FACTORS INFLUENCING THE TRANSFER OF TRAINED INTERPERSONAL MANAGERIAL SKILLS BACK INTO THE WORKPLACE

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I hereby declare that this dissertation is my own work and that I have not submitted it for the degree of Master of Arts to any other university.

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ABSTRACT

This study investigated variables which influence the transfer of training, in an organisational context. Transfer of training is defined as the application of knowledge and skills, learned in a training setting, to other non-training (i.e., work) contexts. It has been estimated that considerable amounts of money and effort are wasted due to trained skills not being transferred back to the workplace. This phenomenon is a well known issue in the field of organisational training and has generated research into the question of what variables in addition to the training itself influence the transfer of training. Three key categories of variables that are cited in the literature on transfer of training were used in the current study: (a) individual (i.e., the learner/trainee) characteristics, (b) training design, and (c) transfer situation (work environment) characteristics. These three categories were used as core elements in the conceptual design of the study.

106 managers at junior- and middle-management levels in a large financial services organisation were sampled, of whom fifty four attended a training course on interpersonal managerial skills and fifty two did not attend. The research design employed was a quasi-experimental design in a field setting, where the samples were matched prior to the pretest on managerial function details. Information on individual characteristics (cognitive ability, locus of control, self efficacy, motivation to transfer) and the managers' work environment characteristics (social factors such as senior and peer support, and task factors such as work pressures, contols and goal clarity and efficiency) was gathered from the individuals. Information on the training course was documented, according to the types of training methods employed as cited in the related literature. The highly-structured nature of the management course ensured that the treatment variables comprising trainer and training programme characteristics were effectively constant. The dependent variable, transfer, was measured from behavioural reports from the managers (trainees) and their subordinates, for both training and nontraining groups, pre- and post-training. The focus of analysis was on the mediating variables of personal and work

environment characteristics, to investigate the strengths of their influences on the transfer of training.

The data were analysed by tests of significance for pretest and posttest differences within each group, and for posttest differences between the two groups. The correlations between self ratings and subordinate ratings were tested for significance, to assess the levels of convergence in the ratings. Overall correlation analyses were conducted to determine the extent of relationships between the mediator variables and the transfer measures. Stepwise regression analyses were also computed for the same variables. A final correlation was calculated to evaluate whether there were relationships between pretraining behaviours and the transfer scores.

The hypotheses relating to individual and work environment characteristics were supported only at low levels. Locus of control was significantly related to transfer of training, and the other hypotheses relating to the individual characteristics of cognitive ability, self efficacy and motivation to transfer were not supported. Of the work environment characteristics senior and peer support were significantly related, and the task factors of control (i.e., a work environment characterised by adherence to rules and policies) and physical comfort were significantly related. Hypotheses relating to other task factors in the work environment (autonomy, work pressure, clarity of goals and expectations, job involvement, levels of innovation and task orientation) were not supported. Convergence between self and subordinate ratings was low, and significant correlations were consistently found between pretest behaviours and transfer scores. The former finding suggests either that the criterion measurement instruments were psychometrically unsound or that manager-subordinate perceptions were actually incongruent; the latter finding suggests that for the present study pretraining behaviours (i.e., habits) were the most prominent influences on posttraining transfer.

Limitations in the present study may have rendered the research vulnerable to alternative explanations for the results observed. These include the inherent weaknesses in a quasi-experimental design, unsound measuring instruments, sample size, an inappropriate time period between training and the posttest,

inadequacies in the training programme, and unaccounted-for differences in the learners, such as learning style preferences.

It is recommended that future research adopts a more methodologically rigorous approach by utilising randomisation practices in particular, and by ensuring that measurement instruments are psychometrically sound. It is important to procure as large a sample size as possible and the use of an interrupted time-series design may be appropriate for the study of complex interpersonal skills and may contribute knowledge regarding the time that is needed to evidence behaviour changes. The quality of the training itself should be formally checked and the effects of learner characteristics should be studied. Finally, it may be that different types of skills being studied in transfer of training research may be differentially affected by various mediating variables and the study of such influences may yield useful information in the field of transfer of training.

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CHAPTER ONE: INTRODUCTION

The effective transfer of learning is crucial to the success of a variety of endeavours. In a therapeutic context, for example, it is the cornerstone of successful therapy: can patients or clients apply what they have learnt in the consulting room back to their everyday lives? In an organisational context there are a number of transfer situations which occur regularly. Trainees on a course, for example, need to transfer their learnings back to the job; senior management in strategic planning sessions need to transfer their learnings and decisions back to their particular areas.

It is important at this stage to clarify the concept of transfer as it is being used in this study. In more traditional cognitive psychology, there are two major applications. The first refers to a situation where a person may find a new task easier as a result of prior experience which is related to it. This effect, referred to as skill transfer, suggests that specific skills or abilities learned in one task can be employed in the performance of another task. An example of research in this area is a study that compares subjects with previous related expertise (e.g., sports skills) against subjects with no previous expertise, on performance on a newer task (e.g., a manual dexterity task), to see if subjects with expertise are able to transfer already-gained skills into the newer task (e.g., Lintern, 1991; Del Rey, Wughalter & Carnes, 1987).

The second application in the cognitive transfer paradigm most often takes place in laboratory settings, where a person is trained on a task and then is measured on performance on a similar (criterion) task. A typical transfer research design comprises three phases: acquisition (a person is trained on a task); retention (the person may be given another non-related task, for example, complete a jigsaw puzzle, and then performs the trained task again - this may be done several times); and transfer (the person is then asked to perform a related task but with some differences, e.g., sequencing is changed, or problem elements are changed). The focus of this type of design is predominantly on

specific testing of different training procedures and/or studying details of human cognition in learning such as memory, perception, problem-solving strategies, information-processing, and so forth. Examples of this type of study are those by Allen, Hays and Buffardi (1986) and Edwards and Lee (1985) - literally thousands of these types of studies exist.

In the context of the present study which examines the training of managerial skills in an organisation, transfer of training is defined as the degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job (the application setting) (Baldwin and Ford, 1988).

If it does not happen - if trainees return to work formally accredited as being able to perform skills the way they have been taught, but instead they revert to pre-training behaviours or exhibit different behaviours - then the training has not transferred. Hereafter, transfer of training refers to this paradigm of transfer, and the first type mentioned will be referred to as cognitive transfer. There are, however, many concepts of these two types of paradigms that are shared, and references will be made interchangeably as appropriate.

The amount of transfer that occurs in organisations is considerably low. Estimates of the extent of transferred training and development range from 10% (Georgensen, 1982) to 20% (Brinkerhoff & Montesino, 1995); companies can spend R50m annually (Tracey & Lewis, 1995) on training, and thus money lost on low levels of transfer is significant. It has become apparent that more effective and efficient learning interventions will do little, if anything, to reverse the trend toward lack of transfer. There has been a growing amount of research to try to move beyond the question of whether training works toward a better understanding of *why* training works.

What, then, are the salient factors that determine successful transfer? It would be of use to training and development practitioners to know about the conditions which would optimise successful transfer, as well as those in an organisation who invest money in training. Importantly, it would also be of benefit to the learners themselves. This study explores those conditions: the focus is on the

transfer of training in an organisation, and the skills being trained are interpersonal managerial skills. Using the above definition, the 'training context' is a training course, and the 'application setting' is the individual's job - particularly as it relates to his/her managerial function.

Various frameworks have been proposed to conceptualise the factors involved in transfer (McCormick & Ilgen, 1980; Huczynski & Lewis, 1980; Brooks & Dansereau, 1987; Baldwin & Ford, 1988; Tannenbaum & Yukl, 1992; Berardinelli, Burrow & Jones, 1995), and there is consistent consensus that there are three categories of factors involved which significantly influence transfer: (1) learner/trainee characteristics, (2) training design, and (3) work environment characteristics.

This study accordingly uses these categories, both conceptually and methodologically, and a more comprehensive review of the relevant variables follows in the next chapter.

In the present chapter, the rationale for the research has been outlined briefly. Chapter two reviews the literature on transfer of training, identifying various conceptual and methodological approaches, the variables that have been studied, and the research issues in this field. Chapter three outlines the method of the current study, describing the sample, the measures and instruments chosen, and the study procedures. Chapter four presents the analysis of the data and a summary of the results obtained. Chapter five contains a discussion of the results and concluding comments.

CHAPTER TWO: TRANSFER OF TRAINING

This section reviews the literature on transfer of training, covering particular variables that have been studied and various approaches that have been adopted. The chapter concludes with a discussion on the main issues of criterion measurement in transfer of training research.

Transfer of Training and Evaluation of Training

Transfer of training falls under the general heading of training evaluation. Kirkpatrick (1975) provided a framework of training evaluation which incorporates four levels of assessment, namely, reaction, learning, behaviour and results evaluations. Reaction evaluation concerns how interesting, relevant and clear the trainees found the training. Learning evaluation relates to the facts, principles, techniques and skills that the trainees learned or memorised in the training. Behaviour evaluation assesses behaviour changes in the work place following training, and results evaluation attempts to measure training success in terms of the achievement of organisational goals such as improved productivity, or reduced absenteeism or labour turnover.

To assess trainees' reaction and learning, questionnaires and paper-and-pencil tests are typically used. Behaviour evaluation is generally more difficult to accomplish than either reaction or learning evaluation, and effective results evaluation is highly problematic, due to the number of extraneous variables and influences that can affect results or outcomes of behaviour. Birkenbach, Kamfer and ter Morshuizen (1985) illustrated this difficulty in their study which attempted to assess the effect of behaviour modelling training on such phenomena as absenteeism, disciplinary actions and grievances. They reported nonsignificant findings and suggested that uncontrollable extraneous factors might well have confounded and suppressed their results.

Transfer of training is focused at the level of behaviour evaluation, according to Kirkpatrick's (1975) model. To achieve effective behaviour evaluation, certain research design criteria should be employed (Babbie, 1986; Baldwin & Ford, 1988; Kirkpatrick, 1975). A classical research design should be used, incorporating experimental and control groups with pre- and post-behavioural measures, and data should be elicited from multiple sources such as the trainees, their peers, subordinates and superiors. A review of the extent to which transfer research has met these criteria will be presented in due course in this chapter.

Alliger and Janak (1989) reviewed Kirkpatrick's (1975) model and tested three assumptions of the framework, namely: (a) the levels are arranged in ascending order of information provided, for example, a measure of learning provides more information than does a measure of reaction, and so forth; (b) the levels are causally linked, for example, training leads to reactions which lead to learning which causes behaviour changes which lead to organisational changes; and (c) the levels are positively intercorrelated, that is, if each level is causally linked to the previous level then positive correlations among measures should exist.

From their review of studies that had focused to varying degrees among the four levels of training evaluation of Kirkpatrick's model, Alliger and Janak (1989) logically questioned these assumptions and demonstrated that researchers would do well not to take them for granted. Regarding the first assumption, for example, they argued that it can lead to a perception of level four, results, as being the 'best' measure because it is the highest in the hierarchy. However, financial gains may not be an appropriate measure for training that is for example aimed primarily at instilling company pride.

Assumptions two and three are linked and the authors reviewed the literature for reported correlations among criteria. They reported that the data are equivocal in that firstly any of the correlations were very small, secondly not all the correlations were in the same direction, and thirdly the sparsity of reported inter-level correlations that they found in the literature seemed to signify that the hierarchical model was simply assumed to be correct.

Thus these authors conclude that Kirkpatrick's (1975) model has done well as a 'first, global heuristic for training evaluation' (Allliger & Janak, 1989, p. 339), but that more rigorous scrutiny raises questions about certain assumptions that the model makes. The questions being asked in the present study (and that have been studied in transfer research) are directly linked to the issues that Alliger and Janak highlighted. In particular, the focus is on the links between the stages of training and level three (behaviour changes): the training is the independent variable, the level three behaviours constitute the dependent variable, and the measures of interest in the current study are the variables that mediate in between the levels.

It is these mediating variables that have received interest in studies on transfer, and as indicated in the introductory chapter, three categories of variables linked to transfer of training have been identified, with considerable consensus. These are:

1. Trainee Characteristics
2. Training Design
3. Work Environment Characteristics

These will be discussed in more detail, but before embarking on their specific applications in the field of transfer of training, it will be useful to place these in the context of theories of human motivation. The reason for this is that the current study is asking questions about the determinants of a particular human behaviour, transfer, and it would be appropriate to be aware of the vast body of work that has preceded it in the general quest to investigate what determines human behaviour. For the purpose of the current review only some of the major trends will be outlined, but there are authors who have contributed whole volumes to describing and synthesising the mulitiplicity of theories devoted to explaining human behaviour (e.g., Weiner, 1992; Ford, 1992).

Psychoanalytic theory as developed by Freud (e.g., Freud, 1901/1954) identified as determinants internal unconscious instincts and drives, which related to id-

controlled lower-order phenomena such as sex, aggression, and arousal reduction, and higher-order ego- and superego-linked motives associated with competence and morality. These motivational forces were essentially nonvolitional and were seen as interacting in intense and complex ways to cause behaviour to manifest as it was observed by others.

Like Freud, Hull (1951) based his drive theory on such premises as tension reduction (to maintain internal equilibrium), and the principle of hedonism where behaviour is guided by pleasure (i.e., specifically when tension is successfully reduced). His data were based on strict empirical studies, primarily consisting of rats in mazes, where the majority of his concepts were defined in operational terms. Unlike Freud, Hull opposed the view that mental processes determined actions.

Need theories represented an attempt to compile a list or taxonomy of instincts which included both physiological needs and higher-order 'growth' needs. One of the significant departure points from the purely drive approach to human motivation was that even higher-order needs were considered as 'basic'. For example, in Murray's (1938) taxonomy, need for achievement is considered a basic human condition. Maslow's (1970) contribution to need theory added the dimension of hierarchy, which was the idea that lower-order needs (such as physiological and safety needs) have to be satisfied or addressed before higher-order needs (such as self-actualisation) can be met.

Lewin's (1935) field theory also emphasised needs, but with the added focus on the interaction between individuals and their environments. Tension, which results from a need state, is a phenomenon which exists only when an environmental object is imbued with a valence by the individual. When an individual attains that goal object the tension is released and the valence of the environmental object is in turn reduced. This type of motivating tension differs from that stressed by drive theories because it is generated by the perceived, rather than the real, world.

Linked to the work by Murray (1938) on needs, Atkinson (1964) developed a theory of achievement motivation where he attempted to identify the determinants of behaviour and then to express these components in mathematical relations. His equation for the tendency of a person to approach an achievement-related goal was the product of (a) the need for achievement, or motive for success; (b) the probability that a person will be successful at the task; and (c) the incentive value of success. The person was viewed as making a rational choice that maximises personal hedonism.

Herzberg (1966) developed his work-related two-factor theory which distinguished between 'hygiene factors' (e.g., job elements such as pay and job security) and 'motivator factors' (e.g., job elements such as autonomy and creativity). The locus of these factors was situated primarily in the environment, rather than within the individual, thus focusing on environmental determinants of motivation (in particular, on job satisfaction/dissatisfaction) in the workplace.

The social learning theory of Rotter (1954) was concerned with the way that individuals accumulate learning experiences in social situations and aggregate these into general belief systems that then determine their behaviour. A key concept in the theory is expectancy - the individuals' beliefs about what response they will receive if they exhibit a certain behaviour. Individuals' behaviour will also be influenced by their relative preference for the response (reinforcement) that they are contemplating - what Rotter referred to as reinforcement value.

The notion of expectancy was central to the development of the concept of locus of control (Rotter, 1966). As a function of learning, individuals generalise reinforcement expectancies from specific situations to more general social settings, so that their beliefs about expected reinforcements in one situation generalise to other similar contexts. This is referred to as generalised expectancy. Individuals build up a belief system, based on learning experiences, about the extent to which they expect their behaviours to influence events: the locus of control, or perceived cause of a reinforcement, either stems from within the individual or from other uncontrollable external factors.

A related approach to conceptualising the determinants of human behaviour is expectancy-value theory (e.g., McClelland, 1965, 1985). It is fair to say that facets of this approach are echoed in the theories presented above. Essentially the focus is that an individual's behaviour is a combination of the perceived liklihood of attaining a goal (expecancy) and the subjective value of that goal.

Another concept which has received attention is the notion that behaviour is also influenced by beliefs in one's own personal competence, or personal agency. Bandura's (1982, 1986) self efficacy concept represents probably the most decisive process in his larger social cognitive theory. Context expectancies and emotional states are recognised as components in motivational patterns, but his focus is more on the role of self efficacy, one's beliefs about one's capability for effective action. A goal may be perceived as important and valued but the chances of attaining it will be significantly reduced if one does not believe that one is capable of acting to achieve it.

The foregoing review is a gross simplification both of the range of theories about determinants of human behaviour and of the actual theories themselves that have been mentioned. The purpose of such a broad-brush approach is not meant to minimise the importance of many decades of valuable work. It is meant rather, in the context of investigating the transfer of training, to (a) highlight the complex, mulifaceted approaches that could be adopted for studying the determinants of behaviour - in this case transfer behaviour, and (b) facilitate conceptual insights about the determinants that have been identified and studied in the transfer literature.

Let us briefly preview the most frequently-cited types of determinants identified and utilised in the field of transfer. Under the heading of individual characteristics there are motivation (both to learn and to transfer), cognitive ability, self efficacy and locus of control, and under the category of work environment characteristics there are social factors (support from seniors, peers, and subordinates) and task factors (work pressure, and opportunity to use new

skills). The focus on these variables seems to parallel some of the theoretical trends summarised above.

A final presentation of another theory of human motivation will serve as a useful conceptual bridge between general theories of behavioural determinants and the empirical directions that have been taken in research on transfer of training. This is the motivational systems theory (MST) proposed by Ford (1992), which is an attempt to provide a theoretical umbrella to accommodate the kinds of apparently disparate theories cited above. MST is in turn a derivative of a systems theory approach aimed at integrating theories and practices in the fields of personality and psychotherapy, called the living systems framework (LSF) (Ford, 1987). In essence, the LSF adopts a multilevel, multisystem approach to understanding human behaviour: it incorporates subsystems at 'subunit' levels (e.g., goals, emotions, actions) and molar systems at the level of the whole person-in-context. Human behaviour is referred to as 'behaviour episodes' which represent coherent sequences of a person functioning in a context - a 'context-specific, goal-directed pattern of behaviour' (Ford, 1992, p. 23).

Transfer could certainly be described as a behaviour episode, and in LSF terms competency or achievement (i.e., successful transfer) depends on 'a motivated, skillful, and biologically capable person interacting with a responsive environment' (ibid., p. 70). The theory's aim of integration is apparent and the links to the identified variables in transfer of training are clear.

It is apparent even from the limited overview above of motivation theories that motivation is multifaceted and that these facets are often interdependent. Thus, in proposing an integrative theory Ford argues against either a limiting unidimensional approach or an ambiguous broad concept of motivation. Accordingly, he defines motivation as 'the organised patterning of an individual's personal goals, emotions and personal agency beliefs' (p. 78). He describes these three components as follows.

Personal goals are thoughts about desired (or undesired) states or outcomes that one would like to achieve (or avoid). Goals define the content and direction of motivational patterns, and the human condition is generally characterised by goal multiplicity so that humans are constantly making decisions about goal priorities and are having to adjust their goal-attainment efforts accordingly.

