Nursing?

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree nor Disagree
4 = Agree
5 = Strongly Agree

____1. I am motivated to learn the skills emphasized in the McGill Model of Nursing workshop.

____2. I will try to learn as much as I can from the McGill model of Nursing workshop.

____3. I can influence the level of health of my patients and their families.

____4. The material in this workshop will be useful to me in my job.

____5. The knowledge and experience I gain in this workshop may advance my career.

____6. I am eager to attend this workshop.

____7. I do not have very much control over the level of health of my patients and their families.

____8. I was required to attend this seminar.

____9. I want to improve my ability to use the McGill Model of Nursing in my nursing practice.

____10. If I don't understand a part of this seminar I will try harder.

____11. I can change the behaviour of my patients and their families.

____12. The material in this workshop will end up benefiting my patients.

SECTION IV

In this section a number of tasks are given below that are related to nursing by the McGill Model. Please indicate how **frequently** you currently perform each of these tasks. Please remember, there are no right or wrong answers, we are simply interested in your honest responses.

Write a number in the blank beside each statement, based on the following scale:

How **frequently** do you perform each of the following tasks in your current nursing practice?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

_____1. Assess how a patient is coping with hospitalization.

_____2. Assess how a patient is coping with an illness event.

_____3. Assess how a patient usually copes with a stressful life event.

_____4. Assess how family members usually cope with stressful life events.

_____5. Assess how family members are coping with their relative's hospitalization.

_____6. Assess how a patient usually learns best.

_____7. Assess a patient's readiness to learn.

_____8. Assess a patient's readiness to change.

_____9. Motivate a patient to learn.

_____10. Collaborate with a patient in planning his/her nursing care.

_____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

_____12. Write a nursing care plan that includes concepts from the McGill model.

____13. Describe the nursing care you give, relating it to the McGill model.

How **frequently** do you perform each of the following tasks in your current nursing practice?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

____14. Facilitate a patient's learning of new ways to cope.

____15. Identify the strengths of a family.

____16. Negotiate nursing care with a family.

____17. Establish realistic goals with patients.

____18. Establish realistic goals with family members.

____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

____20. Write a nursing care plan for your patients that have a specific, unusual concern.

____21. Establish a realistic date to evaluate your nursing care plan.

____22. Create a collaborative relationship with your patient.

____23. Create a collaborative relationship with your patient's family.

____24. Apply the material from the McGill Model workshop when nursing on your unit.

____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

____26. Ask patients how you can assist them during their hospitalization.

____27. Improve the quality of patient care you give through your use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of your patient's family.

SECTION V

The following statements relate to the McGill Model of Nursing. Please indicate whether each statement is **TRUE (T)** or **FALSE (F)** by indicating your answer in the space provided.

____1. The four key concepts of the McGill Model are: client/family, health, environment, and learning.

____2. On genograms, females are indicated with a circle and males are indicated with squares.

____3. The McGill Model encourages the nurse to focus on the patient's weaknesses.

____4. According to the McGill Model, the nurse makes health decisions for patients/families.

____5. The McGill Model assumes that everyone is motivated to raise their level of health.

____6. According to the McGill Model, the goal of the nurse is to help patients/families reach a higher level of health.

____7. There is usually one solution to a patient problem or situation that is superior to any other solution.

____8. The McGill Model states that the patient/family decides what problems the patient/family should work on.

____9. Health is defined in the McGill Model as the absence of illness.

____10. A nurses's approach to a concern such as "incontinence" should be the same for every patient.

____11. A person who is dying with a terminal illness can be healthy.

____12. According to the McGill Model, nursing data collection should be done in a structured, pre-planned manner.

____13. A patient who does not comply with the nurse's plan of care is denying his/her illness.

____14. If a patient who has had a myocardial infarction does not listen to the patient teaching provided by the nurse, the nurse's assessment could be that the patient is not ready to learn.

____15. After a nursing care plan has been developed with a patient, it is acceptable for the nurse and the patient to change the plan during the hospitalization.

____16. If one family member argues with the patient every time he/she visits, it will be important to limit the visits.

____17. If a patient who has just been diagnosed with cancer of the uterus cries all day, a consult to psychology should be obtained.

____18. The McGill Model uses the term "family" to include people who provide major support for the patient, even if they are not related biologically, through adoption, or through marriage.

____19. The McGill Model says that the nurse's approach with the patient/family is collaboration.

____20. According to the McGill Model, the two dimensions of health are coping and problem solving.

SECTION VI

Although you have not yet had this workshop, you have no doubt previously taken workshops which dealt with your nursing practice. Thinking back over your other experiences, please answer the following questions using the scale below.