Personal agency beliefs are evaluative thoughts comparing a desired consequence with an anticipated consequence. Capability beliefs are evaluations of whether one has the personal skills needed to achieve a goal, and context beliefs are evaluations of whether one's environment is sufficiently responsive to support the achievement of the goal.

Emotions are described as organised functional patterns consisting of an affective (neural-psychological component - the general subjective feeling part), a physiological component (e.g., a smile, tensing of muscles), and a transactional component (e.g., a person speaks angrily to someone, or persists in their behaviours to attain a goal).

Recurring themes are identified in MST that can be used as criteria for distinguishing motivational from nonmotivational processes. Motivational processes are: (a) qualities of the person rather than properties of the context; (b) future-oriented rather than being focused on the past or present; and (c) they are evaluative rather than instrumental - for example, a person may want to accomplish a task but their motivation will not directly cause that task to happen because that outcome relies on the biological, skill and environmental components of the person-in-context system.

Conceptually, then, investigations into the determinants of the behaviour episodes called transfer of training are congruent with many kinds of general theories about human behaviour. The categories of determining variables (in particular the individual and work environment characteristics) described previously that relate to transfer are clearly aligned with Ford's integrative framework. Goals, needs, expectancies, reinforcement values, perceived control, personal agency beliefs, self efficacy, skills, environmental motivator

factors and environmental responsiveness are the predominant determinants that have been studied to try to answer the question: What determines whether or not training is transferred into the application context?

The excellent review by Baldwin and Ford suggests that the application of trained skills into the work environment does not depend solely on the reasonable or even superior quality of the training itself. There are other extraneous variables that appear to mediate between the learning achieved on a training course and the usage of those trained skills back on the job. It is these mediating variables that have been particularly studied in the last fifteen years, in addition to the ongoing work that investigates optimal training designs. Moving now from the general to the specific, the transfer-specific variables that have been studied will be discussed.

Trainee Characteristics

These refer to the personal characteristics or attributes of trainees, and include motivation (both to learn and transfer skills), cognitive ability, locus of control, and self-efficacy.

Motivation

Tannenbaum, Mathieu, Salas and Cannon-Bowers (1991) found a positive relationship between training fulfilment (needs perceived to have been met) and motivation to learn and transfer, while Tziner, Haccoun and Kadish (1991), in focusing on a relapse-prevention strategy in training design, found no significant effects of motivation on transfer. Clark, Dobbins and Ladd (1993) found that positive perceptions both of the utility of the training and of supervisor support positively influenced trainees' motivation to transfer. Noe and Schmitt (1986) did not include a measure of motivation in their study but particularly noted that it was very likely that motivation would have appeared as a variable affecting transfer.

Tesluk, Farr, Mathieu and Vance (1995) reported that one of their attitudinal measures, belief in improvability in the application setting, was related to generalisation of the learned skill; they suggested that belief is linked to motivation and recommended that motivation to transfer should be included in future research on generalisation.

At this point it is relevant to note their study focused on an organisational version of the traditional cognitive transfer paradigm. These authors were interested in whether training in a particular set of skills for an organisation-wide programme of employee involvement (EI) processes would 'spill over' into trainees' core job activities. The EI processes (e.g., quality circles, task forces) often provided training in participative decision making, problem solving, team skills and quality control. The authors made the particular distinction that they were interested in whether individuals used skills from training settings in application settings other than those for which they were originally intended: this application of learned skills they referred to as *generalisation*, rather than transfer. Their study is nevertheless cited here because there are similarities in the phenomena of both transfer and generalisation of training

Baldwin, Magjuka and Loher (1991) reported a significant effect on motivation to learn when trainees were given a choice in deciding which training to choose. Facteau, Dobbins, Russell, Ladd and Kudisch (1995) placed particular emphasis on pretraining motivation and found that subjects reported positive influences on perceived transfer of training.

Den Ouden (1995) found empirical support for a model of transfer of training based on the relationship between behavioural intentions and posttraining behaviours. Although the term 'motivation' is not specifically used in that study, it seems reasonable to conceive of a link between intention to utilise learned behaviours and motivation to transfer, because of the interdependence and interchangeability of these concepts that were highlighted in the general review earlier in this chapter. In this context intention stresses more cognitively-based behavioural determinants (the authors derived their model from a theory of

reasoned action). Interestingly, the study also suggests that old habits are stronger predictors of new behaviour usage than is intention to use new behaviours.

Axtell, Maitlis and Yearta (1997) reported motivation to transfer as having significant influences both in immediate transfer (one month post training) and longer-term transfer (one year post training). Thus, from empirical studies it appears that motivation is a factor that does play a significant part in transfer.

Cognitive Ability

Kanfer and Ackerman (1989) reported that cognitive ability significantly affected levels of skill acquisition and suggested that this in turn positively influenced self-efficacy. Baldwin et al. (1991) also found a strongly significant relationship between cognitive ability and learning outcome. Allen et al. (1986) found that higher-ability subjects coped better with abstract learning and instructional style, and in the transfer task these subjects thought more carefully about applying their learnings and made fewer errors.

Tannenbaum et al. (1991) observed an unexpected trend that lower-ability subjects tended to score higher on posttraining motivation levels. They do not discuss this finding or offer any explanations, but perhaps a factor involved is that lower-ability trainees perceived relatively greater gains than the higher-ability trainees from the training they received. Ford, Quinones, Sego and Sorra (1992) found that cognitive ability related significantly to higher levels of activity and exploratory behaviours by the trainees in their application settings.

Of these studies cited, only one refers to a relationship between cognitive ability and transfer as it relates to the transfer paradigm of the present study. This seems to reflect the trend in the literature, where cognitive ability influences on transfer are measured predominantly as per the cognitive transfer designs (i.e., the interest is in the effects on learning outcomes).

The majority of current literature on transfer does not include a cognitive ability measure but focuses rather on attitudinal measures of individual characteristics. This is surprising, since all theoretical frameworks of transfer factors (as cited above) include intellectual ability as one of the relevant variables of individual characteristics linked to transfer. Certainly, the present study includes a measure of cognitive ability.

In the context of the training of complex interpersonal skills, cognitive ability seems to warrant further investigation. If we consider the Gist, Bavetta and Stevens (1990) study which focused on the effects of training design (in particular, self-management and goal-setting techniques), the skills taught were negotiation skills. Course content was adopted from negotiation philosophies and assertiveness techniques, so that both principles and techniques of various levels of complexity were covered. Initial training simulations consisted of salary negotiations, and subsequent criterion simulations (i.e., the transfer task) comprised contract negotiations, a substantively different scenario. The authors point out that performance on these complex tasks may 'evoke trait-oriented cognitive abilities (e.g., IQ, etc.) to integrate and synthesize the training material in a manner that facilitates its application in a novel context' (p. 506).

While these authors emphasised a behavioural perspective (i.e., cognitive ability is 'evoked' by trainees 'orchestrating the generalisation' - ibid.), investigators such as Gick and Holyoak (1987) contend that such an 'orchestration' (transfer) will only occur if an individual recognises analagous problems and features in the application setting. They assert that transfer is inextricably linked to memory, learning, categorisation, reasoning, and problem solving. Gist et al.'s (1990) trainees would have still had to transfer the negotiation skills to real-life settings by recognising the application possibility of the general principles that they had learned and then adapting them to a novel context.

This cognitive ability appears strikingly similar to a form of thinking that Carpenter, Just and Shell (1990) refer to as 'analytic intelligence', which 'refers to the ability to deal with novelty, to adapt one's thinking to a new cognitive problem' (p. 404). What Gick and Holyoak (1987) refer to in transfer theory as

'perceived similarity, which is influenced by context, [and which] will determine whether transfer between two situations is attempted' (p. 18), is paralleled by Carpenter et al.'s (1990) analysis of the characteristics of the Raven's (1977) Progressive Matrices test (RPM) which is a nonverbal test of analytic intelligence.

They identified 'processing characteristics common to all subjects [as] an incremental, reiterative strategy for encoding and inducing the regularities in each problem' and 'processes that distinguish among individuals [as] primarily the ability to induce abstract relations and the ability to dynamically manage a large set of problem-solving goals in working memory' (p. 404). These abilities appear particularly relevant to a consideration of the cognitive bases involved in the transfer of complex interpersonal skills.

In summary, it seems that the field of investigation in transfer could benefit by incorporating useful knowledge concerning the cognitive basis of transfer, which is where the concept originated.

Locus of Control

Locus of control is a concept that was introduced by Rotter (1966), and is based on social learning theory. He defined locus of control as follows:

> When a reinforcement is perceived by the subject as...not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labelled this a belief in *external control*. If the person perceives that the event is contingent upon his own behaviour or his own relatively permanent characteristics, we have termed this a belief in *internal control* (p. 1).

Thus people attribute the cause or control of events either to themselves or to the external environment, and the former are usually referred to as *internals* and the latter as *externals*. The most widely-used instrument to measure locus of control is Rotter's (1966) Internal-External (I-E) scale, which consists of 23 locus of control and six filler items in a forced-choice format. This scale was developed to measure generalised expectancy, but many domain-specific versions have been developed to measure more specific expectancy (e.g., health, different age groups, work locus of control); Furnham and Steele (1993) provide a comprehensive review of these varied versions.

Spector (1982) reviewed some of the locus of control characteristics reported in the literature which included observations such as: internals attribute the obtaining of their jobs to their own actions; internals may seek situations in which control is possible; internals prefer tasks (and games) requiring skill and externals are more likely to choose tasks relying on luck; internals seek new information more actively when that information has personal relevance; internals seek less conformity than externals; because of their generalised expectancies of environmental control, internals should be easier to motivate; and internals exhibit better learning.

In general, the picture is that internals are more goal-oriented, driven, and action-oriented in their behaviours than externals. Internals tend to be be more task-oriented and externals more social-oriented; there is evidence that internals tend to use personal persuasion in their leadership style whereas externals tend to use coercion. As subordinates, internals seem to prefer participative-style managers and externals seem to prefer managers who are directive. Because externals appear to be more compliant than internals, it is suggested that they would tend to be followers in a work environment, rather than leaders.

Features of internality seem to be more desirable, but Furnham and Steele (1993) warn against assuming that only positive attributes are to be associated with internality. They point out that because internals are more likely to take responsibility for the consequences of their actions, they are more likely to experience a decline in self-esteem when faced with failure. They may also

respond less well to uncontrollable events than externals. With their high levels of responsibility and the belief that people's difficulties are brought on by themselves, they will be less likely to help others in need of assistance. Spector (1982) also noted that internals exhibit less attitude change when faced with persuasive attempts; they may not only be resistant to change but may demonstrate psychological reactance - they may shift their attitudes in an opposite direction to the influence attempt.

The relevance of locus of control for transfer relates to an individual's determination to follow through and implement newly-learnt skills. Internals will want to use such skills to exert greater control and organisation in their environments, particularly if they perceive that the skills will help them to do so. However, because internals are sensitive to reinforcement contingencies (in line with expectancy theory), they will be likely to experience high levels of frustration in their attempts to transfer training into application settings such as work environments which are constrictive, low on innovation and resistant to change. If, as Spector (1982) notes, internals are more likely to emerge naturally as group leaders, then it is likely that the distribution of locus of control measures will be skewed toward internality on a voluntarily-attended management skills course. It seems clear from the theory of expectancy and from research results (e.g., Tziner et al., 1991) that locus of control needs to be considered in conjunction with characteristics of an individual's environment.

Locus of control also seems to be related to interaction styles. Lefcourt and Davidson-Katz (1991) noted that internals are more likely to use problem-solving coping methods and externals are more likely to use emotion-directed coping devices (e.g., withdrawal, hostility). They also reported that internals have been found to show a higher tendency to be aware of and sensitive to other people in social interactions, and to exhibit more active listening and responsiveness than externals. This information seems to support the inclusion of locus of control as a variable in the present study, because the training course in question deals specifically with interaction skills in management.

Tziner et al. (1991) found no main effects for locus of control on transfer, but recorded an interaction of locus of control, manager support and a relapse-prevention strategy in their training design. Allen et al. (1986) found no significant influences of locus of control in their cognitive transfer study. Noe and Schmitt (1986) reported a significant relationship between locus of control and exploratory behaviours of trainees in their transfer applications, and Den Ouden (1995) found that locus of control as a mediator variable had a small but significant effect on transfer. It needs to be clarified here that the studies reporting locus of control effects refer to individuals who are identified as internals. Use of this variable also seems to have waned in more recent transfer research, but there still seems to be a case for including it: the literature does indicate that self-initiated, exploratory behaviour positively influences transfer, and this kind of behaviour has been linked to individuals who show high internality (Furnham and Steele, 1993).

Self Efficacy

Self efficacy is a key concept in social cognitive theory, and it refers to the belief in one's capability to perform a specific task (Bandura, 1982). In a wide-ranging and insightful review of self efficacy, Maddux (1991) places the construct and theory of self efficacy in the larger context of various theories concerned with mastery, efficacy and personal competence. He describes models such as: effectance motivation (the motivation to master the environment which leads to a feeling of efficacy); achievement motivation (the desire to strive for achievement and success); level of aspiration (what people would *like* to achieve); expectancy value (the value placed on and the expectations for obtaining rewards); locus of control (belief about the extent to which one's own behaviour impacts on the environment); self-concept and self-esteem (the sense of one's total attributes and one's assessment of one's worth or value as a person, respectively); and mastery orientation (beliefs about the changeability and controllability of both personal attributes and environmental characteristics).

He proposes a conceptual framework aimed at clarifying essential similarities and differences among this variety of apparently divergent models, which details

five basic concepts: (a) motives - inherent, biologically-based needs; (b) esteem - emotional (rather than cognitive) states resulting from personal effectiveness; (c) outcome value - the importance attached to specific goals or outcomes; (d) outcome expectancies - perceived probabilities concerning behaviour-outcome contingencies; and (e) self-efficacy expectancies - perceived probabilities concerning effective execution of a behaviour or an action.

He explains that most models utilise more than one but not all five of the above concepts, which characterises the emphases that a particular model adopts. The inclusion of Maddux's analysis is considered to go beyond academic interest, as far as the present study is concerned. His framework may be useful for highlighting the focuses of three of the personal characteristics included in this study, motivation, self efficacy and locus of control.

Motivation would be concerned mostly with motives and to some extent with outcome values - the extent to which trainees want or need to transfer skills - and relates mainly to affective aspects of personal characteristics in transfer. Self efficacy primarily emphasises self-efficacy expectancy, but may also be linked to outcome expectancy and outcome value - to influence behaviour (posttraining application of learnt skills), trainees need to believe in their skills, to believe that their use of skills will produce results, and (although it may not have to be a necessary condition) need to regard these results as important. Self efficacy relates to the more cognitive aspects of transfer. Locus of control mainly focuses on outcome expectancies - whether trainees believe that successful usage of their newly learnt skills depends on their own actions or the nature of their work environment (colleagues, culture, rules, etc.). His framework bears a strong resemblance to Ford's (1992) motivational systems theory.

Evidence suggests that high self efficacy is related to better task performance (Gist, 1987; Barling & Beattie, 1983; Harrison, Rainer, Hochwater & Thomson, 1997), and is also related to the likelihood that people will use new technology (Hill, Smith & Mann, 1987) and to their openness to experiment (Jones, 1986). For transfer, this suggests that posttraining self efficacy is likely to have positive

effects on the transfer of training. Investigators use self efficacy measures that are task-specific to their particular study.

Tannenbaum et al. (1991) found that self efficacy influenced posttraining attitudes; links can be made to the work done by Brockner (1979) on self-esteem, where improvements in self-esteem seem to be directly related to self efficacy. Latham and Frayne (1989) documented how positive self efficacy affects a general attitude to work, and Ford et al. (1992) reported a significant relationship to transfer, so much so that it seemed to counteract negative supervisory attitudes. Self efficacy is domain-specific - for example, Tannenbaum et al. (1991) used scales measuring academic self efficacy and physical self efficacy, as these related directly to their outcome measures.

In summary, self efficacy appears to feature as a contributing factor in transfer of training, and further study of its impacts seems worthwhile.

Training Design

Four major learning principles in training design which are hypothesised to maximise transfer are summarised by Baldwin and Ford (1988) and Gist, Schwoerer and Rosen (1989) as: (a) identical elements, (b) teaching general principles or rules underlying training content, (c) stimulus variety, and (d) conditions of practice.

There is general consensus in transfer literature that these principles are central to training design. Although none of the literature specifically uses and tests this framework of training design as a whole, there are training methods utilised which link to aspects of the four basic principles.

Identical Elements

Adams (1987) reports that this concept is in fact the origin of transfer studies which began more than a century ago in the field of human motor skills. It refers to the use of identical stimulus-response elements in both training and transfer environments, and the principle is also referred to as 'similarity' (Gick & Holyoak, 1987). Gist et al. (1991), recorded that the design of the training programme that they investigated incorporated this principle, but the focus of their study was not on specifically examining the impact of this on transfer. In a cognitive transfer design, Allen et al. (1986) explored physical similarity (the extent to which the research equipment physically resembled application-setting equipment) and functional similarity (the extent to which the research equipment operated like its real counterpart), and found that similarity did positively influence transfer.

There are studies (e.g., Wexley & Baldwin, 1986; Gist et al., 1989; Gist et al., 1990) which have incorporated a specific training-for-transfer element into the training design. Because an aspect of this type of training involved group discussion about similarities between training and work settings, such designs may be said to be utilising the principle of identical elements to some extent. However, the studies were not investigating the effects of the group discussion itself, but were interested in other techniques of this transfer training. More about this will be discussed below.

Teaching General Principles or Rules Underlying Training Content

Gist et al. (1990) noted that their training design also followed this principle, but it was not a focus of their study. Gist et al. (1989) compared a general principle-based method with a lecture-only format and found the former to be superior to the latter in affecting their learning outcome measure - which was not transfer but levels of self efficacy. Thus, studies have not particularly focused on this element as it relates to transfer.

Once again, a link may be made to transfer-for-training methods, where there is an emphasis on attempting to teach general principles related to transfer (Tziner et al., 1991; Wexley & Baldwin, 1986; Gist et al., 1990). The link is indirect, in that these methods are separate from and in addition to the content of the training programmes.

Stimulus Variety

This refers to the presenting of a variety of relevant training stimuli. Gist et al. (1990) referred to the stimulus variety of their training programme (lecture, group discussion, live modelling), but again this was not specifically their focus. Gist et al. (1991) found that behaviour modelling was more effective than a tutorial format for their learning outcome of self efficacy - thus this was not investigated for effects on transfer.

Del Rey et al. (1987), in their cognitive transfer study, found that variable and random practices produced better effects on transfer than blocked trials. For variable conditions, initial learning was slower but retention and transfer were increased; for blocked conditions, initial learning was quicker but retention and transfer were lower than for variable-practice trials. Variety of relevant training stimuli and its effects on learning and transfer has, in summary, not been a major focus in transfer studies. In practice, however, it is very rare for trainers and training designers to implement training that relies on limited stimulus variety, for example, using only lecture mode.

Conditions of Practice

This refers to massed or distributed training, whole or part training, feedback and overlearning (Baldwin & Ford, 1988). Massed versus distributed training refers to whether a researcher divides training into segments over a period or conducts the complete programme in one sitting, respectively. Baldwin and Ford cited evidence suggesting that retention of material is generally better for distributed versus massed practice, and that for difficult and complex tasks massed practice followed by briefer sessions with rest intervals is most effective.

The Del Rey et al. (1987) cognitive transfer study cited above also illustrates this approach.