1 = **Very little**
2 = **Little**
3 = **Some**
4 = **Much**
5 = **Very much**

____1. If I am having difficulty writing a nursing care plan, I know I can obtain _____**help from my head nurse/supervisor** if I ask him/her.

____2. Realistically and based on my previous experiences, I think I can count on _____ **support from my head nurse/supervisor** in applying the seminar content to my job.

____3. Realistically and based on my previous experiences, I think I can count on _____ **support from my colleagues** in applying the seminar content to my job.

____4. Realistically and based on my previous experiences, I think I can count on _____**support from my organization** in applying the seminar content to my job.

____5. Realistically and based on my previous experience, I think my boss will demonstrate _____ **interest** in my application of the seminar content to my job.

____6. Realistically and based on my previous experience, I think my colleagues will demonstrate _____ **interest** in my application of the seminar content to my job.

____7. I anticipate that **my colleagues will pressure me** _____ to implement what I have learned in this workshop.

____8. I anticipate that **my head nurse/supervisor will pressure me** _____ to implement what I have learned in this workshop.

____9. If I write a nursing care plan based on the McGill Model of nursing, I know I will obtain _____ **positive feedback from my head nurse/supervisor.**

____10. If I write a nursing care plan based on the McGill Model of nursing, I know I will obtain _____ **positive feedback from my colleagues.**

_____11. If I feel I need time to do a family assessment, I think I can count on _____ **help from my colleagues** in covering my other patients.

APPENDIX 2. Post-training questionnaire for trainees

MCGILL MODEL OF NURSING WORKSHOP

A research study is looking at the evaluation of workshops. Your participation in this study involves completing several questionnaires. We would be grateful for your participation in this study. You will be asked to complete this questionnaire now, as well as to complete a questionnaire several months later. Also, you will be asked to have your head nurse/supervisor complete a questionnaire now and in several months.

It is crucial that we be able to link your responses from all the questionnaires that you complete. To that end, we ask that you remember the code number or the code name, known only to you, and write it at the bottom of this page beside "ID#". Please be sure to write down your code number/name and store it in a safe place, so that you can write it on a follow up questionnaire in a few months time.

Your individual questionnaire responses are strictly confidential. Your instructors (Suzanne Rheaume and Donna McIntosh) will not be looking at the questionnaires, but will give them to Dr. Alan Saks, at Concordia University. After the data has been entered onto a computer, Alice Gaudine will analyse the data, as part of her work for her doctoral studies at Concordia University.

We thank you for your participation. Please be assured that your participation is voluntary, and you may choose to not participate at any time.

ID#: _____

POST

SECTION 1

The following questions ask about your reactions to the McGill Model of Nursing workshop. Please try to be as honest as you can in responding to the following questions. Remember, there are no right or wrong answers, we are interested in your honest opinions.

Write a number in the blank beside each statement, based on the following scale:

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree Nor Disagree
4 = Agree
5 = Strongly Agree

____1. I would recommend this workshop to others.

____2. This workshop got me more excited about using the McGill Model of Nursing in the future.

____3. I can influence the health of my patients.

____4. This workshop will help me to nurse using the McGill Model of Nursing in the future.

____5. This workshop's learning points clearly showed me how to nurse using the McGill Model of Nursing.

____6. I plan to use what I learned in the weeks ahead.

____7. This workshop will help me in my future career.

____8. I do not have very much control over the health of my patients.

____9. The material in the workshop was practical.

____10. The workshop showed how I can use the McGill Model of Nursing on a busy nursing unit.

____11. I am now more interested in the McGill Model of Nursing than I was at the beginning of the workshop.

____12. The content of this workshop is applicable to the nursing department where I work.

____13. Implementing what I have learned in this workshop will **not** result in too much paperwork.

----14. I can change the health of my patients.

SECTION 2

In this section a number of tasks are given below which are related to nursing based on the McGill model. Please indicate how <u>confident</u> you feel in your ability to <u>successfully</u> perform each of these tasks. There are no right or wrong answers, we are simply interested in your honest responses.

Indicate your degree of confidence by entering a number from 1 to 10 based on the following scale:

How **confident** are you that you can successfully perform the task?

1	2	3	4	5	6	7	8	9	10
Not at all						**Moderately**			**Totally**
Confident						**Confident**			**Confident**

____1. Assess how a patient is coping with hospitalization.

____2. Assess how a patient is coping with an illness event.

____3. Assess how a patient usually copes with a stressful life event.

____4. Assess how family members usually cope with stressful life events

____5. Assess how family members are coping with their relative's hospitalization.

____6. Assess how a patient usually learns best.

____7. Assess a patient's readiness to learn.

____8. Assess a patient's readiness to change.

____9. Motivate a patient to learn.

____10. Collaborate with a patient in planning his/her nursing care.

____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

____12. Write a nursing care plan that includes concepts from the McGill model.

How **confident** are you that you can successfully perform the task?

1   2   3   4   5   6   7   8   9   10
Not at all   **Moderately**   **Totally**
Confident   **Confident**   **Confident**

_____13. Describe the nursing care you give, relating it to the McGill model.

_____14. Facilitate a patient's learning of new ways to cope.

_____15. Identify the strengths of a family.

_____16. Negotiate nursing care with a family.

_____17. Establish realistic goals with patients.

_____18. Establish realistic goals with family members.

_____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

_____20. Write a nursing care plan for your patients that have a specific, unusual concern.

_____21. Establish a realistic date to evaluate your nursing care plan.

_____22. Create a collaborative relationship with your patient.

_____23. Create a collaborative relationship with your patient's family.

_____24. Apply the material from the McGill Model workshop when nursing on your unit.

_____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

_____26. Ask patients how you can assist them during their hospitalization.

_____27. Improve the quality of patient care you give through your use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of your patient's family.

SECTION III

In this section a number of tasks are given below that are related to nursing by the McGill Model. Please indicate how **likely** you are to perform each of these tasks in your future nursing. Please remember, there are no right or wrong answers, we are simply interested in your honest responses.

Write a number in the blank beside each statement, based on the following scale:
    How **likely** is it that you will perform each of the following tasks in your future nursing practice?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

_____1. Assess how a patient is coping with hospitalization.

_____2. Assess how a patient is coping with an illness event.

_____3. Assess how a patient usually copes with a stressful life event.

_____4. Assess how family members usually cope with stressful life events

_____5. Assess how family members are coping with their relative's hospitalization.

_____6. Assess how a patient usually learns best.

_____7. Assess a patient's readiness to learn.

_____8. Assess a patient's readiness to change.

_____9. Motivate a patient to learn.

_____10. Collaborate with a patient in planning his/her nursing care.

_____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

_____12. Write a nursing care plan that includes concepts from the McGill model.

____13. Describe the nursing care you give, relating it to the McGill model.

How **likely** is it that you will perform each of the following tasks in your current nursing practice?

1 = Never
2 = Seldom
3 = Sometimes
4 = Often
5 = Always

____14. Facilitate a patient's learning of new ways to cope.

____15. Identify the strengths of a family.   '

____16. Negotiate nursing care with a family.

____17. Establish realistic goals with patients.

____18. Establish realistic goals with family members.

____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

____20. Write a nursing care plan for your patients that have a specific, unusual concern.

____21. Establish a realistic date to evaluate your nursing care plan.

____22. Create a collaborative relationship with your patient.

____23. Create a collaborative relationship with your patient's family.

____24. Apply the material from the McGill Model workshop when nursing on your unit.

____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

____26. Ask patients how you can assist them during their hospitalization.

____27. Improve the quality of patient care you give through your use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of your patient's family.

SECTION IV

The following statements relate to the McGill Model of Nursing. Please indicate whether each statement is **TRUE (T)** or **FALSE (F)** by indicating your answer in the space provided.

____1. The four key concepts of the McGill Model are: client/family, health, environment, and learning.

____2. On genograms, females are indicated with a circle and males are indicated with squares.

____3. The McGill Model encourages the nurse to focus on the patient's weaknesses.

____4. According to the McGill Model, the nurse makes health decisions for patients/families.

____5. The McGill Model assumes that everyone is motivated to raise their level of health.

____6. According to the McGill Model, the goal of the nurse is to help patients/families reach a higher level of health.

____7. There is usually one solution to a patient problem or situation that is superior to any other solution.

____8. The McGill Model states that the patient/family decides what problems the patient/family should work on.

____9. Health is defined in the McGill Model as the absence of illness.

____10. A nurses's approach to a concern such as "incontinence" should be the same for every patient.

____11. A person who is dying with a terminal illness can be healthy.

____12. According to the McGill Model, nursing data collection should be done in a structured, pre-planned manner.

____13. A patient who does not comply with the nurse's plan of care is denying his/her illness.

____14. If a patient who has had a myocardial infarction does not listen to the patient teaching provided by the nurse, the nurse's assessment could be that the patient is not ready to learn.

____15. After a nursing care plan has been developed with a patient, it is acceptable for the nurse and the patient to change the plan during the hospitalization.

____16. If one family member argues with the patient every time he/she visits, it will be important to limit the visits.

____17. If a patient who has just been diagnosed with cancer of the uterus cries all day, a consult to psychology should be obtained.