However, Adams (1987) firmly illustrates the equivocality of knowledge in this area by stating that 'the textbook generalization that learning with distributed practice is better than with massed practice is wrong' (p. 50).

Whole versus part training refers to practice with all the material at one time as opposed to practice on one part at a time. Baldwin and Ford (1988) noted that there is evidence that the whole method is most suited when (a) the intelligence of the learner is high, (b) practice is distributed rather than massed, and (c) the training material is high in task organisation and low in task complexity.

Feedback, or knowledge of results, refers to information provided to trainees about their performance. Baldwin and Ford quoted evidence that feedback is vital for achieving learning, and Phye and Sanders (1994) demonstrated the effectiveness of corrective feedback for acquisition of skills but their cognitive transfer study indicated that it did not seem to influence transfer.

Overlearning refers to continued practice after individuals have performed a task successfully. Baldwin and Ford (1988) reported on studies that have indicated direct relationships between overlearning and extent of retention, but noted the absence of research on overlearning as it directly relates to transfer.

In summary, transfer research has not of late specifically examined the impacts on transfer of different training designs. Researchers have documented their awareness of these training principles, but investigations into training characteristics have largely remained in the domain of cognitive transfer paradigms. However, one particular type of training design has received attention in the literature, and that is training for transfer.

These methods which were mentioned in the section on identical elements include self-management and goal-setting techiques. They do not form part of the course content itself, but are used to augment the training design. Self-management training typically includes techniques where trainees identify obstacles to transfer, plan how to overcome them, monitor themselves, and utilise self-reinforcement methods to motivate interim accomplishments. This technique is often referred to as relapse-prevention strategy (RPS). A discussion period usually precedes the application of these practices, where a variety of contexts for application of learnt skills is identified. Goal setting usually involves a session on the definition of goals, what kinds of goals are effective, the goal-setting process, and different types of goals. Trainees are encouraged to document goals and/or self-management strategies that relate to themselves.

These methods relate indirectly to the abovementioned principles, in particular to similarity and general principles. The RPS approach attempts to focus on similarities between training and application settings, and in doing this extracts general principles for self management and transfer techniques.

Tziner et al. (1991) recorded positive influences on transfer from a RPS, although they found that its effects were only significant in interaction with an individual's locus of control and managerial support. (They also observed that the RPS had no significant effect on an individual's level of motivation.) Gist et al. (1990) reported significant effects of a self-management strategy on transfer, but Wexley and Baldwin (1986) found that goal-setting techniques had a more significant relationship on transfer than their RPS. Kanfer and Ackerman (1989) reported a significant effect of goal-setting procedures on task acquisition.

In summary, training for transfer methods have indicated promising possibilities for augmenting training designs. It is clear, however, that they cannot just be 'plugged in' to a course; the literature shows that they require careful facilitation

by trainers, and even then they become susceptible to the effects of individual and work environment characteristics.

Behaviour Modelling Training

To provide additional clarity regarding the type of training being used in the present study, a review of behaviour modelling training is presented here. It was developed in the early 1970s by Goldstein and Sorcher (1974) to provide supervisory personnel with effective interpersonal skills. These authors criticised the approach of supervisory programmes at the time because they contended that these programmes attempted to change supervisory behaviour by means of an attitudinal strategy. Attitudinal changes were then supposed to have effected the desired changes in the supervisors' behaviour - they proposed that this notion was inappropriate due to conflicting attitudes held by trainees and their lack of knowledge about how to behave differently.

In terms of behaviour modelling training, trainees are taught interpersonal skills by means of a behavioural, rather than attitudinal, approach. According to Goldstein and Sorcher behaviour modelling training results in behavioural changes, followed by attitudinal changes. This approach is derived from Festinger's (1957) cognitive dissonance theory, whereby attitudes change to be consistent with behaviour, thus reducing cognitive dissonance.

The training method used in behaviour modelling programmes is called applied learning (Goldstein & Sorcher, 1974). Briefly, applied learning entails three stages, based on the principles of imitation, practice and reinforcement, respectively (Sorcher & Spence, 1982). The first stage is modelling, which involves the presentation of a series of behavioural steps which are demonstrated in an interactional situation by a positive role model. The second stage involves role play, which requires trainees to imitate the modelled behaviour, following the behavioural steps, in simulated interactions. The third stage entails the provision of social reinforcement. Such reinforcement is provided to trainees who apply the behavioural steps effectively in the simulated

interactions (Goldstein & Sorcher, 1973; Spence & Spence, 1986). This strategy will be discussed further in the following section.

Two behaviour modelling strategies are identified in the literature. Although both strategies attempt to change managerial behaviours, the one focuses on training only the managers (cf. Birkenbach et al., 1985; Byham et al., 1976; Decker, 1982; Moses and Ritchie, 1976; Russel et al., 1984). The other strategy involves exposing both supervisors and their subordinates to behaviour modelling training (e.g., Burnaska, 1976; Sorcher & Spence, 1982), so that in addition to managers being trained to be more effective as managers subordinates are trained to be more effective as subordinates.The rationale for training both supervisors and subordinates is to provide mutual reinforcement within supervisor-subordinate dyads for the behaviours learned in the behaviour modelling programme. In the present study the training format of the course did not include training for subordinates.

Behaviour modelling training has been employed at various managerial levels in cross-cultural and non-western situations (Dobbs, 1983; Sorcher & Spence, 1982). Apart from managerial training, it has been used for sales training and for training staff in other customer contact situations (e.g., Smith, 1976), as well as training for patient care and interviewing skills (Dobbs, 1983; Goldstein & Sorcher, 1973; Tosti, 1980).

Applied Learning

It is important to distinguish the training strategy from the instructional content of behaviour modelling programmes. According to Tosti (1980), behaviour modelling training is essentially a training technique, designed to teach effective social skills. The instructional content of the programme is dependent on the purpose of the training course. Thus the training content within the behavioural steps, role models and simulated interactions of a sales training course would differ from a supervisory or interview skills training course. However the training process (i.e., applied learning) would remain the same.

Applied learning is based on Bandura's (1977) concept of observational learning which involves four sequential processes, including 'attentional', 'retention', 'motor reproduction' and 'motivational' processes. Attentional processes involve the selective observation and accurate perception of significant features of modelled behaviour. Bandura contends that the attentional processes are dependent on the complexity and relevance of the modelled behaviour, and the trainees' perceptual sets and abilities to process information. Retention processes entail memorising the features of the modelled behaviour presented, and such memorisation occurs on both symbolic and verbal levels. Effective information retention enables individuals to engage in accurate 'mental rehearsal' of the modelled behaviour and this mental rehearsal of modelled behaviour enhances observational learning.

Motoric reproduction processes involve converting symbolic representations of modelled behaviour into overt behaviour. These processes enable individuals to manifest behaviourally, and practise, the observed behaviour. Thus, in terms of motor reproduction processes, individuals can adjust their behaviour appropriately through self-correction and feedback from others. With regard to motivational processes, Bandura distinguishes between learning and manifesting behaviour. He proposes that even though individuals can learn new behaviour by observing models, they will not necessarily manifest such behaviour. Whether individuals manifest the learned behaviour depends on both the actual and perceived reinforcing contingencies of the behaviour in their environments.

Behaviour modelling training incorporates observational learning in the following way. (Burnaska, 1976; Goldstein & Sorcher, 1974). A series of behavioural learning steps are presented to trainees. The learning steps provide appropriate behaviours for dealing with a problematic interpersonal situation (e.g., correcting a subordinate's substandard work performance). Trainees are shown a number of filmed or videotaped modelled interactions, depicting positive role models applying the behavioural learning steps. Trainees are then required to review and memorise the steps depicted by the model at a covert or imaginal level. Then they participate in extensive simulated interactions or role plays to practise

the behavioural steps depicted by the model, which in turn enhances the memorisation of the learning steps. Thereafter positive social reinforcement provided by both trainers and other trainees is used to shape trainees' behaviour in the role plays to a level of proficiency comparable to that of the modelled behaviour.

It is this aspect of social reinforcement that links to the questions of the present study. There is a distinction made between learning and performing behaviour (Goldstein & Sorcher, 1974). It is contended that in order to effect successful transfer of training from the training room back to the work situation, adequate performance feedback and positive reinforcement must be provided by the trainees' superiors to encourage the performance of the acquired behaviour. This step is viewed as crucial in the transfer of the training from learning situation back to the work or application setting.

As indicated above, the training method of applied learning used in behaviour modelling programmes is incorporated into a wide range of training courses, and the content of the programmes will be appropriate according to the situational requirements of the training. Behaviour modelling training typically comprises a number of training modules, each dealing with a specific, potentially problematic situation. Examples of supervisory training modules include motivating poor performers, correcting inadequate work performance and discussing subordinates' undesirable work habits. Each module incorporates a number of behavioural learning steps, pertinent to the problematic situation, and relevant role plays, and the learning steps and role plays are usually preceded by the presentation of videotaped positive role models. The format of the training course used in the present study follows this generic process of applied learning, and details will be provided of the specific content later in this chapter.

Having concluded the review of variables relating to training design, we may proceed to a discussion of the third category of variables impacting on transfer of training, work environment characteristics.

Work Environment Characteristics

In addition to the variables of trainee characteristics and training design, transfer of training by definition involves a context into which skills are transferred. Most training practitioners will express their belief that a trainee's work environment plays a crucial role in training transfer.

Work environments have been investigated both in general and with specific reference to transfer of training. An aspect of the work environment that has received attention has been organisational climate, which has been conceptualised as individual perceptions about prominent characteristics of the organisational context (Schneider, 1985), such as policies, reward systems and managerial behaviours. When individuals perceive and attach meanings to those characteristics in recurring trends, then climate can be seen as corresponding to the shared pattern of meanings about the major characteristics of an organisational context.

James and James (1989) constructed a model of psychological climate (PC) in an attempt to identify patterns in psychological processes linking perceptions of work environments to affect and behaviour. They identified a general factor of PC (perceptions about whether the overall work environment is personally beneficial or detrimental to an individual's organisational well being) which underlies four major categories of PC: (a) Leader Support and Facilitation, (b) Role Stress and Lack of Harmony, (c) Job Challenge and Autonomy, and (d) Workgroup Cooperation, Warmth and Friendliness.

Tracey et al. (1995) note that when investigating specific behaviours, broad notions of organisational climate do not seem to yield much meaningful information about significant relationships. Schneider (1985) argued that climate should be considered as a broad, multi-dimensional domain and that specific domains can be constructed according to the criterion of interest. Following this approach, Rouiller and Goldstein (1993) developed a framework to assess the relationship between organisational climate and posttraining

behaviours which they called the 'transfer of training climate' and which is defined as 'those situations and consequences which either inhibit or help to facilitate the transfer of what has been learned in training into the job situation' (p. 379).

They proposed that a positive transfer climate is characterised by situational cues and consequences and comprises eight dimensions: goal cues, social cues, task and structural cues, self-control cues, positive feedback, negative feedback, punishment, and no feedback. These cues and consequences provide reminders for trainees to use their training once they return to their jobs. For example, social cues are the interactions among trainees, peers and managers that remind trainees to transfer their training, and the more positive the interactions the higher the likelihood of transfer. Their framework has been used in a subsequent study (Tracey et al., 1995) but it appears from some of the conflicting findings that further refinement is needed.

Another approach that has been in use is the work that has been done by Rudolph Moos on social environments. He has investigated the social environments of community settings, work milieus, treatment settings (e.g., hospitals), and correctional and military institutions (Moos, 1974, 1976, 1984, 1986, 1988a).

Moos (1976) draws on a range of theories such as Murray's individual needs and environmental press, field theory and Gestalt psychology, ecological psychology, social learning theory, environmental theory, and synthesises them into a social ecological approach. Central themes in this approach include an understanding of environmental impacts from the perspective of the individual and an emphasis on individual adaptation, adjustment and coping. In identifying underlying patterns of social environments, three broad categories of dimensions are described: (a) Relationship dimensions, (b) Personal Development dimensions, and (c) System Maintenance and System Change dimensions.

Relationship dimensions consist of: Involvement (individuals' concern about or commitment to their jobs), Peer Cohesion (supportiveness among employees), and Supervisor Support (managerial support for employees). The Personal Growth dimensions are made up of: Autonomy (encouragement of employees to be self sufficient and to make decisions), Task Orientation (planning, efficiency, task achievement), and Work Pressure (the press of work and time urgency). The System Maintenance and System Change dimensions comprise: Clarity (clarity of work expectations, rules and policies), Control (management use of rules and pressures to control employees), Innovation (emphasis on variety, change and new approaches), and Physical Comfort (physical surroundings and pleasant work environment) (Moos, 1976 and 1984).

This framework has been used in applied settings for such purposes as the analysis of work environment profiles, investigating subordinate-manager relationships, implementing organisational change and monitoring organisational interventions (e.g., Maloney, Bartz and Allanach, 1991; Fisher and Fraser, 1993; McFadden and Demetriou, 1993). It has also been used for research purposes, for example, investigating the relationship between cognitive styles and work environment preferences (Wooten et al., 1994), testing theories about work milieus (Moos, 1976; Moos, 1984), and augmenting programme evaluations (Moos, 1988a). It is discussed here in relation to transfer because it appears to provide an integrative approach in assessing those work environment factors that have been empirically identified as influencing transfer, as can be seen from the discussion below. The transfer literature appears to explore two main dimensions in work environments: social factors (the effects of relationships with other people) and task factors (the effects of the work that individuals engage in).

Social Factors

Tziner et al. (1991) found that managerial support interacted with a relapse-prevention strategy and with individuals' locus of control, but did not find evidence for a main effect of managerial support. Ford et al. (1992) reported that managerial support had a significant effect on the number and variety of

posttraining tasks performed by individuals. For Huczynski and Lewis (1980), their most important influence on transfer was management style and attitudes toward trainees, and they also reported negative influences on transfer when trainees encountered resistance from older peers. Tracey et al. (1995) used Rouiller and Goldstein's (1993) transfer of training climate framework, and found that social factors had significant effects on transfer.

Brinkerhoff and Montesino (1995) reported positive influences on transfer as a result of managerial support before and after training, and Facteau et al. (1995) reported positive effects of managerial support on pretraining motivation. Den Ouden (1995) found that managerial support contributed as a moderator variable in posttraining behaviours.

Interestingly, Facteau et al. (1995) found a negative effect of managerial support on perceived transfer, but they argued that this was due to a statistical artifact called suppression; they did find positive effects from peer and subordinate support. Tesluk et al. (1995) did not find any evidence of managerial support influencing generalisation, but they acquired their data from managers who were not the trainees' direct seniors. They noted that the more distal a measure, the less relevance it has for detecting influences in a specific case. In other words, asking for information from indirect managers or other people more functionally distant from trainees does not seem to shed much light on what facilitates or inhibits transfer.

Social factors in the work environment do seem to influence transfer, and it follows logically that for the transer of trained social skills (i.e., managerial interaction skills) these influences would be especially prevalent.

Task Factors

Huczynski and Lewis (1980) reported that a 'crisis climate' negatively impacted on transfer, because individuals were prevented from trying out new skills; the same negative influences were reported as a result of incessant work pressures and high workloads. Ford et al. (1992) found that opportunities to use new skills

positively influenced levels of transfer, and that the extent of opportunities was in turn influenced by the manager's perceptions of an individual's competency on the job.

Tracey et al. (1995), using Rouiller and Goldstein's (1993) framework, did not find any effects of significance from task factors. Rouiller and Goldstein themselves did not specifically mention whether task factors were involved in their study because they aggregated their subscales and only reported on the two main components of their framework, situational cues and consequences.

It is evident from the literature that a significant amount of work is being done on examining work environment characteristics - the majority of more recent research on transfer has tended to focus on the work environment, and it seems to be proving to be a worthwhile endeavour.

Research Design in Transfer of Training

At the beginning of this chapter it was noted that the appropriately rigorous approach should be that of a classical experimental design in which subjects are randomly assigned to experimental and control groups, and pre- and post-measures are gathered (Babbie, 1986; Baldwin & Ford, 1988; Kirkpatrick, 1975). In addition, for accurate assessment of transferred skills multiple sources of data (i.e., self and other ratings) should be used. This section is intended to review the kinds of research designs that have been adopted in the studies discussed thus far, to guage the extent to which transfer of training research has made use of true experimental designs in research.

It is hoped that such a review will provide a reflection of the overall validity of research results that have been reported. A brief summary of what is meant by true experimental designs will be presented, followed by a discussion of the extent to which transfer research has or has not met the kinds of scientific criteria contained in true experimental designs.

Campbell and Stanley (1967) and Cook and Campbell (1983) describe and explain the concepts, strengths and weaknesses of various types of research designs. Central to any design is the notion of validity. Campbell and Stanley (1967) review internal and external validity, and Cook and Campbell (1983) expand on those two kinds of validity by reviewing two others, statistical conclusion validity and construct validity. For the purpose of this section the focus will be on the first two kinds of validity, internal and external validity. Internal validity, according to Campbell and Stanley (1983) is 'the basic minimum without which any experiment is uninterpretable' (p. 5), and its essence is contained in whether we can say that the results observed were in fact due to the experimental treatments or independent variables under study. External validity relates to generalisability, whether we can say that the results observed can be generalised to other settings, populations, and so forth.

It is beyond the scope of the present study to review their book comprehensively, but mention of some of the key concepts seems worthwhile. A crucial concept is how different research designs account for threats to validity - or to put it another way, how can we be sure that what has been observed is not due to other extraneous or unplanned-for or interfering variables? Some of the classes of extraneous variables identified are: (a) history, the specific events occurring between the first and second measurements in addition to the experimental variable; (b) maturation, processes within the respondents operating as a function of time passing - for example, growing older, gaining more work experience; (c) testing, the effects of taking a test upon the scores of a second testing; (d) instrumentation, where obtained measurements may be influenced by changes in the instruments or the scorers or observers; (e) selection, biases resulting from differential selection of respondents for the comparison groups; and (f) reactive effect of testing, where a pretest might sensitise respondents to the experimental variable.

The above typical threats to validity (they represent half the number covered by Campbell and Stanley, 1967) may be controlled for by careful selection of the research design. The classical experimental design referred to above is called

Because training design is so clearly aligned with classical experimental treatment, as a field of study it seems to lend itself more easily to the classical experimental design. One study randomly assigned groups to two different types of training for transfer methods but did not include a control group which was not exposed to either of the training for transfer modules (Gist et al., 1990). Such a design is vulnerable to alternative hypotheses such as the effects of selection, history or maturation.

One study exploring individual and work environment characteristics utilised a design that is called the Posttest-Only Control Group Design (Tziner et al., 1991), which is also classified as a true experimental design. Campbell and Stanley (1967) note that it is the randomisation that increases the power of the design, even if antecedent scores are not known, and that if the focus of a study is directly concerned with the experimental treatment then such a design is experimentally acceptable. A major difference that the authors point out between the pretest-posttest design and the posttest-only format is that the statistical tests available for the former are more powerful than those available for the latter.

There are studies that have employed what Campbell and Stanley refer to as the One-Group Pretest-Posttest Design which falls under the category of what they call pre-experimental designs. These studies were investigating individual and work environment characteristics and used intact groups (e.g., Den Ouden, 1995; Huczynski & Lewis, 1980; Noe & Schmitt, 1986; Tannenbaum et al., 1991; Tracey et al., 1995). Such designs would be vulnerable to validity threats such as history, maturation, testing and reactivity. In two of these studies the authors noted that their approaches were intended not to be experimental but rather exploratory in nature, and their statistical analysis - path analysis - was aligned to that aim (Noe & Schmitt, 1986; Tracey et al., 1995).

Some studies have used what Campbell and Stanley (1967) term the One-Shot Case Study approach, also classified under the pre-experimental types of designs. Lacking any means of comparison or randomisation these designs are

regarded by Campbell and Stanley as of extremely dubious scientific value. They note that studies adopting this design often pay particular attention to the gathering of the data in meticulous, careful ways, but that the effort is inappropriately focused for experimental purposes and such studies 'involve the error of misplaced precision' (p. 7).

Rouiller and Goldstein (1993) used this kind of design in their investigation of work environment factors but noted that theirs was an exploratory study. Ford et al. (1992) investigated individual and work environment characteristics using this approach, and the studies by Facteau et al. (1995) and Tesluk et al. (1995) fall into this category with their survey-style one-shot designs. Axtell et al.'s (1997) study is also characterised by this approach, even though their posttest observations were repeated twice. Kerlinger (1981) reinforces Campbell and Stanley's (1967) observations about this method and makes a further distinction that this design is not deemed '*universally* worthless and misleading, but that it is *scientifically* worthless and misleading' (p. 318).

On reviewing some of the more recent literature on transfer of training (particularly in the 1980s and 1990s), it is evident that one needs to take care to assess the research designs that have been adopted before relying on the certainty of results that have been reported. Of the fifteen studies discussed above only a third adopted the classical research design as advocated by such authors as Kirkpatrick (1975) and Baldwin and Ford (1988). Strictly speaking (i.e., from a scientific point of view), the results should be treated with scepticism and it may be that unfortunately the two thirds of the research reviewed above that is characterised by pre-experimental designs has expended a great deal of effort but actually contributed knowledge which may be highly susceptible to error.

From a scientific point of view, then, the message is very clear that a researcher needs to take into account the abovementioned principles when adopting a particular research design. One of the great challenges in studying the phenomena of transfer of training is that of achieving a balance between implementing methods of scientific rigour and retaining the real-life pragmatism

of meaningful knowledge. An analogy that seems apt for the circumstances of conducting transfer research in busy organisations is the one of a person trying to change a flat tyre while the vehicle is still travelling at a high speed.

It was also noted above (e.g., Baldwin & Ford, 1988; Kirkpatrick, 1975) that with regard to research design in transfer of training, the issue of criterion measurement deserves attention: it was proposed that criterion measures must be appropriate and if possible should be gathered from multiple sources. A discussion of how this has been addressed in transfer research now follows.

Criterion Measures

The validity of the criterion measure, transferred skills, is one of the most crucial aspects of transfer research. Two main issues are relevant here. The first relates to the validity of the criterion measure: Is the instrument accurately measuring the behaviours or variables in question? The second relates to the validity of the measurer or rater: Is that person the most appropriate person to provide the data of interest? The fact that many of the skills of interest are complex and difficult to operationalise (e.g., interpersonal skills) compounds the problem.

Baldwin and Ford (1988) report on this issue in their extensive literature review: 'The usefulness of the empirical research on transfer is severely limited by the use of criterion measures that are deficient and contaminated' (p. 94). They discuss the difficulties of two components of transfer, generalisation and maintenance. Not only is it difficult to measure whether required skills changes have actually occurred back on the job (generalisation), but the matter is further complicated by the difficulties in trying to measure whether transferred learnings are permanent, or at least enduring (maintenance).

In reviewing the trends in criterion measurement, the following measures of transfer will not be considered because by definition they are not measuring transfer as it is described in the present study: (a) performance measures on a course, (b) learning outcome tests (similar to point a), (c) simulations of transfer

tasks, and (d) measures of intentions to transfer. Baldwin and Ford specifically mention these types of studies as adding very little or nothing to our knowledge of the criterion measurement of transfer.

There is an appreciable amount of literature which investigates self- and other-ratings. Malka (1990) explored three phenomena relating to raters which may impact on criterion measures: (a) the halo effect, where a rater does not differentiate among distinct items but evaluates the ratee according to an overall judgement; (b) convergent validity, which indicates the extent of agreement between two or more measures of the same trait using different sources (i.e., raters or instruments); and (c) leniency effects, where certain raters may rate more or less leniently than other raters on the criterion measure.

He found that managers' self ratings were more lenient and more variable than subordinate and senior ratings, that self ratings contained less halo effect, and that subordinate and senior ratings showed higher convergent validities. Wohlers, Hall and London (1993), however, reported the opposite trend in halo effects, with subordinate ratings being less subject to halo effects than self ratings. They also found that race and gender influenced agreement of measures (convergent validity), where same-race dyads showed higher agreement than different-race dyads; subordinate ratings by younger subordinates were more critical than self ratings and subordinate ratings by older subordinates were more lenient than self ratings.

Furnham and Stringfield (1994) reported higher self ratings than subordinate ratings, and observed that subordinate ratings showed greater accuracy on the criterion measure (managerial behaviours) than superior ratings (i.e., the ratee's senior), probably because, as the authors surmise, they experience the managerial behaviours more directly than the superiors. There appears to be convincing evidence that a positive manager-subordinate relationship produces higher convergent validity (e.g., Wohlers et al., 1993; Furnham and Stringfield, 1994; Church, 1997), and that this is also related to higher managerial performance.

There are studies that have used self-reports of transfer only (Ford et al., 1992; Brinkerhoff and Montesino, 1995; Facteau et al., 1995; Tesluk et al., 1995; Axtell et al., 1997). They all report on this in their comments on the limitations in the study: single-source measures invite considerations of data bias, due to possibilities of demand set and fabrication. This is particularly unfortunate for two of the studies, Facteau et al. (1995) and Tesluk et al. (1995) because their samples were large - 967 and 1280, respectively - and it represents a considerable amount of effort whose validity is critically jeopardised.

The importance of clear criterion accuracy and similarity (i.e., the criterion measures are detailed enough to be closely congruent with the training content) is also outlined by Baldwin and Ford (1988). Tesluk et al.'s (1995) measure of generalisation comprised three non-specific items: 'I incorporate skills learned in the EI training course into my daily work activities'; 'I use the problem solving and decision making skills presented in EI training courses to help improve my job performance'; and 'I use the interpersonal and communication skills presented in EI training course [sic] to improve my job performance' (p. 614).

Considering the complex nature of the skills whose transfer these investigators were trying to measure, this criterion measure provides little to no value. Also, statements such as, 'we are not aware of any research which indicates that trainees cannot accurately self-report training transfer' (Facteau et al., 1995, p. 22) indicate that (a) there is a gap in the empirical database on this issue, and (b) some investigators are turning a blind eye to the issues.

There are studies that have used a combination of self reports and senior reports (e.g., Tracey et al., 1995; Tziner et al., 1991), and others that have used reports from the trainer, the manager, and peers (e.g., Noe and Schmitt, 1986). The researcher must determine whether such people are realistically in a position to observe the criterion behaviours in question, and given that they are, then these observers need to understand the transfer skills and the measuring instrument. The issue is clearly complex.

Huczynski and Lewis (1980) combined a self report with semi-structured interviews with a subgroup of the trainees. If the interviewers are skilled this may yield useful data, but unless there is objective evidence (e.g., flowcharts, reports, diagrams - theirs was a course on network analysis), an interview of a trainee becomes another version of the self-report measure. These researchers were able to strengthen their criterion measure because they focused on specific training which produced specific outcomes to be observed in transfer.

The wider the range of skills being trained, transferred and observed, the more extensive the transfer measures need to be, and the more this jeopardises criterion accuracy and similarity. For example, Noe and Schmitt's (1986) training programme included problem analysis, judgement, organisational ability, leadership, decisiveness, and sensitivity. Observer reports were gathered from trainees' managers, two fellow teachers and two support staff members (e.g., secretaries, maintenance staff). The potential problems of accurately operationalising a range of complex skills and ensuring consistency among observers are apparent.

The study by Wexley and Baldwin (1986) used self reports, and trainees were asked to choose one other observer to report on transfer behaviours (time management). The difficulties that these researchers noted were firstly that observers may have not been present to observe behaviours because either the trainees or the observers were occupied in different locations, and secondly that observers were asked to complete the behavioural measures at the end of the study, which meant that they had to recollect observations over an eight-week period.

Rouiller and Goldstein (1993) investigated transfer of skills and behaviours in a restaurant that focused on employee relations, food preparation and handling, shift management, and customer service. For their criterion measure they used surveys completed by the managers and peers of the trainees. The surveys were criterion-specific, directly relating to course content. For example, a question in the survey which demonstrates this specificity was: 'Takes hourly readings from the cash registers' (p. 384).

The foregoing review has highlighted that the measurement of transferred behaviours is difficult. If one is highly critical of the studies discussed above, it may be said that in fact only about a tenth of the research designs were close to achieving appropriate, multiple-source measurement. Baldwin and Ford's (1988) recommendations that more work needs to be done to increase our knowledge about the measurement of actual transfer still seems to be applicable today.

Having reviewed theory in transfer of training, the variables that have been investigated and the research designs that have been employed, the next section presents the research design of the present study.

Research Design of the Present Study

From the three categories of variables discussed in the preceding review (individual characteristics, training design and work evironment characteristics), the two chosen for investigation in the present study were individual characteristics and work environment characteristics. In experimental terminology, the training course is the independent variable, transfer is the dependent variable, and the individual and work environment characteristics are mediator variables. The crux of the present study is the question: What are the effects of the mediator variables on the dependent variable?

The training course, as the independent variable, is constant for all trainees participating in it, and the only condition of it varies is training/nontraining, because there were individuals included in the study who had not undergone training. The training course is described in some detail in this study for two reasons.

Firstly, it is documented for the record so that its contents may be examined for confirmatory comparison with the learning principles and the behavioural modelling approach discussed above. Because the training design is fixed for

all trainees, this imposes limits on the interpretation of the data obtained: any conclusions drawn will have to be consciously done within the constraints of the training course which incoporated certain learning principles and omitted others.

The second reason relates to criterion measurement. Following the learnings identified in the literature, the present study aimed to achieve maximum criterion specificity, given the inherent limitations of the instruments used. According to Kirkpatrick's (1975) levels, this study was measuring outcomes at the behaviour change level. Thus the instruments had to reflect measures of behaviour and in particular the behaviours that were trained on the training course. Again the documenting of course content details is for the record so that it is available for examination to confirm alignment with the criterion measurement questionnaire.

Thus the contents of the course and the instruments measuring transfer are documented for reference, but the training course as an independent variable is not the primary focus of the study. The mediator variables of interest in this study are (a) individual characteristics: cognitive ability, locus of control, self efficacy, and motivation; and (b) work environment characteristics: dimensions of relationships, personal growth, and system maintenance and system change.

In the light of the foregoing discussion on research design the present study attempted to approximate levels of validity as far as was possible. The focus of this study lay not solely in the pretest-treatment-posttest chain of events but rather in the pretest-treatment-mediating variables-posttest line of questioning. Therefore a design had to be implemented which allowed an examination of the mediator variables of interest but still approximated true experimental conditions.

As with many field studies the current study did not have control over the assignation of the trainees to the treatment condition of managerial training. This had already been determined according to the training procedures in the organisation and accordingly randomisation was not an available option. A control group of sorts was still an option and it was decided to strive for a matched control group, albeit nonrandomised. The control group would have to

have both pretest and posttests administered, over the same period as the training group.

According to Campbell and Stanley (1963) the study may be classified as a quasi-experimental design in general, and in particular as a Nonequivalent Control Group Design. The essence of this design is that there is an experimental group and a control group which are both given a pretest and a posttest, but the groups have not been randomly assigned to the experimental or control conditions. This circumstance of nonrandom sampling means that the two groups are, in experimental terms, nonequivalent. This was the case in the present study, but an extra precaution was taken to match the samples on certain relevant characteristics.

Campbell and Stanley further state that the inclusion of even a nonequivalent or unmatched control group considerably reduces equivocality of interpretation, compared to a design which uses only one group. If the study did indeed manage to attain similarity of samples when they were selected (and if this similarity is further confirmed by pretest scores), then the design may be regarded as having achieved improved levels of internal validity. Should this be the case, then the design can be regarded as having controlled for the confounding effects of selection, history, maturation, testing and instrumentation.

As mentioned previously, the training course used in this study will now be described in some detail.

Training Design

The training course has been in use in the organisation for about eight years, and feedback from trainees over this period indicates high levels of satisfaction with it. It is perceived by managers in the organisation to be a training programme of good quality and the demand for it has been markedly consistent. Because informal observations and feedback about the management course as noted above do not suggest that the training programme is deficient, then the

model in figure 1 provides a framework for examining other factors that may have contributed to the failure to transfer.

The course in question is a three-day, non-residential course which is used extensively in South Africa, called Interaction Management. It has been utilised in transfer studies before and has been in use in organisations for more than twenty years (Byham et al., 1976). It teaches managers principles and skills for managing the performance of their subordinates effectively. In line with the behavioural modelling and applied learning approaches described above, it is a highly-structured course with clear and standard procedures; all trainers are trained on a standardised instructor training programme and are thereafter certified and registered as approved trainers. An independent consultancy firm is licensed to provide such training and certification.

The course focuses on interpersonal managerial skills, rather than more technical skills such as planning, budget management, production management, etc. Included in the course content are three major core communication skills (known as 'Key Principles') which are used as generic skills in a variety of interactive situations between managers and their subordinates. These are:

1. *Maintain or enhance self esteem.* The essence of this principle is for managers to gain their subordinates' trust and commitment by adopting a non-threatening approach (this includes, for example, appropriate body language, attitude, use of language), in situations where a subordinate may be under-performing, and by ensuring that managers credit subordinates for good performance and valuable ideas.

2. *Listen and respond with empathy.* The second key principle is taught to managers to help them address the emotions, concerns, opinions, conflict, elation, etc., that frequently occur when an individual's performance is under discussion. Consistent work pressures often cause a manager to be more task- rather than people-oriented, and this key principle is aimed at helping trainees to deal with uncomfortable, emotionally-charged situations and to

gain insight into how the use of empathy enhances their attempts to gain the commitment of their subordinates.

3. *Ask for help and encourage involvement.* The third key principle is representative of the participative style of management that the course aims to teach. In essence, it guides a manager not to adopt a directive stance by telling an individual how to solve the problem, but to elicit solutions and ideas from that person. A rationale behind this principle is that the performance problem has most likely been caused by the individual, and so the manager needs to ensure that the subordinate takes responsibility for this. Other reasons for using this skill include empowering subordinates, delegating appropriately, freeing up a manager to manage versus getting too involved in the work, and demonstrating trust in subordinates, which in turn enhances self-esteem and commitment.

In addition to the above three key principles, there are four major performance situations which are covered in the training, as separate modules. An important rationale behind these is that the performance of subordinates, good and poor, must not go unmanaged and trainees are urged to address rather than avoid performance issues of their subordinates. These modules are:

1. *Improving poor work performance.* These are situations where an employees' performance becomes problematic due to non-achievement or under-achievement of standards, deadlines, quality of work, etc.

2. *Improving poor work habits.* This module covers the management of more personal habits of employees which affect either the employees' performance or which may impact on the performance of others. Examples of these habits include excessive personal telephone usage, conflict caused by an employee, conducting personal business during work hours, etc.

3. *Conducting follow-up discussions.* This module coaches trainees on conducting follow-up discussions to either of the first two situations, where there has been no improvement or insufficient improvement of the problem.

4. *Maintaining improved performance.* The final module focuses on reinforcing positive behaviours of employees. This discussion follows either of the first three situations when performance has improved satisfactorally; it is also emphasised on the course that trainees should utilise this situation when employees' performance is generally satisfactory or good - that is, it does not only follow problem-related performance.

The three core key principles described above are used in all of the performance discussions. A generic discussion guideline is also taught, which provides a structure for discussions. This guideline comprises the following elements:

1. *Open.* The manager sets the scene clearly by explaining the purpose of the discussion in a nonthreatening manner.

2. *Clarify.* The manager explores the reasons for the problem situation by gathering information and ensures the effectiveness of this stage by not jumping to conclusions or decisions prematurely.

3. *Develop.* The manager investigates and elicits ideas for solutions to the problem, with the employee.

4. *Agree.* The manager and the subordinate mutually agree upon ideas generated in stage 3, and confirm action details such as who will be doing what, by when, and when they should meet again to review progress.

5. *Close.* The discussion is closed off by the manager in a manner which is positive and which encourages the subordinate's commitment.

Each course typically trains twelve trainees at a time. The first day is a day of discussion and theoretical input facilitated by the trainer, and includes video presentations to illustrate the principles and skills discussed above. The second and third days are primarily focused on role plays, where trainees are divided

into subgroups to simulate and practise the four modules described, using the discussion guidelines and the key principles. Trainees document actual situations from their jobs and the members in their sub groups role-play the parts of the trainees' subordinates. After each trainee's role play, the other subgroup members give feedback on that person's use of the management skills.

Preceding each set of role plays for each of the four performance discussion modules described above, a model discussion is presented on video which is then discussed in the main group; following each round of subgroup role plays, there is a debriefing discussion in the main group facilitated by the trainer. During role plays, the trainer rotates among the sub groups, observing the role plays and giving specific feedback on trainees' usage of the skills.

Regarding the four major learning principles of training design cited previously, the programme addresses these as follows:

Identical elements/similarity - role plays are a prominent element, and trainees document and practise with their own unique work circumstances. Fellow trainees are briefed on and role play the part of subordinates, with one or two other fellow trainees observing the interactions and then providing feedback at the conclusion of each role play. Being an artificial situation, this does not attain full similarity but trainees report that it is very close to the real situation.

General principles - this is a fundamental aim of the course, as described above. In fact, it is consistently stressed in the course that the skills taught are also relevant to situations outside of their jobs, such as situations where trainees interact with their families, friends, and other extramural business people.

Stimulus variety - included in the programme are learning practices such as facilitated discussion, brief experiential exercises, behavioural modelling from videos, and role plays in smaller subgroups.

Conditions of practice - the course utilises massed training, where the full course is presented in one massed training session, as opposed to spreading the three days over a longer period with breaks in between the various modules. The principle of feedback is inherent in the design where trainees receive ongoing feedback repeatedly throughout their role plays. In the programme, each trainee conducts four discussions in the role plays which utilises the technique of overlearning while on the course; there are no further training sessions after the course, so the principle of overlearning is thus limited to the one massed training session.

In general, the course includes goal-setting techniques but does not utilise techniques of self-management training - relapse-prevention strategy - and this latter exclusion will be borne in mind in discussion of any results obtained.

Model and Hypotheses

This chapter concludes with an overall description of the conceptual design of the present study and the hypotheses related to the study.

Figure 1 is a graphical representation of the relations between the variables discussed above, and also depicts the main hypotheses of this proposed study. The main variables of interest are individual characteristics and work environment characteristics. The training programme is constant for all trainees participating in it, and the only condition of it that varies is training/non-training, where there will be individuals included in the study who have not undergone training.