____18. The McGill Model uses the term "family" to include people who provide major support for the patient, even if they are not related biologically, through adoption, or through marriage.

____19. The McGill Model says that the nurse's approach with the patient/family is collaboration.

____20. According to the McGill Model, the two dimensions of health are coping and problem solving.

APPENDIX 3. Follow up questionnaire for trainees at two and six months

MCGILL MODEL OF NURSING WORKSHOP

A research study is looking at the evaluation of workshops. Your participation in this study involves completing several questionnaires. While attending the McGill Model of nursing workshop you completed several questionnaires for this research as well as asked your head nurse supervisor to complete a questionnaire. The questionnaires that we are now asking you to complete is a follow up on this research. We would be very grateful if you would complete this questionnaire. All questionnaires need to be received in order for this research to be done.

It is crucial that we be able to link your responses from all the questionnaires that you complete. To that end, we ask that you remember your code number or code name, known only to you, and write it on the bottom of this page. Please be sure to remember your code number/name so that you can write it on the six month follow up questionnaire.

Your individual questionnaire responses are strictly confidential. Your instructors (Suzanne Rheaume and Donna McIntosh) will not be looking at the questionnaires, but will give them to Dr. Alan Saks, at Concordia University. The questionnaires that your head nurse/supervisor complete will be mailed directly to Dr. Alan Saks. After the data has been entered into a computer, Alice Gaudine will analyze the data, as part of her work for her doctoral studies at Concordia University. No one who works at the Lakeshore General Hospital will see your actual questionnaires.

We thank you for your participation. Please be assured that your participation is voluntary, and you may choose to not participate at any time.

YOUR IDENTIFICATION NUMBER OR CODE: _____

UNIT CURRENTLY WORKING ON: _____

FU2

SECTION 1

In this section a number of tasks are given below which are related to nursing based on the McGill model. Please indicate how confident you feel in your ability to successfully perform each of these tasks. There are no right or wrong answers, we are simply interested in your honest responses.

Indicate your degree of confidence by entering a number from 1 to 10 based on the following scale:

How **confident** are you that you can successfully perform the task?

1	2	3	4	5	6	7	8	9	10

Not at all   Moderately   Totally
Confident   Confident   Confident

_____1. Assess how a patient is coping with hospitalization.

_____2. Assess how a patient is coping with an illness event.

_____3. Assess how a patient usually copes with a stressful life event.

_____4. Assess how family members usually cope with stressful life events

_____5. Assess how family members are coping with their relative's hospitalization.

_____6. Assess how a patient usually learns best.

_____7. Assess a patient's readiness to learn.

_____8. Assess a patient's readiness to change.

_____9. Motivate a patient to learn.

_____10. Collaborate with a patient in planning his/her nursing care.

_____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

_____12. Write a nursing care plan that includes concepts from the McGill model.

How **confident** are you that you can successfully perform the task?

1	2	3	4	5	6	7	8	9	10
Not at all						Moderately			Totally
Confident						Confident			Confident

_____13. Describe the nursing care you give, relating it to the McGill model.

_____14. Facilitate a patient's learning of new ways to cope.

_____15. Identify the strengths of a family.

_____16. Negotiate nursing care with a family.

_____17. Establish realistic goals with patients.

_____18. Establish realistic goals with family members.

_____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

_____20. Write a nursing care plan for your patients that have a specific, unusual concern.

_____21. Establish a realistic date to evaluate your nursing care plan.

_____22. Create a collaborative relationship with your patient.

_____23. Create a collaborative relationship with your patient's family.

_____24. Apply the material from the McGill Model workshop when nursing on your unit.

_____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

_____26. Ask patients how you can assist them during their hospitalization.

_____27. Improve the quality of patient care you give through your use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of your patient's family.

SECTION II

In this section a number of tasks are given below that are related to nursing by the McGill Model. Please indicate how **frequently** you currently perform each of these tasks. Please remember, there are no right or wrong answers, we are simply interested in your honest responses.

Write a number in the blank beside each statement, based on the following scale:

How **frequently** do you perform each of the following tasks in your current nursing practice?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

____1. Assess how a patient is coping with hospitalization.

____2. Assess how a patient is coping with an illness event.

____3. Assess how a patient usually copes with a stressful life event.

____4. Assess how family members usually cope with stressful life events.

____5. Assess how family members are coping with their relative's hospitalization.

____6. Assess how a patient usually learns best.

____7. Assess a patient's readiness to learn.

____8. Assess a patient's readiness to change.

____9. Motivate a patient to learn.

____10. Collaborate with a patient in planning his/her nursing care.

____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

____12. Write a nursing care plan that includes concepts from the McGill model.

_____13. Describe the nursing care you give, relating it to the McGill model.

How **frequently** do you perform each of the following tasks in your current nursing practice?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

_____14. Facilitate a patient's learning of new ways to cope.

_____15. Identify the strengths of a family.

_____16. Negotiate nursing care with a family.

_____17. Establish realistic goals with patients.

_____18. Establish realistic goals with family members.

_____19. Identify an issue regarding one of your patients that could be used to develop a nursing care plan.

_____20. Write a nursing care plan for your patients that have a specific, unusual concern.

_____21. Establish a realistic date to evaluate your nursing care plan.

_____22. Create a collaborative relationship with your patient.

_____23. Create a collaborative relationship with your patient's family.

_____24. Apply the material from the McGill Model workshop when nursing on your unit.

_____25. Share with your nursing colleagues examples of your nursing care that are based on the McGill model.

_____26. Ask patients how you can assist them during their hospitalization.

_____27. Improve the quality of patient care you give through your use of the McGill model.

___28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

___29. Draw a genogram of your patient's family.

SECTION III

The following statements indicate different feelings people might have about the workshop on the McGill Model of Nursing. Please respond to each of the following statements by selecting the scale number that best represents your feelings about the workshop. Please remember, there are no right or wrong answers, we are simply interested in your true feelings.

Write a number in the blank beside each statement, based on the following scale:

1 = **Strongly Disagree**
2 = **Disagree**
3 = **Neither Agree nor Disagree**
4 = **Agree**
5 = **Strongly Agree**

_____1. Supervisors or colleagues have told me that my nursing has improved since I have attended the McGill Model of nursing workshop.

_____2. The McGill Model of Nursing workshop has helped me to make better nursing assessments of my patients and their families.

_____3. Learning about the McGill Model of nursing has given me a better idea of what makes nursing a unique profession.

_____4. The material in this workshop has been useful to me in my job.

_____5. The knowledge and experience I gained in this workshop has made me a better nurse.

_____6. The McGill Model of Nursing workshop has helped me to write useful nursing care plans for my patients/families.

_____7. I have transferred the skills learned in the McGill Model of nursing workshop back to my actual job.

_____8. The material in this workshop has already ended up benefiting my patients.

_____9. I have changed my job behaviour in order to be consistent with the material taught in the McGill Model of nursing workshop.

____10. My actual job performance has improved due to the skills that I learned in the McGill Model of nursing workshop.

SECTION IV

Thinking back over your work experiences since attending the McGill Model of Nursing workshop, please answer the following questions using the scale below.

1 = **Very little**
2 = **Little**
3 = **Some**
4 = **Much**
5 = **Very much**

_____1. If I have had difficulty writing a nursing care plan, I have been able to obtain _____**help from my head nurse/supervisor** if I ask him/her.

_____2. I have been able to count on _____ **support from my head nurse/supervisor** in applying the McGill Model workshop content to my job.

_____3. I have been able to count on _____ **support from my colleagues** in applying the McGill Model workshop content to my job.

_____4. I have been able to count on _____**support from my organization** in applying the McGill Model workshop content to my job.

_____5. My boss has demonstrated _____ **interest** in my application of the McGill Model workshop content to my job.

_____6. My colleagues have demonstrated _____ **interest** in my application of the McGill Model workshop content to my job.

_____7. **My colleagues have pressured me** _____ to implement what I have learned in the McGill Model workshop.

_____8. **My head nurse/supervisor has pressured me** _____ to implement what I have learned in the McGill model workshop.

_____9. When I have written a nursing care plan based on the McGill Model of nursing, I have obtained _____ **positive feedback from my head nurse/supervisor.**

_____10. When I have written a nursing care plan based on the McGill Model of nursing, I have obtained _____ **positive feedback from my colleagues.**

_____11. When I have needed time to do a family assessment, I have been able to count on _____ **help from my colleagues** in covering my other patients.

SECTION V

Using the following scale, evaluate your own **performance** since attending the McGill Model of nursing workshop on each of the following aspects of the McGill Model of nursing.