The model depicts the relationships of variables as follows. A measure of pretraining managerial skills is obtained. Subjects undergo training on these managerial skills, and by means of iterative cycles of discussion, role plays, observations, and feedback both from fellow-trainees and the trainer, trainees learn specific interpersonal managerial skills to manage the performance of their subordinates. The model then depicts that the relationship between training and transfer is not a direct cause-effect one, but is mediated by the influences of

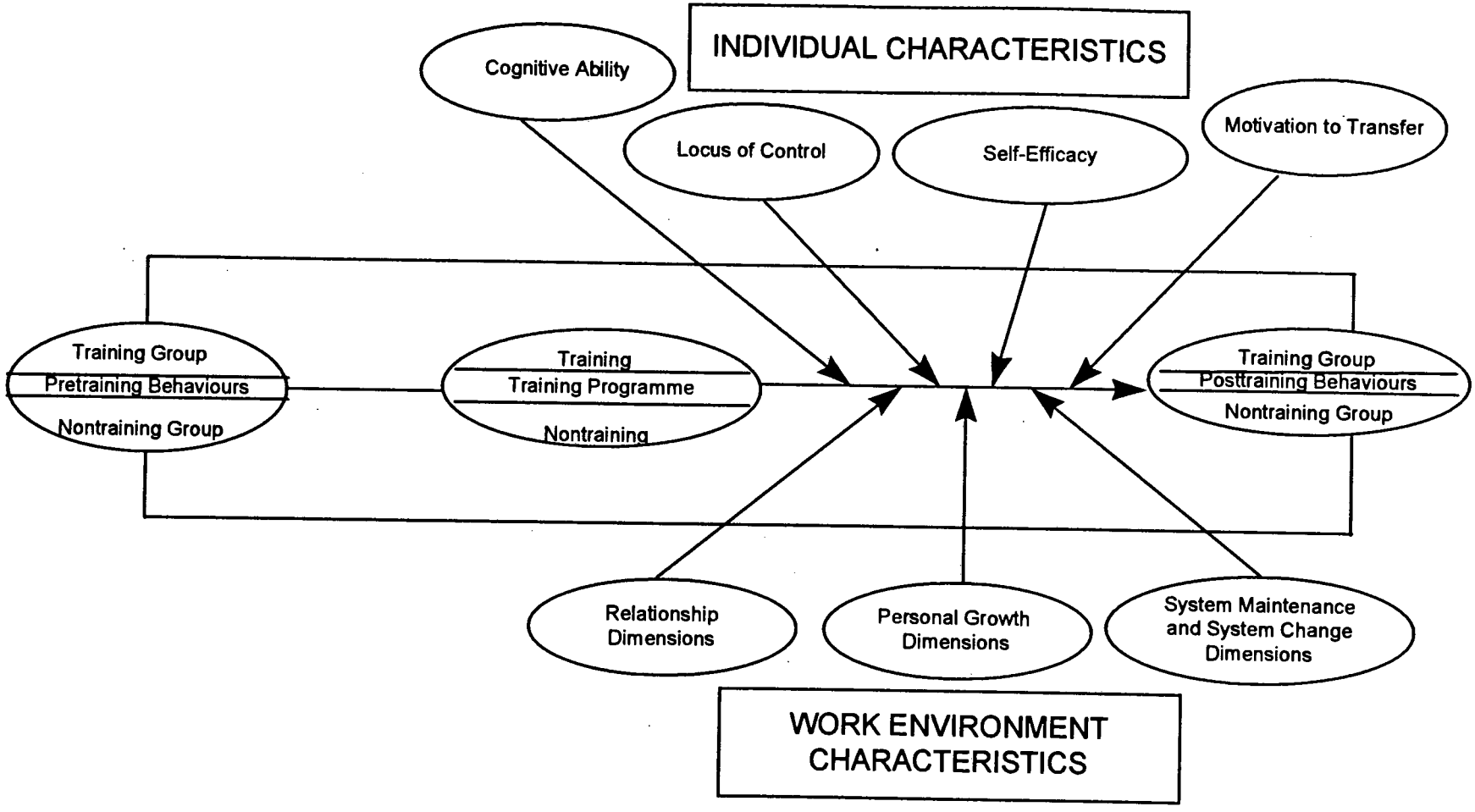

Figure 1. Model of relationships among variables in transfer of training.

individual and work environment characteristics, and this is the primary focus of the study.

The training programme has been in use in the organisation for about eight years, and feedback from trainees over this period indicates high levels of satisfaction with it. It is perceived by managers in the organisation to be a training programme of good quality and the demand for it has been markedly consistent. Thus, the question that the model portrays is: Given that a training course is good (ie, it teaches appropriate skills and it teaches those skills effectively so that trainees may be said to have learned the skills), which characteristics of individual trainees or their work environments (or combinations of these) influence the subsequent use (ie, the transfer) of the trained skills? To put it another way, taking into account individuals' pretraining behaviours (Den Ouden, 1995), to what extent do differences between training and nontraining groups depend on individual and/or work environment characteristics?

The training group will have been exposed to a learning experience that the non-training group will not have experienced. If it is observed that there is no difference between posttraining behaviours of both groups (and concurrently no differences between pre-and post-training measures of the training group), then it can be said that transfer of trained skills in the training group has not occurred. Because informal observations and feedback about the management course as noted above do not suggest that the training programme is deficient, then the model provides a framework for examining other factors that may have contributed to the failure to transfer.

On the basis of the research and theory discussed previously and the model in figure 1, the following operational definition for transfer of training is recorded and the hypotheses relevant to transfer of training in the present study are proposed:

Operational Definition of Transfer of Training

Transfer of training of the interpersonal managerial skills under investigation is defined operationally as the differences between the pretraining (pretest) and posttraining (posttest) scores, as measured by the course content-linked behaviourally-based criterion questionnaire. In particular the measure of transfer is the pretest score subtracted from the posttest score.

Hypotheses Related to Individual Characteristics

Hypothesis 1a: There will be a significant relationship between an individual's cognitive ability and the extent to which the individual displays posttraining behaviours in the application setting.

Hypothesis 1b: There will be a significant relationship between an individual's locus of control and the extent to which the individual displays posttraining behaviours in the application setting.

Hypothesis 1c: There will be a significant relationship between an individual's level of self-efficacy and the extent to which the individual displays posttraining behaviours in the application setting.

Hypothesis 1d: There will be a significant relationship between an individual's motivation to transfer and the extent to which the individual displays posttraining behaviours in the application setting.

Hypotheses Related to Work Environment Characteristics

Hypothesis 2a: There will be a significant relationship between Relationship dimensions in the work environment (involvement, peer cohesion, supervisor support) and the extent to which individuals display posttraining behaviours in the application setting.

Hypothesis 2b: There will be a significant relationship between Personal Growth dimensions in the work environment (autonomy, task orientation, work pressure) and the extent to which individuals display posttraining behaviours in the application setting.

Hypothesis 2c: There will be a significant relationship between System Maintenance and System Change dimensions in the work environment (clarity, control, innovation, physical comfort) and the extent to which individuals display posttraining behaviours in the application setting.

The present chapter has reviewed the literature on transfer of training, identified the variables of interest in the present study, described the research design and the overall conceptual design of the study, described the contents of the management training course that represented the independent variable, and recorded the hypotheses that the study investigated. In the next chapter the research method is outlined, describing the sample, the measures and the procedures.

CHAPTER THREE: METHOD

Sample

The sample comprised 106 junior- and middle-managers employed in a large financial organisation, of whom fifty four managers underwent management training and fifty two did not undergo this training. The sample was located in the company's head office (Cape Town) and regional branches (Western Cape, Gauteng, Eastern Cape, Kwazulu-Natal, Free State). Depending on where they were located, they attended training at one of the three major training centres, in Cape Town, Johannesburg or Durban.

These managers typically tend to manage on average between five to ten direct-report subordinates. The sample was heterogenous in terms of managerial experience, age, gender and ethnicity. The work functions that the managers perform are very similar: they manage largely administrative and clerical staff (i.e., as opposed to specialists such as accountants or computer programmers).

Those studies on transfer that use single-group designs note the limitations that this causes, specifically, that the absence of a control group impedes the certainty of claiming that learning and behaviour change are as a result of training (e.g., Ford et al., 1992; Clark et al., 1993; Tesluk et al., 1995; Tracey et al., 1995; Axtell et al.., 1997). Although this study was not focusing primarily on the efficacy of the training design but rather on the mediating factors that facilitated or inhibited the transfer of trained skills, it was still decided to incorporate a comparison nontraining group in order to reduce the equivocality of interpretation that the above researchers have noted.

The control group was selected from a group of managers who had not yet attended the training course but who were due to do so. Both groups were thus matched as being similar candidates for managerial training. They were also matched according to the criteria that they had been managing the same

subordinates over the period of the study and that they had been in their managerial positions for at least six months at the time of the pretest. They were also matched for status level, that is, they were managers at junior- and middle-management levels.

Of the fifty four trainees who participated in the study at the pretest, thirty six remained to provide full sets of data. The balance of the group was excluded for reasons such as incomplete data, resignations from the company, transfers (which resulted in changes to their work environments and thus introduced inconsistencies into the research design), and changes in job functions (e.g., moving into a nonmanagerial post).

Of the original fifty two control group participants, fifteen were excluded from the study for the same reasons as in the experimental group, and the control group finally consisted of thirty seven managers with full sets of data.

Measures

Table 1 summarises the scales used in the study, identifying respondents, Cronbach's alphas, means and standard deviations.

Individual Characteristics

Cognitive Ability

While the programme design attempts to simplify its teaching of some basic communication skills, the complexities of human interaction still demand a reasonable level of cognitive ability both to learn these skills and then to apply them in novel situations. As discussed in the previous chapter the cognitive basis for transfer is significant, requiring that trainees, once they have learned generic principles and skills (such as those described in the Interaction

Table 1

Summary of measures administered

Scale	Respondents	Group: Training Group No. of Items	Training Group Alpha	Training Group M	Training Group SD	Group: Nontraining Group No. of Items	Nontraining Group Alpha	Nontraining Group M	Nontraining Group SD
1. Pretraining Questionnaire total	Subordinates	21	.95	78.99	13.65	21	.93	79.04	12.68
2. RPM	Participants	60	.89	49.78	6.63	60	.87	48.49	6.44
3. Locus of control I	Participants	5	.50	21.76	2.84	5	.46	21.81	3.00
4. Locus of control E	Participants	6	.55	18.40	2.91	6	.52	17.47	2.89
5. Self Efficacy (academic)	Participants	8	.76	30.89	3.71	8	.75	30.06	3.75
6. WES	Participants	90	.90	57.14	13.16	90	.84	57.35	10.28
7. Self Efficacy (course- specific)	Participants	4	.59	15.95	1.68	-	-	-	-
8. Motivation to transfer	Participants	6	.59	27.35	1.93	-	-	-	-
9. Environment Support (course-specific)	Participants	7	.62	27.30	3.00	-	-	-	-
10. Posttraining questionnaire total	Subordinates	21	.96	82.12	13.57	21	.96	79.42	9.70
11. Posttraining questionnaire total	Participants	21	.84	83.19	6.30	21	.91	82.81	7.96
12. Course content memory	Participants	12	.86	7.57	3.33	-	-	-	-

Note: RPM = Raven's Progressive Matrices; WES = Work Environment Scale

Management course), recognise analogous problems in their work contexts and apply these trained behaviours accordingly.

Transfer studies have used tests of intellectual ability which typically comprise subscales such as verbal, numerical, mechanical, spatial, memory abilities, and so forth. Examples of these include Kanfer and Ackerman (1989), Ford et al. (1992), and Tannenbaum et al. (1991), which used a composite score (the Armed Forces Qualification Test - AFQT) derived from the Armed Services Vocational Aptitude Battery (ASVAB). The AFQT contains measures of verbal ability, mathematical knowledge, and arithmetical reasoning. Another study in the United States used the Bennett Mechanical Comprehension Test (BMC) and the Graduate Record Examination - Analytic (GRE-A) to assess cognitive ability (Allen et al., 1986).

Carpenter et al. (1990) reported that the Raven's (1977) Progressive Matrices (RPM) is characterised by centrality among other complex, cognitive tests: that is, there is psychometric convergence such that the RPM measures the same levels of task and reasoning complexity as other complex tests of reasoning, despite their differences in specific content (e.g., Letter Series, Necessary Arithmetic Operations, Verbal Analogies, Geometric Analogies). Studies such as those by Alderton and Larson (1990) and Arthur and Woehr (1993) confirmed this characteristic of the RPM. Because of its nonverbal format, the test is a common research tool used, among other uses, with subjects for whom the processing of language may need to be minimised - as in the case of Tziner et al.'s (1991) transfer study where measures had to be translated into Hebrew. The obvious extension of this is the possibilities of use in South Africa.

Given the psychometric difficulties of using similar tests such as the South African Wechsler Adult Intelligence Scale (SAWAIS) in the groups of South African trainees which were ethnically different, the RPM was chosen as a workable alternative. Logistically, it is easy to administer in a group, and psychometrically, it is far more accessible to subjects whose home languages are varied: this is because of its figural format, as opposed to other forms of

intellectual ability tests which rely on people's understanding of the language format in these tests (Carpenter et al., 1990).

As discussed previously, Carpenter et al.'s analysis of the Progressive Matrices identifies the Matrices as measuring analytic intelligence which refers to the ability to adapt one's thinking to a new cognitive problem. It is reasoned that this ability is the cognitive basis of transfer (as per Gick and Holyoak, 1987), and it is congruent with one of the central aims of the training course - teaching generic principles, skills and guidelines which can be transferred to a variety of application settings. The RPM consists of five sets of twelve items each, and each set increases in difficulty from the first to the twelfth item.

The test was not timed because this introduces another factor, that of processing efficiency, and it is more relevant to the aims of the management programme under study that individuals learn the ability to recognise transfer opportunities, regardless of the speed at which they do this. In the course, trainees are always encouraged to take time to plan their perfomance-management discussions back on their jobs, and in fact trainees are often encouraged to go *slower* in their role-play discussions because this enhances the thoroughness and effectiveness of the performance-management interactions (Cronbach's alpha = .89 and .87 for the training and nontraining groups, respectively).

A final point to be made relates to the RPM as an intervention tool. If trainees experience difficulties in transfer and their cognitive abilities are found to be negatively influencing their transfer efforts, then it would be logical to improve their cognitive processing strategies to help them. Carpenter et al. (1990) and Raven et al. (1986) cite evidence that individuals can be trained to improve their cognitive strategies by using the RPM accordingly. If cognitive abilities or strategies are observed as being particular inhibitors in certain trainees' attempts to transfer, then not only will the RPM identify this, but one then has a means for effecting improvement.

Locus of Control

This measure has appeared in a number of studies on transfer. It is reasoned that it provides a meaningful indication or predictor of transfer because individuals receive different levels of reinforcement of their newly-learnt skills in their different work environments. It has been found that internals more often engage in exploratory-type behaviours (Noe and Schmitt, 1986; Tziner et al., 1991), and transfer often involves the trying out of new behaviours which have not yet been fully internalised. In the context of transfer of training in an organisation, individuals often need to take responsibility for their own actions to apply their learnings - in other words, to attribute control of the events in their application settings to themselves and to take independent steps to use what they have learnt (Spector, 1982).

The scale used in the present study was the eleven-item measure used by Noe and Schmitt (1986) and Tziner et al. (1991), which those researchers in turn adopted from Andrisani and Nestel (1976). These items represent the more adult and work-oriented items from the Rotter (1966) scale, with five items representing internality and six items representing externality. The response scale used a four-point Likert format (1=strongly disagree to 4=strongly agree), and items representing internality and externality were summed separately to yield two scores accordingly. High scores on either of the scales indicate high internality or externality, respectively.

The Cronbach's alpha scores were .50 and .55 for the internal and external subscales, respectively, for the training group. The alpha scores for the nontraining group were .46 for the internal subscale and .52 for the external subscale. These scores were unusual, given that values in the .75 to .79 range have been reported (e.g., Andrisani and Nestel,1976; Noe & Schmitt, 1986; Tziner et al., 1991).

Motivation to Transfer

Studies on transfer have identified this variable as being positively related to transfer (e.g., Tziner et al., 1991; Ford et al., 1992; Kanfer and Ackerman, 1989; Noe and Schmitt, 1986). For the present study the scale used by Tannenbaum et al. (1991) was included which consisted of six items scored on a five-point Likert format (1=strongly disagree to 5=strongly agree). High scores indicate high levels of motivation to transfer (Cronbach's alpha = .59 for the training group).

Self Efficacy

Self efficacy, the belief in one's capability to perform a specific task, has been found to be positively related to transfer (Tannenbaum et al., 1991; Ford et al., 1992; and Gist et al., 1989). The scale used by Tannenbaum et al. (1991) was adopted. Two measures of self efficacy, academic self efficacy and managerial skills self efficacy, were used, which comprised twelve items scored on a five-point Likert format (1=strongly disagree to 5=strongly agree). High scores indicate high levels of self efficacy.

Cronbach's alphas for academic self efficacy were .76 and .75 for the training and nontraining groups, respectively. The alpha for course-specific self efficacy for the training group was .59.

Work Environment characteristics

Studies have reported work environment characteristics as having significant impacts on transfer. Noe and Schmitt (1986) described 'environmental favorability' as an influencing factor in an individual's attempts to transfer; Ford et al. (1992) highlight supervisory attitudes, workgroup support and pace of workflow as being relevant influences affecting trainees' opportunities to perform. Huczynski and Lewis (1980) reported that in the work environment the trainee's superior was the single most important factor in management training transfer, with regard to the superior's management style, attitudes and

'sponsorship' of the trainee's attempts to try new behaviours. They also identified work pressure and workgroup support as having important influences.

The current study used two scales for assessing work environment support:

1. The one scale used was Noe and Schmitt's (1986) seven-item scale where the wording in these items made specific reference to the training programme in question. In particular, these work environment items related to managerial and peer support, and work pressures. The items were scored in a five-point Likert format (1=strongly disagree to 5=strongly agree), with high scores indicating positive work environment support (Cronbach's alpha = .62 for the training group).

2. The other scale used was a more comprehensive measure of work environment dimensions, using the Work Environment Scale (WES) developed by Moos (1984). The WES comprises ten subscales that measure the environments of work settings. These subscales assess three underlying dimensions, which include all of the factors that have been reported in the literature cited previously as having influences on transfer: (1) Relationship dimensions (Involvement, Peer Cohesion and Supervisor Support); (2) Personal Growth, or goal orientation dimensions (Autonomy, Task Orientation and Work Pressure); and (3) System Maintenance and System Change dimensions (Clarity, Control, Innovation and Physical Comfort). The details of these subscales are recorded in Table 2.

   Although none of the literature cited above has used the WES, it was considered as being able to capture the variety of work environment characteristics that have been reported as influencing transfer. Three subscales in the WES which do not seem to have been studied specifically are task orientation, clarity and physical comfort. It was easily administered in a group setting, and Moos (1984) reported its use in both research and applied contexts. It consists of ten subscales each with nine items, in a ninety-item questionnaire. It is a forced-choice format (true/false), raw scores are converted to standard scores, and high scores indicate high

TABLE 2 (From Moos, 1984)

WES Subscales and Dimensions Descriptions

	Relationship Dimensions
1. Involvement	the extent to which employees are concerned about and committed to their jobs
2. Peer Cohesion	the extent to which employees are friendly and supportive of one another
3. Supervisor Support	the extent to which management is supportive of employees and encourages employees to be supportive of one another
	Personal Growth Dimensions
4. Autonomy	the extent to which employees are encouraged to be self-sufficient and to make their own decisions
5. Task Orientation	the degree of emphasis on good planning, efficiency, and getting the job done
6. Work Pressure	the degree to which the press of work and time urgency dominate the job milieu
	System Maintenance and System Change Dimensions
7. Clarity	the extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated
8. Control	the extent to which management uses rules and pressures to keep employees under control
9. Innovation	the degree of emphasis on variety, change, and new approaches
10. Physical Comfort	the extent to which the physical surroundings contribute to a pleasant work environment

levels of a particular dimension in an individual's work environment (Cronbach's alpha = .90 for the training group and .84 for the nontraining group).