1 = **Unsatisfactory**
2 = **Below Average**
3 = **Average**
4 = **Good**
5 = **Very Good**

_____1. Writing nursing care plans for my patients.

_____2. Writing individualized, not standardized, nursing care plans for my patients.

_____3. Verbalizing interest in patient's psychosocial concerns in change of shift report.

_____4. Documenting in the patient's chart psychosocial issues.

_____5. Working with my patient's family.

_____6. Using a collaborative approach, as opposed to a directive approach, with my patients and their families.

_____7. Writing nursing care plans that reflect concepts of the McGill Model of Nursing.

_____8. Identifying the learning needs of my patients.

_____9. Your overall use of the McGill Model of nursing

THANK YOUR FOR YOUR COOPERATION WITH THIS RESEARCH PROJECT

APPENDIX 4. Supervisor questionnaire at time of training

MCGILL MODEL OF NURSING WORKSHOP

A research study is looking at the evaluation of workshops. While attending the McGill Model of nursing workshop you completed several questionnaires for this research, as well as asked your head nurse/supervisor to complete a questionnaire. The questionnaires that we are now asking you to complete is a follow up on this research. We would appreciate it if you would give this questionnaire to your head nurse/supervisor, and ask them to send it to Dr. Alan Saks at Concordia University. The information contained in this questionnaire will be kept confidential.

It is very important for this questionnaire to be sent to Dr. Alan Saks, in order that we can draw any conclusion on the effects of the workshops. All questionnaires need to be received in order for this research to be done.

It is crucial that we be able to link your responses to those of your head nurse/supervisor. To that end, we ask that you remember the code number or the code name, known only to you, and write it at the bottom of this page beside "ID#". Please be sure to write down your code number/name and store it in a safe place, so that you can write it on six month follow up questionnaire.

Your individual questionnaire responses are strictly confidential. After the data has been entered onto a computer, Alice Gaudine will analyse the data, as part of her work for her doctoral studies at Concordia University. No one who works at the Lakeshore General Hospital will see your questionnaires.

We thank you for your participation. Please be assured that your participation is voluntary, and you may choose to not participate at any time.

ID#: _____

HNPRE

SECTION 1   (To be completed by head nurse/supervisor.)

In this section a number of tasks are given below which are related to nursing based on the McGill Model. Please indicate how **frequently** the employee who gave you this questionnaire performed these tasks <u>before they attended the McGill Model of Nursing workshop</u>.

Indicate how **frequently** the employee who gave you this questionnaire performed these tasks by entering a number based on the following scale:

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

_____1. Assess how a patient is coping with hospitalization.

_____2. Assess how a patient is coping with an illness event.

_____3. Assess how a patient usually copes with a stressful life event.

_____4. Assess how family members usually cope with stressful life events

_____5. Assess how family members are coping with their relative's hospitalization.

_____6. Assess how a patient usually learns best.

_____7. Assess a patient's readiness to learn.

_____8. Assess a patient's readiness to change.

_____9. Motivate a patient to learn.

_____10. Collaborate with a patient in planning his/her nursing care.

_____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

_____12. Write a nursing care plan that includes concepts from the McGill model.

How **frequently** did the employee who gave you this questionnaire perform these tasks <u>before they attended the McGill Model of Nursing Workshop</u>?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

____13. Describe the nursing he/she gives, relating it to the McGill model.

____14. Facilitate a patient's learning of new ways to cope.

____15. Identify the strengths of a family.

____16. Negotiate nursing care with a family.

____17. Establish realistic goals with patients.

____18. Establish realistic goals with family members.

____19. Identify an issue regarding one of his/her patients that could be used to develop a nursing care plan.

____20. Write a nursing care plan for his/her patients that have a specific, unusual concern.

____21. Establish a realistic date to evaluate his/her nursing care plan.

____22. Create a collaborative relationship with his/her patient.

____23. Create a collaborative relationship with his/her patient's family.

____24. Apply the material from the McGill Model workshop when nursing on his/her unit.

____25. Share with his/her nursing colleagues examples of his/her nursing care that are based on the McGill model.

____26. Ask patients how he/she can assist them during their hospitalization.

____27. Improve the quality of patient care he/she gives through his/her use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of his/her patient's family.

SECTION II   (To be completed by head nurse/supervisor.)

Using the following scale, evaluate the nurse's **performance** before he/she attended the McGill Model of Nursing workshop on each of the following aspects of the McGill Model of nursing.

Write a number in the blank beside each statement, based on the following scale:

1 = **Unsatisfactory**
2 = **Below Average**
3 = **Average**
4 = **Good**
5 = **Very Good**

_____1. Writing nursing care plans for his/her patients.

_____2. Writing individualized, not standardized, nursing care plans for his/her patients.

_____3. Verbalizing interest in patient's psychosocial concerns in change of shift report.

_____4. Documenting in the patient's chart psychosocial issues.

_____5. Working with his/her patient's family.

_____6. Using a collaborative approach, as opposed to directive, with his/her patients and their families.

_____7. Writing nursing care plans that reflect concepts of the McGill Model of Nursing.

_____8. Identifying the learning needs of his/her patients.

PLEASE CHECK THAT THE NURSE WHO GAVE YOU THIS QUESTIONNAIRE HAS WRITTEN HIS/HER CODE NUMBER ON THE COVER SHEET. IF THIS CODE NUMBER IS MISSING, PLEASE ASK THE NURSE TO WRITE IT IN. THEN, PLACE THE QUESTIONNAIRE IN THE STAMPED ENVELOPE ADDRESSED TO DR. ALAN SAKS AT CONCORDIA UNIVERSITY, AND MAIL IT.

THANK YOU FOR PARTICIPATING IN THIS STUDY.

APPENDIX 5. Supervisor questionnaire at two and six months following training

MCGILL MODEL OF NURSING WORKSHOP

A research study is looking at the evaluation of workshops. Your participation in this study involves completing several questionnaires, as well as asking your head nurse/supervisor to complete questionnaires. We would be grateful for your participation in this study. We would appreciate it if you would give this questionnaire to your head nurse/supervisor, and ask them to send it to Dr. Alan Saks at Concordia University. The information contained in this questionnaire will be kept confidential.

It is very important for this questionnaire to be sent to Dr. Alan Saks, in order that we can draw any conclusion on the effects of the workshops. All questionnaires need to be received in order for this research to be done.

It is crucial that we be able to link your responses to those of your head nurse/supervisor. To that end, we ask that you remember the code number or the code name, known only to you, and write it at the bottom of this page beside "ID#". Please be sure to write down your code number/name and store it in a safe place, so that you can write it on a follow up questionnaire in a few months time.

Your individual questionnaire responses are strictly confidential. After the data has been entered onto a computer, Alice Gaudine will analyse the data, as part of her work for her doctoral studies at Concordia University. No one who works at the Lakeshore General Hospital will see your questionnaires.

We thank you for your participation. Please be assured that your participation is voluntary, and you may choose to not participate at any time.

ID#: _____

HNFU2

SECTION 1   (To be completed by head nurse/supervisor.)

In this section a number of tasks are given below which are related to nursing based on the McGill Model. Please indicate how **frequently** the employee who gave you this questionnaire currently performs these tasks.

Indicate how **frequently** the employee who gave you this questionnaire currently performs these tasks by entering a number based on the following scale:

How **frequently** does the employee who gave you this questionnaire currently perform these tasks?

1 = Never
2 = Seldom
3 = Sometimes
4 = Often
5 = Always

____1. Assess how a patient is coping with hospitalization.

____2. Assess how a patient is coping with an illness event.

____3. Assess how a patient usually copes with a stressful life event.

____4. Assess how family members usually cope with stressful life events

____5. Assess how family members are coping with their relative's hospitalization.

____6. Assess how a patient usually learns best.

____7. Assess a patient's readiness to learn.

____8. Assess a patient's readiness to change.

____9. Motivate a patient to learn.

____10. Collaborate with a patient in planning his/her nursing care.

____11. Ask a patient what he/she would like from the nursing staff during hospitalization.

____12. Write a nursing care plan that includes concepts from the McGill model.

How frequently does the employee who gave you this questionnaire currently perform these tasks?

1 = **Never**
2 = **Seldom**
3 = **Sometimes**
4 = **Often**
5 = **Always**

_____13. Describe the nursing he/she gives, relating it to the McGill model.

_____14. Facilitate a patient's learning of new ways to cope.

_____15. Identify the strengths of a family.

_____16. Negotiate nursing care with a family.

_____17. Establish realistic goals with patients.

_____18. Establish realistic goals with family members.

_____19. Identify an issue regarding one of his/her patients that could be used to develop a nursing care plan.

_____20. Write a nursing care plan for his/her patients that have a specific, unusual concern.

_____21. Establish a realistic date to evaluate his/her nursing care plan.

_____22. Create a collaborative relationship with his/her patient.

_____23. Create a collaborative relationship with his/her patient's family.

_____24. Apply the material from the McGill Model workshop when nursing on his/her unit.

_____25. Share with his/her nursing colleagues examples of his/her nursing care that are based on the McGill model.

_____26. Ask patients how he/she can assist them during their hospitalization.

_____27. Improve the quality of patient care he/she gives through his/her use of the McGill model.

____28. Assess the health of a patient, where health is defined by coping and development as opposed to the absence of illness.

____29. Draw a genogram of his/her patient's family.

SECTION II   (To be completed by head nurse/supervisor.)