Copies of the questionnaires for locus of control, self-efficacy, motivation to transfer, and work environment support are appendixed in this proposal.

The criterion measure: transferred skills

It is important to note that the skills being trained in this course are skills used in one-on-one manager-subordinate discussions. Thus, in essence, it is really only the trainee and the subordinate who know whether the skills are being used. They are employed in relative privacy, between a manager and a subordinate.

Interviews with managers in the organisation who have at some time in the last six years undergone this same management training revealed that in fact the most accurate information about transfer will be gained from individuals' subordinates. This informal opinion was thus congruent with the same observation reported by Furnham and Stringfield (1994). These managers expressed the belief that the trainees' seniors would not be in a position to provide the needed information, unless they had been observing the trainees very closely - for example, sitting in on the trainees' discussions with their subordinates, which almost never happens. They further reported that they doubted the objectivity of the trainees in providing the information in a self-report format, and that the trainees' peers would know very little about the trainees' use of these particular managerial skills.

As noted previously, it was important to gather observations (a) that were specific to the content of the training programme (to achieve criterion accuracy), and (b) which originated from appropriate sources (to achieve observer accuracy). For this reason, data about transferred skills was gathered from trainees' subordinates. A questionnaire was used whose items directly reflected the content of the course as described above. Tracey et al. (1995) discussed this in their study, where they did not use fully parallel knowledge and behaviour

measures, and they suggested that this accounted for their not finding a significant relationship between training knowledge and posttraining behaviour.

For the purposes of the current study, it was important to achieve as high a level of criterion accuracy as possible. In particular, the questionnaire was assessing whether trainees were using the three key principles (self esteem, empathy and elicit input) and whether they were perceived as showing a tendency to address performance-management opportunites (i.e., as opposed to ignoring or neglecting to do so), as was taught in the four performance-discussion modules (poor performance, poor work habits, follow-up discussion, and good performance). The questionnaire also assessed whether they used a structured approach in performance discussions with their subordinates, and whether subordinates experienced a positive relationship with their managers as a result of the trainees adopting the skills taught on the course.

Consequently, in addition to an overall score of transfer being calculated (the differences between pre- and post-measures), six categories of management skills were used from the questionnaire. These consisted of three measures of the three key principles, one measure of the tendency to address performance behaviours, one measure of the extent to which managers used a structured approach, and one measure which reflected the extent to which managers established a positive manager-subordinate relationship overall. For each of the six skills the items pertaining to those skills were averaged and the means for each of the six skills was used.

The questionnaire was developed from two sources: (a) from interviews and discussions with managers who had previously attended this course; with experienced trainers who had trained the course many times; and with master trainers from the external consultancy that supplied the training materials and trained and certified the trainers; and (b) from the on-course self-evaluation questionnaire which had been developed and piloted by the company that designed the training programme, and which specifically assessed the trainees' perceptions of their levels of competency in the key principles.

The questionnaire, which was piloted for clarity for respondents and was item-analysed, comprised twenty one items to be scored on a five-point scale in a Likert form (1=strongly disagree to 5=strongly agree), and high scores indicated high levels of usage of the criterion skills. As noted in the section above on procedures, this same questionnaire was sent to trainees, but with the wording altered so that it was a self-report format.

For the pretest questionnaires completed by subordinates, the Cronbach alpha scores were .95 and .93 for the training and nontraining groups, respectively. Posttest alphas were .96 for both groups' subordinates, and the self questionnaires scored alphas of .84 and .91 for the training and nontraining groups, respectively.

Although it was not a primary focus of this study, the comparison of self and subordinate reports served a purpose in itself: Facteau et al. (1995) stated that they '...are not aware of any research which indicates that trainees cannot accurately self-report training transfer.' (p. 22) Thus, it was reasoned that a comparison of self and subordinate reports might usefully contribute to knowledge in this regard. A copy of this questionnaire is appendixed.

Learning Retention

Learning tests to measure learning outcome (Kirkpatrick's, 1975, Level three) were employed by Noe & Schmitt (1986) and Tracey and Tews (1995), and Tziner et al. (1991) used learning retention as their dependent variable in their relapse-prevention study. In addition to the cognitive ability measure gathered in the present study, a memory test of the main course content was administered.

The content of the memory questionnaire consisted of the three key principles, the four performance management situations, and the five discussion steps. The questionnaire consisted of questions which required the trainee to remember a total of twelve items, and the means of the three overall categories were calculated. The Cronbach's alpha for this scale was .86.

Procedure

Before the training programme

1. All subjects and their seniors were contacted telephonically by the researcher before the course, to explain the research and to obtain verbal agreement to participate. This phase also served to confirm that for those attending training the course was in fact appropriate - that is, that they were actually in managerial positions and that their attendance on the course was voluntary. It was also confirmed that the nontraining group was in similar managerial positions.

2. A covering letter was then mailed to the subjects and their seniors, confirming the personal conversation and their agreement to participate in the research. A brief outline of the research project was also included in the letter.
3. The letter to the seniors also contained the pretraining questionnaires for the subjects' *subordinates*. The subjects' *seniors* were asked to distribute these questionnaires to the subordinates. Each questionnaire was in a separate self-addressed envelope, which the subordinates were asked to seal after completing the questionnaire and return directly to the researcher. These procedures were covered both in the personal contact with the participants and seniors and in the letters described in point two above.

On the training programme

4. After the introductions section, trainees filled in the following questionnaires:
    4.1 Raven's (1977) Progressive Matrices
    4.2 Locus of control and self efficacy (academic)
    4.3 Work Environment Scale

The nontraining group participants attended scheduled sessions to complete the same questionnaires.

5. At the end of the last day of the course trainees filled in a final questionnaire which contained the following scales:
    5.1 Motivation to transfer
    5.2 Self efficacy (course-specific)
    5.3 Course-specific work environment support

The nontraining group did not complete these course-specific scales.

<u>After the training programme</u>

6. Six to eight months after the training, the researcher again contacted participants and their seniors telephonically and a follow-up letter was sent to the subjects' *seniors*, containing posttraining questionnaires for subjects' *subordinates* to complete, following the same procedure as in point three above.

7. Also included in the seniors' letters were two documents for the seniors to distibute to the subjects:
    7.1 A brief memory test of the three major components of the course content as described above: three key principles, four performance-discussion modules, and the five-stage discussion guideline. This was not completed by the nontraining group because it was specific to those who had attended the course.
    7.2 A posttraining questionnaire identical to that completed by the participants' subordinates, with the indexical wording changed so that it was a self-report questionnaire.

These questionnaires, also provided with self-addressed envelopes, were returned directly to the researcher.

In both pretest and posttest phases, the researcher maintained regular contact with participants and their seniors, to ensure that they understood the procedures and to ensure the maximum number of questionnaire returns.

The following chapter describes the results obtained.

CHAPTER FOUR: RESULTS

Preliminary Analyses

The first analysis performed was that of the scales used, and in particular of the criterion measures - the criterion-specific pre- and post-questionnaires. As reported, all these criterion questionnaires demonstrated high reliability coefficients, ranging from .87 to .96 The scales for locus of control, course-specific efficacy, motivation to transfer and course-specific environment support recorded reliability values on the low side, ranging from .46 to .62. The scales for cognitive ability, academic self efficacy, and the memory questionnaire evidenced more satisfactory reliability values, as did the work environment scale. Alpha scores ranged from .76 to .89. The details are summarised in Table 1 in the previous chapter (p. 57).

The next analyses were descriptive statistics on all the variables measured, and these are depicted in Table 3. There were no unusual standard deviations and the variations within the groups were small and similar. However visual examinations of the data using histograms reveal that not all the distributions were normal. The distributions for posttest scores, the self-ratings, course-specific environment support and cognitive ablity scores were all normal. The pretest scores, course-specific self efficacy and internal locus of control were peaked with kurtosis scores greater than 1, and these distributions were also somewhat skewed, with skewness scores greater than .5. External locus of control also showed a tendency toward skewness and kurtosis, while the overall work environment scale, academic self efficacy and motivation to transfer were characterised by kurtosis scores greater than .5. The histograms are appendixed to this study.

The training and nontraining groups were then compared for equivalence. Using the pretest scores on the six managerial characteristics assessed in the questionnaires, it was found that there were no significant differences between

Table 3

Descriptive Statistics of Mediator Variables

Variable	Group					
	Training			Nontraining		
	N	M	SD	N	M	SD
1. Cognitive ability	37	49.78	6.63	37	48.49	6.44
2. Locus of control	37	21.76	2.84	36	21.81	3.00
3. Self-efficacy (academic)	37	30.89	3.76	34	30.06	3.75
4. Self-efficacy (course-specific)	37	15.95	1.68	-	-	-
5. Motivation to transfer	37	27.35	1.93	-	-	-
6. Environment support (course-specific)	37	27.30	2.30	-	-	-
7. Involvement WES	37	5.73	2.39	37	6.00	1.80
8. Peer cohesion WES	37	5.32	2.03	37	5.54	2.22
9. Supervisor support WES	37	6.22	1.96	37	6.51	1.52
10. Autonomy WES	37	6.00	2.01	37	6.27	1.56
11. Task orientation WES	37	5.78	2.21	37	5.78	1.73
12. Work pressure WES	37	6.16	1.89	37	6.51	1.87
13. Clarity WES	37	5.49	2.35	37	5.70	2.04
14. Control WES	37	5.49	2.10	37	4.89	2.08
15. Innovation WES	37	6.11	2.22	37	6.00	2.16
16. Pysical Comfort WES	37	4.84	2.70	37	5.03	2.36
17. Memory test:						
Key principles	37	0.69	0.39	-	-	-
Performance situations	37	0.36	0.38	-	-	-
Discussion structure	37	0.81	0.37	-	-	-
Total	37	0.63	0.28	-	-	-

Note: WES = Work Environment Scale

Table 4

Descriptive Statistics and Pretest Comparisons of Training and Nontraining groups of Transfer Criterion Behaviour Ratings

Variable	Behaviour ratings									Pretest scores		
	Pretraining			Posttraining			Self rating			Both groups		
	N	M	SD	N	M	SD	N	M	SD	*t*	df	*p*
Training group												
Self esteem	37	3.98	.51	37	4.13	.48	37	4.18	.40	-.171	71	> .04
Empathy	37	3.95	.45	37	3.99	.50	37	4.12	.38	.766	65	> .04
Elicit input	37	3.75	.43	37	3.83	.48	37	3.92	.55	.559	72	> .04
Structured approach	37	3.56	.63	37	3.69	.66	37	3.57	.70	.706	70	> .04
General relationship	37	4.04	.55	37	4.07	.58	37	4.05	.33	.693	72	> .04
Address performance	37	3.68	.48	37	3.92	.44	37	3.84	.46	.199	71	> .04
Nontraining group												
Self esteem	36	4.01	.56	37	3.95	.50	37	4.14	.45			
Empathy	37	3.84	.68	37	3.90	.50	37	4.09	.35			
Elicit ideas	37	3.70	.42	37	3.58	.48	37	3.92	.52			
Structured approach	35	3.45	.63	37	3.46	.72	37	3.64	.87			
General relationship	37	3.95	.62	37	3.92	.53	37	4.10	.43			
Address performance	36	3.70	.47	37	3.66	.57	37	3.88	.49			

the two groups on any of these characteristics. Table 4 summarises the details of this analysis. It was thus concluded that on the criterion variable the two groups were equivalent and that any differences that might be observed between the two groups would not be due to selection, maturation, instrumentation, history or testing.

Descriptive statistics for the pretest and posttest questionnaires as completed by subordinates as well as the self-rated questionnaire are presented in Table 4. To obtain the measure of the extent of transfer, a score was calculated which indicated changes in behaviour between the pretest and posttest measures, and this was done by subtracting the pretest scores from the posttest scores for the ratings by the subordinates. As discussed in the previous chapter under the section dealing with criterion measurement, six management characteristics were identified within the behavioural questionnaire items which were specific to the skills and principles taught in the management training course. Thus, the measure of transferred behaviour comprises six measures, calculated as mentioned above by subtracting pretest scores from posttest scores for each of the six management characteristics, to yield one transfer score for each of these six skills. In the present study, unless otherwise indicated, measures of transfer on the management skills refers to these calculated pretest-posttest difference scores.

Pretest-posttest differences within each group on the management skills were calculated as described above from the scores on the criterion questionnaires, to assess whether there had been any changes in behaviour between the first and second measures. Table 5 depicts these details. The only significant differences recorded in the training group were with regard to the tendency to address performance behaviours ($t = 2.49$, $p < .05$) and maintaining self esteem ($t = 1.89$, $p < .05$). The nontraining group recorded no significant differences on any of the categories of managerial skills between the first and second observations.

The results suggest that there was very little transfer of trained skills. However, in all instances in the training group there was a tendency for the posttest score

Table 5

Pairwise t-tests for Pretest-Posttest Differences

	Group							
	Training				Nontraining			
Variable	D	SD	*t*	df	D	SD	*t*	df
Self esteem	.14	.45	1.89*	36	-.03	.62	-.23	35
Empathy	.04	.40	.54	36	-.06	.74	.45	36
Elicit input	.08	.51	.96	36	-.12	.58	-1.21	36
Structured approach	.13	.63	1.26	36	.11	.60	1.12	34
General relationship	.02	.45	.33	36	-.03	.72	-.23	35
Address performance	.24	.59	2.49*	36	-.01	.64	-.14	36

D = Average difference
* $p < .05$

Table 6

Comparison of Posttest Scores for Training and Nontraining Groups F Ratios and t tests

Variable	F	df	*t*	df
Self esteem	1.05	36, 36	1.55	72
Empathy	1.01	36, 36	.72	72
Elicit input	1.02	36, 36	2.28*	72
Structured approach	1.19	36, 36	1.39	72
General relationship	1.20	36, 36	1.14	72
Address performance	1.68	36, 36	2.25*	72

* $p < .05$

to be slightly larger than the pretest score, even though these differences did not attain statistical significance.

A comparison of posttest scores (i.e., not transfer scores but scores from the posttest questionnaires) for both groups also yielded a significant difference between the two groups with regard to the tendency to address performance behaviours ($t = 2.25$, $p < .05$), and an additional difference of significance was recorded for the management skill of eliciting input from subordinates ($t = 2.28$, $p < .05$). No other management skills recorded any statistically significant differences. Table 6 summarises these results.

A final preliminary analysis was conducted to compare the correlations between the self and subordinate scores for both training and nontraining groups. The scores used were not transfer scores as described above but scores from the posttest questionnaires, because pretest self ratings were not administered. These correlations were then tested for significance. Table 7 summarises these results. For the training group there were no statistically significant correlations between self and subordinate ratings, except for the management characteristic which measured the extent to which the manager establishes a positive manager-subordinate relationship. The correlation to be found was negative ($t = -2.07$, $p < .05$). For the nontraining group there were no significant correlations between self and subordinate ratings.

Analyses for Hypothesis Testing

For all analyses conducted under this section, the transfer scores as described in the previous chapter and the in previous section of this chapter (p. 73) were used. Thus the mediator variables were analysed in relation to pretest-posttest differences scores which represent changes in behaviour from before the training course to after the training course; this is the operational definition of transfer for the present study, as recorded in chapter two (p. 53).

Table 7

Correlations Between Self and Subordinate Ratings

	Group					
	Training			Nontraining		
Variable	*r*	*t*	df	*r*	*t*	df
Self esteem	-.19	-1.11	35	-.09	-.53	35
Empathy	-.03	-.20	35	.28	1.74	35
Elicit input	.01	.05	35	.05	.32	35
Structured approach	-.15	-.88	35	.32	2.02	35
General relationship	-.33	-2.07*	35	.23	1.41	35
Address performance	.03	.19	35	.15	.89	35

* $p < .05$

Correlational Analyses

A correlation matrix for all mediator variables and criterion measures was constructed for training and nontraining groups. These scores are summarised in Tables 8 and 9. Very few significant correlations emerged.

Correlations for the Nontraining Group

For the nontraining group, internal locus of control correlated significantly with the management skill of maintaining self esteem (r =.37, $p < .05$) and using empathy (r = .36, $p < .05$), and with an aggregated score of all the management skills (r = .35, p = < .05). The only work environment characteristic of significance was work pressure, which correlated with the management characteristic of the tendency to address performance behaviours (r = .39, $p <$ .05).

Table 8

Correlations for all Mediator and Dependent Variables - Nontraining Group

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Cognitive ability	1.00										
2. Self efficacy (academic)	.17	1.00									
3. Locus of Control I	-.14	.31	1.00								
4. Locus of Control E	-.01	.04	-.14	1.00							
5. Involvement WES	-.15	.12	.13	-.36*	1.00						
6. Peer Cohesion WES	.11	-.06	.11	-.15	.41*	1.00					
7. Supervisor Support WES	.11	-.10	.09	-.50*	.57*	.48*	1.00				
8. Autonomy WES	.08	.16	.13	-.03	.01	.19	.22	1.00			
9. Task Orientation WES	-.07	.10	.00	.03	.51*	.41*	.23	.20	1.00		
10. Work presssure WES	.34*	-.06	.01	.09	.04	.25	.12	-.18	.02	1.00	
11. Clarity WES	.03	.11	-.01	-.46*	.65*	.38*	.46*	.38*	.44*	.06	1.00
12. Control WES	-.07	.10	.06	.15	.14	.16	.27	-.09	.27	.07	.10
13. Innovation WES	.07	-.05	.02	-.35*	.21	.33	.40*	.60*	.14	-.16	.39*
14. Physical comfort WES	-.05	.07	.02	-.19	.29	-.05	.21	-.07	.31	.20	.25
15. General relationship	.05	.25	.29	.10	.20	-.20	-.22	.02	.01	-.04	-.33
16. Self Esteem	.08	.22	.37*	.18	.07	-.03	.03	.05	.18	.05	-.30
17. Empathy	.09	.30	.36*	.01	-.06	-.08	-.08	.05	.18	-.11	-.16
18. Elicit input	.04	.16	.24	.03	-.09	-.04	.08	.31	-.15	.11	.07
19. Structured approach	.11	.16	.33	.32	-.15	-.21	-.19	.14	-.09	-.23	-.20
20. Address performance	.11	.11	.02	.03	.05	-.01	.08	.09	.06	.39*	.05
21. Transfer total	.10	.26	.35*	.13	-.13	-.13	-.12	.13	.04	.01	-.20

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

N = 35

Table 8 (Continued)

Correlations for all Mediator and Dependent Variables - Nontraining Group

Variable	12	13	14	15	16	17	18	19	20	21
1. Cognitive ability										
2. Self efficacy (academic)										
3. Locus of Control I										
4. Locus of Control E										
5. Involvement WES										
6. Peer Cohesion WES										
7. Supervisor Support WES										
8. Autonomy WES										
9. Task Orientation WES										
10. Work presssure WES										
11. Clarity WES										
12. Control WES	1.00									
13. Innovation WES	-.05	1.00								
14. Physical comfort WES	-.23	.21	1.00							
15. General relationship	-.09	-.09	.01	1.00						
16. Self Esteem	.07	-.10	-.04	.88*	1.00					
17. Empathy	.10	-.07	.01	.84*	.84*	1.00				
18. Elicit input	-.08	.24	-.02	.39*	.45*	.39*	1.00			
19. Structured approach	-.10	-.08	-.10	.64*	.66*	.55*	.56*	1.00		
20. Address performance	.30	.13	-.00	.30	.38*	.39*	.68*	.21	1.00	
21. Transfer total	.03	-.01	-.03	.87*	.90*	.86*	.71*	.78*	.59*	1.00

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

N = 35

Although one can infer that internals seem more likely to pay attention to their subordinates' needs (self esteem and empathy) and overall to manage their subordinates' performance effectively, and that high work pressures seem to inhibit managers' tendencies to manage performance, it needs to be borne in mind that these were the results of the nontraining group which yielded no significant changes in behaviour between the first and second observations. Technically, there was no 'transfer' of trained skills against which to correlate mediator variables.