Using the following scale, evaluate the nurse's current **performance.**

Write a number in the blank beside each statement, based on the following scale:
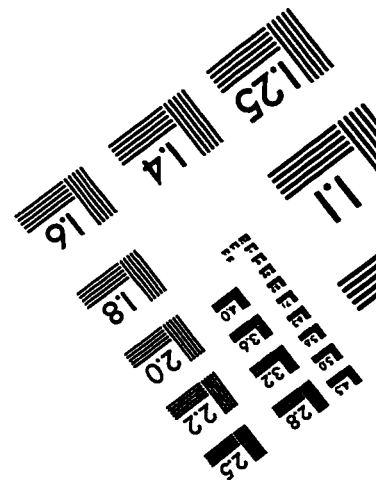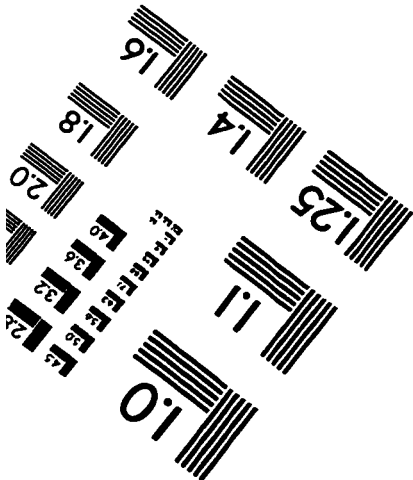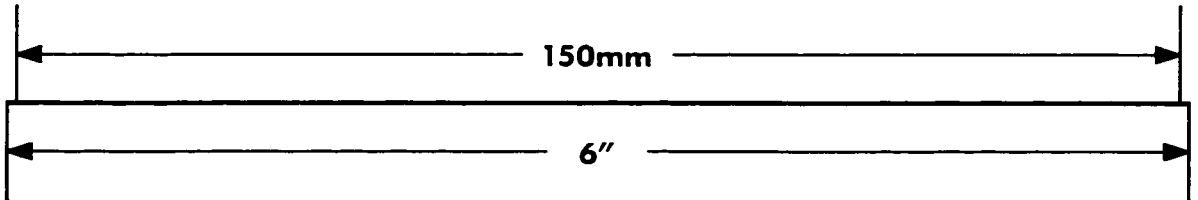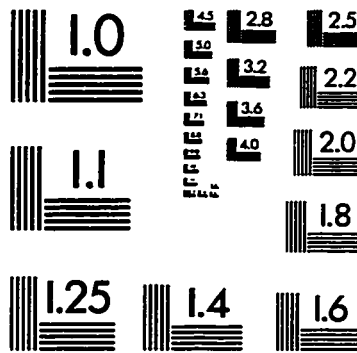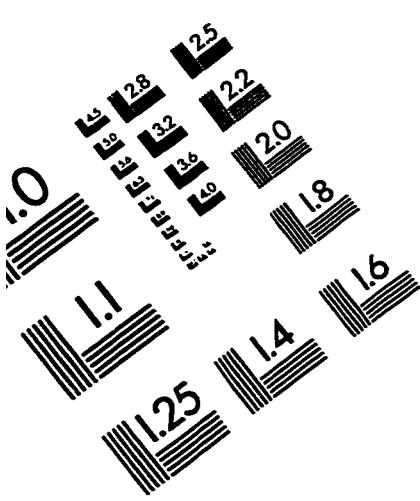
1 = **Unsatisfactory**
2 = **Below Average**
3 = **Average**
4 = **Good**
5 = **Very Good**

____1. Writing nursing care plans for his/her patients.

____2. Writing individualized, not standardized, nursing care plans for his/her patients.

____3. Verbalizing interest in patient's psychosocial concerns in change of shift report.

____4. Documenting in the patient's chart psychosocial issues.

____5. Working with his/her patient's family.

____6. Using a collaborative approach, as opposed to directive, with his/her patients and their families.

____7. Writing nursing care plans that reflect concepts of the McGill Model of Nursing.

____8. Identifying the learning needs of his/her patients.

____9. His or her overall use of the McGill Model of nursing.

PLEASE CHECK THAT THE NURSE WHO GAVE YOU THIS QUESTIONNAIRE HAS WRITTEN HIS/HER CODE NUMBER ON THE COVER SHEET. IF THIS CODE NUMBER IS MISSING, PLEASE ASK THE NURSE TO WRITE IT IN. THEN, PLACE THE QUESTIONNAIRE IN THE STAMPED ENVELOPE ADDRESSED TO DR. ALAN SAKS AT CONCORDIA UNIVERSITY, AND MAIL IT.

THANK YOU FOR PARTICIPATING IN THIS STUDY.

IMAGE EVALUATION
TEST TARGET (QA−3)

150mm

6"