Correlations for the Training Group

For the training group there was only one significant correlation. Internal locus of control correlated with the management characteristic of establishing a general positive relationship ($r = .35$, $p < .05$). No other individual characteristics yielded any relationships, and no work environment characteristics showed any significance.

Correlations for Combined Groups

On combining the scores for both groups there were some changes to the locus of control relationships. Internal locus of control correlated negatively with self esteem ($r = -.29$, $p < .05$), establishing a positive manager-subordinate relationship ($r = -.30$, $p < .05$), and the total transfer score for the management skills ($r = -.28$, $p < .05$). External locus of control correlated positively with the characteristic of using a structured approach ($r = .31$, $p < .05$). Table 10 summarises these results.

Thus, based on the correlational analysis, there was support for Hypothesis 1b, the prediction of a significant influence of locus of control on transfer of training, and no support for any of the other hypotheses.

Table 9

Correlations for all Mediator and Dependent Variables - Training Group

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Cognitive ability	1.00													
2. Self efficacy (academic)	.03	1.00												
3. Locus of Control I	.08	.13	1.00											
4. Locus of Control E	-.21	.16	-.19	1.00										
5. Involvement WES	.34*	.21	.31	-.06	1.00									
6. Peer Cohesion WES	.33*	.20	.10	.02	.61*	1.00								
7. Supervisor Support WES	.34*	.22	.32	-.43*	.46*	.27	1.00							
8. Autonomy WES	.08	.28	.22	-.08	.48*	.22	.57*	1.00						
9. Task Orientation WES	.07	.35*	.21	.11	.65*	.50*	.28	.25	1.00					
10. Work presssure WES	.14	.08	.08	.25	.05	-.03	-.28	-.25	.14	1.00				
11. Clarity WES	.01	.20	-.40*	.06	.71*	.48*	.43*	.51*	.59*	-.11	1.00			
12. Control WES	-.35*	.11	-.02	.07	-.15	-.16	-.07	-.17	.23	.09	.06	1.00		
13. Innovation WES	.18	.26	.27	-.16	.76*	.41*	.49*	.49*	.57*	-.03	.67*	-.08	1.00	
14. Physical comfort WES	.03	-.15	.13	-.10	.52*	.34*	.31	.40*	.28	-.18	.41*	.12	.52*	1.00
15. Self Efficacy (course-specific)	.09	.51*	.15	-.18	.15	.30	.22	.01	.19	.05	.25	-.03	.32	-.01
16. Motivation to transfer	.03	.16	.32	-.10	.02	.07	.22	.04	-.07	.08	.22	-.00	.34*	.07
17. Environment support (course-specific)	-.08	.31	-.35*	-.14	.28	-.01	.47*	.29	.30	-.04	.43*	.23	.51*	.29
18. Memory key principles	.16	-.16	.20	-.14	-.16	.12	-.22	-.30	-.08	-.06	-.07	.13	-.15	-.01
19. Memory performance situations	.27	-.07	.36*	-.06	.12	.26	.06	-.12	.19	.07	.18	-.16	.05	-.04
20. Memory discussion stages	.01	-.16	.15	-.15	.07	.09	-.13	-.00	.15	-.00	-.02	.08	-.01	.22
21. Memory total	.19	-.17	.32	-.16	.04	.21	-.12	-.16	.14	.01	.05	.02	-.04	.10
22. General relationship	.06	-.06	.35*	.06	.05	-.03	.17	.31	-.15	-.05	.06	-.09	-.08	.19
23. Self Esteem	-.02	-.04	.26	.14	-.09	-.09	.01	.13	-.07	-.08	.01	.04	.01	.11
24. Empathy	.05	-.09	.09	-.03	.05	.18	.25	.17	-.15	-.17	.02	-.28	-.08	.13
25. Elicit input	-.04	-.05	.22	.11	-.11	-.00	-.14	.06	-.07	.02	-.09	-.10	-.09	.05
26. Structured approach	-.07	.02	.09	.30	-.30	-.06	-.21	.04	-.12	-.05	-.12	-.24	-.06	.03
27. Address performance	-.18	.04	.08	.23	.08	-.08	-.03	.13	-.08	.13	-.01	-.00	.04	.21
28. Transfer total	-.05	-.03	.21	.19	.00	-.04	-.02	.16	-.13	-.03	-.04	-.14	-.05	.15

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$ N = 37

Table 9 (Continued)

Correlations for all Mediator and Dependent Variables - Training Group

Variable	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Cognitive ability														
2. Self efficacy (academic)														
3. Locus of Control I														
4. Locus of Control E														
5. Involvement WES														
6. Peer Cohesion WES														
7. Supervisor Support WES														
8. Autonomy WES														
9. Task Orientation WES														
10. Work presssure WES														
11. Clarity WES														
12. Control WES														
13. Innovation WES														
14. Physical comfort WES														
15. Self EfficAcy (course-specific)	1.00													
16. Motivation to transfer	.44*	1.00												
17. Environment support (course-specific)	.57*	.46*	1.00											
18. Memory key principles	.04	-.07	-.32	1.00										
19. Memory performance situations	.18	.14	.05	.26	1.00									
20. Memory discussion stages	-.08	-.17	-.05	.49*	.18	1.00								
21. Memory total	.06	-.05	-.11	.74*	.65*	.81*	1.00							
22. General relationship	-.19	.08	-.17	.12	.05	.05	.09	1.00						
23. Self Esteem	.00	.04	.02	.23	-.01	.22	.19	.67*	1.00					
24. Empathy	-.06	-.01	-.23	.01	.11	.03	.07	.65*	.44*	1.00				
25. Elicit input	-.11	-.02	-.16	.25	-.03	.14	.15	.68*	.68*	.31	1.00			
26. Structured approach	-.02	-.05	-.23	.19	-.12	.02	.02	.62*	.59*	.31	.82*	1.00		
27. Address performance	-.07	.11	-.11	.10	-.07	.09	.05	.70*	.54*	.54*	.69*	.63*	1.00	
28. Transfer total	-.09	-.03	-.18	.19	-.03	.11	.11	.87*	.79*	.63*	.87*	.84*	.85*	1.00

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$ N = 37

Table 10

Correlations for all Mediator and Dependent Variables - Combined Group

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Cognitive ability	1.00										
2. Self efficacy (academic)	.10	1.00									
3. Locus of Control I	-.02	-.35*	1.00								
4. Locus of Control E	-.10	.11	-.01	1.00							
5. Involvement WES	.13	.16	-.20	-.20	1.00						
6. Peer Cohesion WES	.22	.06	-.11	-.08	.51*	1.00					
7. Supervisor Support WES	.24*	.07	-.22	-.46*	.50*	.36*	1.00				
8. Autonomy WES	.08	.22	-.25*	-.06	.31*	.17	.44*	1.00			
9. Task Orientation WES	.01	.23*	-.10	.07	.60*	.45*	.26*	.23	1.00		
10. Work presssure WES	.24*	.00	-.03	.11	.05	.13	-.09	-.21	.08	1.00	
11. Clarity WES	.02	.16	-.29*	-.20	.68*	.42*	.44*	.46*	.53*	-.03	1.00
12. Control WES	-.21	.12	.00	.12	-.04	.00	-.16	-.14	.24*	.08	.08
13. Innovation WES	.13	.12	-.14	-.25*	.53*	.37*	.44*	.53*	.38*	-.10	.54*
14. Physical comfort WES	-.00	-.05	-.06	-.14	.43*	.15	.27*	.21	.29*	.00	.39*
15. General relationship	.06	.10	-.30*	.08	-.07	-.13	-.01	.17	-.07	-.04	-.13
16. Self Esteem	.03	.11	-.29*	.17	-.08	-.06	-.02	.08	.05	-.02	-.15
17. Empathy	.07	.12	-.20	-.03	.00	.03	.09	.10	.03	-.12	-.07
18. Elicit input	-.00	.07	-.22	.05	-.05	-.06	-.06	.15	-.10	.06	-.02
19. Structured approach	.01	.09	-.17	.31*	-.10	-.14	-.20	.08	-.10	-.14	-.15
20. Address performance	-.06	.09	-.15	.15	.03	-.05	-.07	.11	-.03	.22	.01
21. Transfer total	.02	.12	-.28*	.16	-.06	-.09	-.07	.14	-.05	-.01	-.11

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

N = 72

Table 10 (Continued)

Correlations for all Mediator and Dependent Variables - Combined Group

Variable	12	13	14	15	16	17	18	19	20	21
1. Cognitive ability										
2. Self efficacy (academic)										
3. Locus of Control I										
4. Locus of Control E										
5. Involvement WES										
6. Peer Cohesion WES										
7. Supervisor Support WES										
8. Autonomy WES										
9. Task Orientation WES										
10. Work presssure WES										
11. Clarity WES										
12. Control WES	1.00									
13. Innovation WES	-.06	1.00								
14. Physical comfort WES	-.04	.37*	1.00							
15. General relationship	-.09	-.09	.10	1.00						
16. Self Esteem	.07	-.04	.04	.78*	1.00					
17. Empathy	-.07	-.08	.06	.77*	.66*	1.00				
18. Elicit input	-.08	.07	.02	.51*	.57*	.32*	1.00			
19. Structured approach	-.17	-.07	-.03	.63*	.62*	.43*	.70*	1.00		
20. Address performance	.14	.08	.13	.47*	.46*	.41*	.69*	.45*	1.00	
21. Transfer total	-.05	-.03	.06	.87*	.85*	.74*	.79*	.81*	.73*	1.00

Note: I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

N = 72

Table 11

Stepwise Regressions for Nontraining Group

					Dependent variable							
					General relationship		Self esteem		Structured approach		Address performance	
Independent variable	R^2	AR^2	F	df	b	*t* (31)	b	*t* (30)		*t* (29)	b	*t* (30)
Step	.23	.16	3.14*	3, 31								
1. Clarity WES					-.01	-2.21*						
Step	.37	.29	4.46**	4, 30								
1. Locus of control I							.14	2.66*				
2. Clarity WES							-.02	-2.95**				
3. Task orientation WES							.01	2.47*				
Step	.40	.29	3.84**	5, 29								
1. Locus of control I									.18	2.99**		
2. Locus of conrol E									.09	2.48*		
Step	.33	.24	3.69*	4, 30								
1. Work pressure WES											.02	3.05***
2. Control WES											.01	2.13 *

Note: AR^2 = Adjusted R^2 ; b = regression coefficient; I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

** $p < .01$

*** $p < .005$

Table 12

Stepwise Regressions for Training Group

					Dependent variable							
					General relationship		Empathy		Structured approach		Total transfer	
Independent variable	R^2	AR^2	F	df	b	*t* (28)	b	*t* (32)	b	*t* (31)	b	*t* (28)
Step (n = 37)	.48	.33	3.18*	8, 28								
1. Locus of control I					.11	3.14***						
2. Environment support (course-specific)					-.06	-2.20*						
Step (n = 37)	.28	.19	3.07*	4, 32								
1. Supervisor support WES							.01	2.72**				
2. Environment support (course-specific)							-.06	-2.38*				
Step (n = 37)	.32	.21	2.94*	5, 31								
1. Locus of control E									.12	2.59*		
2. Control WES									-.01	-2.29*		
3. Memory key principles									.53	2.09*		
Step (n = 37)	.38	.20	2.14	8, 28								
1. Locus of control I											.10	2.71*
2. Environment support (course-specific)											-.08	-2.55*
3. Locus of control E											.07	2.22*
4. Physical comfort WES											.01	2.27*

Note: AR^2 = Adjusted R^2 ; b = regression coefficient; I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

** $p < .01$

*** $p < .005$

For the management characteristic of establishing a positive relationship, internal locus of control was significantly related ($t = 3.14$, $p < .005$) and course-specific environment support was related in a negative direction ($t = -2.20$, $p < .05$), and these two characteristics were part of a 33% variance contribution. Supervisor support ($t = 2.72$, $p < .01$) and course-specific environment support ($t = -2.38$, $p < .05$) were both related to the management skill of empathy, in positive and negative directions, respectively. They explained 19% of the variance in the criterion variable.

The skill of using a structured approach was positively related to external locus of control ($t = 2.59$, $p < .05$) and memory of course content (in particular, the key principles: self esteem, empathy, elicit input) ($t = 2.09$, $p < .05$). Control also emerged as significant, in a negative direction ($t = -2.29$, $p < .05$). They explained 21% of the variance.

In relationships with the aggregated transfer score, internal locus of control ($t = 2.71$, $p < .05$), external locus of control ($t = 2.22$, $p < .05$) and physical comfort ($t = 2.27$, $p < .05$) were significant, and course-specific environment support was significant in a negative direction ($t = -2.55$, $p < .05$). These predictors contributed to 20% of the variance.

Regression Analyses for the Combined Group

Stepwise regressions performed on the combined groups did not reveal any major differences in patterns. Table 13 summarises these results. Three of the six management skills were identified, namely, general relationship, self esteem and empathy, as well as the aggregated transfer score. Internal locus of control ($t = -3.01$, $p < .005$) and clarity ($t = -2.56$, $p < .05$) were significantly related in negative directions with the management characteristic of establishing a general positive relationship, and autonomy was positively related ($t = 2.21$, $p < .05$). These predictors contributed to 18% of the variance.

Table 13

Stepwise Regressions for Combined Group

					Dependent variable							
					General relationship		Empathy		Structured approach		Total transfer	
Independent variable	R^2	AR^2	F	df	b	*t* (31)	b	*t* (30)	b	*t* (29)	b	*t* (30)
Step (n = 37)	.24	.18	4.12***	5, 66								
1. Locus of control I					-.10	-3.01***						
2. Clarity WES					-.01	-2.56*						
3. Autonomy WES					.01	2.21*						
Step (n = 37)	.19	.14	4.00**	4, 67								
1. Locus of control I							-.10	-3.11***				
2. Clarity WES							-.01	-3.00***				
Step (n = 37)	.22	.16	3.64**	5, 66								
1. Locus of control E									.07	2.22*		
Step (n = 37)	.18	.12	2.90*	5, 66								
1. Locus of control I											-.08	-2.79**
2. Clarity WES											-.01	-2.22*

Note: AR^2 = Adjusted R^2 ; b = regression coefficient; I = Internal; E = External; WES = Work Environment Scale

* $p < .05$

** $p < .01$

*** $p < .005$

Internal locus of control and clarity were likewise negatively related to the management skill of enhancing self esteem (t = -3.11 and t = -3.00, respectively, $p < .005$), and they contributed to a variance of 14%. External locus of control was significantly related to the skill of using a structured approach (t = 2.22, $p <$ .05), contributing to 16% of the variance. The aggregated transfer score yielded a significant relationship with the predictors of internal locus of control (t = -2.79, $p < .01$) and clarity (t = -2.22, $p < .05$) in a negative direction, and they contributed to a small variance of 12%.

The main differences obtained from this regression analysis on the combined group were firstly that internal locus of control changed its direction of significance from positive in both training and nontraining groups to negative in the combined group, and secondly that the magnitudes of the variances explained in the combined group decreased overall.

With regard to the hypotheses of the study, for the training group the multiple regression analysis found a degree of support for some of the hypotheses. There was some support for Hypothesis 1b in that locus of control (both internal and external) was a contributor to some of the variance, there was some support for Hypothesis 2a relating to the Relationship work environment dimensions of suupervisor and peer support which appeared in a predictor group, and for Hypothesis 2c the System Maintenance/System Change dimensions of control and physical comfort contributed to some of the variance. However, the hypothesis-confirmation can be tentative at best because firstly the hypothesis-related variables only reached some level of significance when they were in combinations with other variables, and secondly a third of the criterion measures did not feature in any meaningful relationships.

The above finding that certain mediator variables reached levels of significance when they were in combinations with other variables, does, however, relate to findings such as those reported by Tziner et al. (1991) where locus of control, supervisor support and a relapse-prevention strategy were seen to have interacting effects on transfer.

The criterion measure of transfer as identified by behaviours directly related to the training course has deliberately been kept specific to ensure criterion validity. Thus there are six dependent variables in addition to one aggregated score because it was reasoned that one aggregate score would make the criterion measure nonspecific and increase any ambiguity of results. There are thus multiple 'independent' variables and multiple dependent variables, and accordingly a canonical correlations analysis was carried out on the data to detect any significant relationships between these two sets of variables (Pedhazur, 1982).

Canonical Correlations Analysis

On all three possible groups, training, nontraining and combined, no significant sets of relationships were detected. Thus, according to the canonical analysis, none of the hypotheses relating either to individual or to work environment characteristics was supported. These results were surprising, considering that the abovementioned regression analyses detected significant relationships and that canonical analysis is a form of multiple regression (Pedhazur, 1982). Possible reasons for this finding will be discussed in the next chapter.

One final analysis was performed, unrelated to the hypotheses but prompted by Den Ouden's (1995) finding that pretraining behaviours were the most significant predictors of posttraining behaviours, or to put it another way: old habits die hard. For the training group a correlation matrix was constructed where pretest measures were correlated with transfer measures, on the six management skills and one total averaged score. Table 15 summarises these data. Without exception, each of the pretest scores correlated significantly with their transfer score counterparts, which seemed to support Den Ouden's findings.

In summary, this chapter has reported on the analyses of the data gathered from training and nontraining groups. Preliminary analyses indicated that (a) the scales used to measure the criterion variables for transfer demonstrated high internal-consistency validity coefficients, but there was some variation among

Table 14

Correlation Matrix of Pretest and Transfer Criterion Scores for Training Group

Variable	General relationship	Self esteem	Empathy	Elicit input	Structured approach	Address performance	Total transfer
General relationship	**.34***	.23	.30	.21	.05	.51*	.33*
Self esteem	.40*	**.49***	.18	.38*	.23	.48*	.44*
Empathy	.14	.01	**.33***	-.07	-.19	.25	.08
Elicit input	.21	.37*	.13	**.50***	.30	.42*	.41*
Structured approach	.43*	.33*	.14	.44*	**.44***	.54*	.49*
Address performance	.43*	.20	.29	.35*	.31	**.69***	.48*
Total pretest	.38*	.31	.26	.35*	.25	.55*	**.43***

* $p < .05$
N = 37

the mediator variables scales in terms of their respective reliability values; (b) descriptive statistics on both mediator and criterion variables indicated that distributions were not all quite normal, but they were not grossly abnormal; (b) the lack of significant differences between groups on the pretest measures suggested that the groups could be considered equivalent, thus controlling for the possibility of the main validity threats of selection, maturation, instrumentation, history and testing; (c) pretest-posttest score differences which attained statistical significance in the training group indicated that at the most only one third of trained skills (i.e., two of the six management skills specified for measurement) had been transferred, although there was a general slight tendency for the training group posttest scores to be higher than those of the nontraining group; and (d) self and subordinate ratings did not show significant levels of agreement.

With regard to the hypotheses of the study, the results were that there was only one hypothesis which appeared to be consistently supported, and the others that were not clearly rejected were only able to be tentatively or indirectly supported. Because the primary focus of the study was on transfer of trained skills the hypotheses were only formally tested against the results of the training group, but results from nontraining and combined groups was also reported. The data were analysed by means of correlations, stepwise regression and canonical correlations, and results pertaining to the hypotheses were as follows.

There was no support at all for Hypothesis 1a which predicted a significant relationship between cognitive ability and transfer of training.

There was clear support for Hypothesis 1b which predicted a significant relationship between locus of control and at least some of the skills measured in transfer of training. In particular, it was internal locus of control which emerged as significant most consistently.

There was no support for Hypothesis 1c which predicted a significant relationship between self efficacy and transfer of training.

There was no support for Hypothesis 1d which predicted a significant relationship between motivation to transfer and transfer of training.

There was some support for Hypothesis 2a which predicted a significant relationship between Relationship dimensions in the work environment and transfer of skills. In particular, involvement was not identified, but peer cohesion and supervisor support were evident within combinations in the regression analysis.

There was no support for Hypothesis 2b which predicted a significant relationship between Personal Growth dimensions (autonomy, task orientation and work pressure) in the work environment and transfer of training.

There was some support for Hypothesis 2c which predicted a significant relationship between System Maintenance/System Change dimensions in the work environment. Control and physical comfort were identified as significant in the regression analysis, and clarity and innovation were not evident.

Analyses of the data of the nontraining group resulted in the identification of internal and external locus of control, work pressure, task orientation, clarity and control. The interpretation of the data is ambiguous in the light of a study whose focus is on trained skills. An analysis of the data of the combined training and nontraining scores identified internal and external locus of control as significant, and clarity and autonomy were evident in significant combinations.

Finally, an exploratory analysis of the correlations between pretraining and transfer behaviours in the training group identified consistently significant relationships between these two sets of variables. It was suggested that older habits possibly exerted the greatest influence on extent of transferred skills.

The following chapter concludes the present study with a further discussion of the results, the study's limitations, and recommendations for future research.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

General Discussion of Results

A brief note about the contents of the training course in the current study will be useful in the light of the discussion of results in this chapter. The first point of relevance is that while the management characteristics have been grouped into six categories for the sake of enhancing the clarity of criterion measures, they are interrelated in practice. For example, when a manager elicits input from employees (key principle three in the course) instead of adopting a directive, autocratic approach, this simultaneously enhances subordinates' self esteem (key principle one in the course) because this participative approach conveys the impression that the manager deems the subordinates' contributions to be of value. Should the subordinates feel that their input is worthy, then this would enhance their overall levels of motivation and trust in the manager-subordinate relationship (another of the six categories of skills making up the criterion measures). Thus in this example by exhibiting one skill (e.g., asking subordinates for their ideas for solutions to a problem) a manager contributes to at least two of the other categories of management characteristics.

The second point that may have some relevance is that some of the management skills are more people oriented and others are more task oriented. For instance enhancing self esteem, displaying empathy and eliciting others' input (the three key principles in the course) relate directly to interpersonal tactics. Using a structured approach (i.e., following a logical sequence of discussion steps, and meeting regularly with subordinates to review performance) and addressing performance as opposed to neglecting to do so are skills that relate more to the organisational or planning tasks of a manager. The management characteristic of establishing a positive manager-subordinate relationship is a combination of both people-related and task-related aspects. The interpersonal style components will contribute to a positive relationship by

addressing affective needs, and the use of a structured and consistent approach will establish fair management procedures.

Turning to the results obtained, it was observed that there were very low levels of transfer in the training group. For comparisons of both within the training group (pretest-posttest differences) and between the training and nontraining groups (posttest differences), the management characteristic of addressing performance was identified as having been significantly transferred. This suggests that the training group had learnt how to identify performance-management opportunities (problem performance and good performance) and were accordingly more clear about when to discuss subordinates' performance; they may have also realised the importance of addressing rather than avoiding performance behaviours of their subordinates.

It is suggested that the managers in question found that the task-oriented management skills were easier to implement than the people-oriented skills, and that this may be a reason why the characteristic of addressing performance emerged as the most significantly transferred skill. It was suggested that the significant correlations in the analysis of pretest and transfer scores might indicate that previous habits were strong influences on whether trainees implemented newly-learnt skills. It may be that interpersonal skills are more deeply embedded than task-related skills and thus may be more difficult to change. One of the three people-oriented skills was observed as significantly transferred, that of eliciting subordinates' input. This does give some indication of the nature of the trainees' improvement. It suggests that they had learnt to be less directive or autocratic in their management styles and were adopting a more participative approach. It is contended that of the three people-oriented skills this particular one is probably less interpersonally intensive than the other two (enhancing self esteem and using empathy), because it does have more of a cognitive component - managers are taught to elicit ideas and more task-related input, whereas the other two skills require managers to address the more emotion-oriented aspects of interaction management.

It must be noted here that the suggestion made above that managers find task-oriented skills easier to learn and implement than people-oriented skils is based on the consensus of informal observations by the researcher himself and his colleagues, all of whom have been involved in human resources consulting and management training in the organisation concerned for some ten years and more. It has been observed informally that employees are promoted into managerial positions largely based on their technical (i.e., task-related) rather than their interpersonal expertise, and that business-related achievement by managers is usually assigned higher priorities (and likewise rewarded) than people-related achievement.

To expand on this point briefly, Salaman & Butler (1990) point out that managers will learn mainly what is rewarded in an organisation, and in the present organisation what is most highly rewarded is the achievement of business and financial goals - hence the predominance of managers who excel in these kinds of expertise. A further point which these authors make is that the mere existence of an interpersonal management skills course indicates a paradox in itself: the course is only necessary because the required skills and behaviours are not normal characteristics of existing practice and procedures, otherwise there would be no need to develop them in courses.

In the analysis of self and subordinate ratings it was found that these two sources of data indicated low levels of convergence. The managers generally tended to rate themselves higher than their subordinates rated them. One explanation could be that the content validity of the criterion questionnaires was problematic and this caused variations in the scores on the questionnaires (Nunnally, 1978). However, the Cronbach's alphas were high (alphas ranged from .84 to .96), suggesting that the internal-consistency reliability was high for this particular criterion-related instrument. In addition, the instrument was behaviourally-based, directly reflecting the skills taught in the training course, rather than being theoretically-based (i.e., measuring constructs such as personality). The results rather suggest that managers perceived themselves as being more effective than they actually were. This is possibly supported by the fact that the mean score for the posttraining memory test was 67% overall - the

managers had reasonable knowledge about what to do and may have been scoring their perceptions or their awareness of the management skills more than the manifestation of their actual skills in practice.

Overall, the scores were not markedly low (the lowest mean score was 3.45 out of a possible 5), but the general lack of self-subordinate agreement may support observations from other studies. Daves & Holland (1989) also observed low correlations between self and subordinate ratings and suggested that the tendency was influenced by the self raters (managers) so that the low correlations were possibly 'subject to self-serving attributional distortions' (p. 754). Furnham & Steele (1994) and Wohlers et al. (1993) indicated that there were links between low discrepancies and a positive manager-subordinate working relationship, and that higher agreement was also related to better managerial skills.

The suggestion that in the current study there was an incongruence between managers' perceptions of their skills levels and their actual use of them seems aligned with Church's (1997) notion of managerial self awareness (MSA). This construct was operationalised as congruence between manager and subordinate ratings and he observed consistently significant relationships between high managerial performance and high rater agreement. It may be that managers in the present study do not receive sufficient feedback in their work environment (either elicited by themselves or generally provided by their subordinates) about their use of management skills so that their perceptions are not adjusted to be more appropriately congruent with their actual skill usage.

Discussion of Hypotheses-Related Results

Training Group

Correlations for the training group regarding the analysis of the hypothesised mediator variables revealed one significant relationship, between internal locus of control and the transferred (change in score) management characteristic of establishing a general positive manager-subordinate relationship. Although it has been suggested that internals are generally more task oriented (Spector, 1982), this result may indicate that internals took it upon themselves to create a more positive relationship in general. It is possible that, being internals, these managers generally ensured that tasks were accomplished but because of the course they had learnt to be somewhat more people oriented; they had decided to be less intensively task oriented, so that subordinates felt that they could more easily approach their managers.

In the regression analysis internal locus of control again was significantly related to the general manager-subordinate relationship transfer measure. Linked to internal locus of control in the regression analysis, course-specific environment support featured as a predictor in a negative direction. This would appear to be contrary to locus of control theory, where internals are reported to be sensitive to reinforcement contingencies (Rotter, 1966; Spector, 1982; Furnaham & Steele, 1993), so that in nonsupportive, constrictive work environment internals would experience high levels of frustration, and by extension would be less likely to engender positive manager-subordinate relationships. Another perspective of possible relevance is that if internals are more task and problem-solving oriented, they may feel that they want to achieve their goals (including those of people management) without the 'interference' of social-related stimuli (e.g., their seniors try to coach them proactively) that are antecedent to their own internally-driven behaviour. In addition, if the course-specific environment support as scored by the trainees was perceived by internals as being too earnest then this might have adversely-intended effects: Spector (1982) noted that internals exhibit less attitude change when faced with persuasive attempts.

External locus of control and memory for the key principles (self esteem, empathy, elicit input) were identified in the regression analysis to be significantly related to the management characteristic of using a structured approach; control in the environment was also identified but in a negative direction. For externals, the provision of structure in the discussion steps of the Interaction Management course (learning steps in behaviour modelling training terms) may be perceived as a significant cause for effective performance management interactions, more than their own learned skills. The key principles themselves form a useful structure over and above their individual use as communication skills: there is often a natural progression from initially establishing a nonthreatening atmosphere (key principle one), then listening and responding empathetically (key principle two), and then eliciting a subordinate's input for solutions (key principle three).

With regard to the identification of the negative significance of control - the extent to which a person's senior uses rules and pressures to control that person - it may be that because externals are reported to be more social oriented (Spector, 1982), they may not function as well in an environment characterised by the strictures of task-oriented rules. They also seem to cope better with uncontrolled, ambiguous environmental events than do internals (Furnham & Steele, 1993). In addition, Lefcourt & Davidson-Katz (1991) note that externals tend to use more emotion-directed coping strategies and a task-driven environment would accordingly not facilitate problem-solving coping methods.

Supervisor support and course-specific environment support were identified as significant in the regression analysis, with the former in a positive direction and the latter in a negative one, with regard to the management skill of empathy. For supervisor support the relationship appears reasonably clear: the score is an indication of current actual work environment, and the results suggest that if a trainee's senior is generall supportive then that contributes to the trainee in turn implementing the learnt skill of empathy. The negative course-specific environment support result is less clear. Perhaps the possibility of incongruent

perception mentioned above with regard to self and subordinate rating is involved again: while the supervisor support subscale reflects an impression of the current work environment support from the trainees' senior, the course-specific environment support scale reflects the trainees' perceptions about posttraining (i.e., future expected) support, and it could be that trainees are under- or overestimating this particular characteristic.

The last regression for discussion identified predictors on the aggregated transfer score. Both internal and external locus of control yielded significant relationships which is aligned to the findings discussed above. As mentioned in the previous chapter where the results were summarised, the aggregated score would tend to render the nature of the criterion variable less distinct, and this seems to be borne out in the results of these final regression steps. Had there been only the single aggregated score calculated at the outset, it would have been extremely difficult to interpret these last regression steps. The most that can be said is that the presence of internal and external locus of control echoes the above discussion where certain possible connections have been proposed. Physical comfort also emerged as significant in the regression and is perhaps an indicator that the physical surroundings and a pleasant work environment do have some bearing in that they might give managers a sense that they are being looked after, and this may influence the manner in which they generally manage their subordinates. Course-specific environment support again emerged as significant in a negative direction, and the possible links to this have been discussed above.

Nontraining Group

The inclusion of the nontraining (control) group in the correlational and regression analyses seems intuitively to offer little additional information, because the present study was specifically focused on transfer of trained skills which by definition should exclude the nontraining group from any analysis beyond the preliminary examinations which suggested that there was reasonable equivalence between the two groups. For the nontraining group there was no training and no transfer. However, the essence of the scientific

method is in comparison (Stanley & Campbell, 1967; Cook & Campbell, 1983) and some points will be made relating to the comparison group.

Internal locus of control was identified in correlational and regression analyses as being linked to the management skills of enhancing self esteem, using empathy, and using a structured approach. In addition to the points made above with regard to the training group, the link to enhancing self esteem may be that internals have been noted as showing more listening and active responsiveness than externals (Lefcourt & Davidson-Katz, 1991). External locus of control was related to using a structured approach, a similar pattern to the training group. Work pressure and control were found to be significantly related to the tendency to address performance. At first this might seem contrary to previous studies where high task orientation was seen as preventing trainees from trying out new skills (e.g., Huczynski & Lewis, 1980; Ford et al., 1992). However, this may make sense if performance management is included as a work goal and managers are accordingly under the same pressure to achieve that people-related goal as they are to achieve their business-related goals.

For the nontraining group clarity of work routine and work policies was significantly related in a negative direction to the management characteristics of enhancing self esteem and establishing a positive relationship. This would suggest that a high focus on task-oriented goals might impede the more people-oriented focus in managing performance. Overall, the patterns in the nontraining group do not contradict those found in the training group.

Combined Group

In the combined group of training and nontraining groups internal locus of control was identified as significantly related to the management characteristics of establishing a positive manager-subordinate relationship and enhancing self esteem, but in a negative direction. This negative direction may highlight the possibility of the tendency noted that because internals believe that people's difficulties are brought on by themselves, they will be less likely to help others in

need of assistance (Furnham & Steele, 1993). Also, their high task orientation may cause them to overlook people-oriented dimensions of management skills. As with the separate analyses of the training and nontraining groups, external locus of control was also identified in the combined group as being significantly related to the use of a structured approach. The patterns seem to indicate that externals may respond well to being taught structures which help both to guide them within discussions, and to provide an overall framework to distinguish among types of discussions in performance management.

In summary, locus of control appears to have played a part in the transfer of trained managerial skills in the present study. Internal locus of control seems to have been linked with a higher tendency to implement people-oriented aspects of managerial skills, and it has been suggested here that for internals too much course-specific environment support may interfere with an internal's inclination for internally-driven behaviour. Externals seem to respond to being given tools to help them in being structured and organised in their management of subordinates, but too much task-oriented control may impede their managerial behaviours. Internals may respond better to work environments where that environment is characterised by good planning and efficient execution of tasks.

It was suggested that if people-management goals are an integral part of a business area's overall goals, then concomitantly high levels of work pressure, control and task orientation will help managers address rather than neglect performance management with their subordinates. Finally, there was some evidence that general supervisor support (i.e., the trainees' seniors) assisted in trainees' transferring of the management skill of empathy, and it was suggested that trainees who receive general support from their own seniors may be more inclined to implement the supportive skill of empathy with their own subordinates.

The lack of significant results from the canonical analysis may be linked to the apparently contradictory results obtained from the combined group (in particular where internal locus of control indicated significance in the opposite direction to that of the training group). Considering the combined-group difference, it may

be that combining the transfer scores further suppressed the size of the scores which were already small to begin with. It seems unlikely that, practically, the individuals in question would show such apparently contradictory patterns, and the difference more than likely has to do with statistical artifact related to doubling the sample size.

Sample size (or to be more accurate, lack of it) is the probable cause for the lack of results in the canonical analysis. It has been noted that small sample sizes (e.g., n = 50) will not detect weaker canonical correlations, and that larger samples are needed (e.g., n > 200) to detect weaker canonical correlations (e.g., R = .30) at least 50% of the time. It has been recommended that there should be at least twenty times as many cases as variables to interpret the one most important canonical root, and for a second root forty to sixty times as many cases as variables are necessary (StatSoft, 1995). The present study certainly fell far short of that, even for one canonical root. Another possible aggravating factor for the lack of results relates to the distributions of the variables in the current study. It has been noted that the canonical correlation tests of significance are based on the assumptions that the distributions of the variables in the analysis are normal (StatSoft, 1995) and the distributions of the variables in the current study were not all normal.

Limitations of the study

The first limitation lies in the design of the study. As a quasi-experimental design an attempt was made to match training and nontraining groups according to situational characteristics (i.e., managerial functions and managerial status, candidacy for management training), and because both groups scored the same on the pretest an assumption was made that reasonable levels of equivalence had been attained. However, such a study in a field setting with the significant constraint of an intact experimental group will contain inherent limitations.

Kerlinger (1981) points out that to achieve dependable matching the variables on which subjects are matched must be fairly substantially related to the dependent variable. He advises that correlations between matched variables and the dependent variable should be greater than .5. This kind of examination was not performed in the present study and thus the assumption of equivalence is questionable. Cook and Campbell (1983) expand on errors that might occur in designs that attempt to match nonequivalent groups, and although all the designs that they review involve statistical adjustment to equalise pretest means of experimental and control groups when there have been observed differences in these means, the principles are clear that nonequivalence of groups makes a design vulnerable to alternative hypotheses.

Perhaps for the present study timing was a variable which might have played a role. Although matched for candicacy for training, the fact is that the training group had been scheduled for training sooner than the nontraining group; this might have been linked to the issue of readiness for training as a significant difference between the two groups. Posttraining differences that were observed might have been a result of a tendency for nontraining group scores to regress to lower posttest means and training group scores to regress to higher posttest means (Cook & Campbell, 1983). Perhaps the present study which was largely concerned with interpersonal skills did not match for other variables which might have had an influence, such as personal attributes which characterise some participants as more comfortable with interpersonal dynamics as others.

Sample size was a limitation, considering that the generally accepted principle is to use as large a sample as possible because smaller samples compromise the accuracy of statistical calculations and increase error variance (Kerlinger, 1983). When comparisons were made in the present study between the combined group and the separate training and nontraining groups, the results indicated differences which might have been due to sample size. In the combined group the transfer scores may have been obfuscated and it is possible that what was taken as transfer was really just natural changes in behaviour over time. This also indicates that the separate analyses conducted on the smaller sample of the training group might have increased the possibility of a Type 2 error. There

was a large number of variables under investigation in the current study and this could well have compounded the problem of Type 1 errors, as was noted in the attempted canonical analysis.

Another area of limitations in the study relates to the measuring instruments used. It is possible that the management skills questionnaire was psychometrically questionable and thus could not adequately distinguish between the training and nontraining groups. Although it was intended as a purely behaviourally-based criterion measure appropriately aligned with Level three of Kirkpatrick's (1975) framework for training evaluation, those criterion behaviours that it was intended to assess may well have been subject to the vagaries of interpersonal moods and dynamics. The low test-retest reliability scores (.62 and .60 for the training and nontraining groups, respectively) suggest either that the instrument was inconsistent or that its object of measurement (i.e., managers' behaviours) was itself characterised by fluctuation tendencies. The high internal consistencies of the questionnaire across all respondents suggests that the nature of the behaviours being measured was stable but that their levels of manifestation were less so. Thus another limitation of the current study may be that multiple pre- and post-measures needed to have been gathered to gain a clearer idea of behavioural fluctuations and the reliability of the instrument used.

Although locus of control was identified consistently in significant relationships with the dependent variables, the low internal-consistency reliability scores cast doubt on the certainty of these observations. The assumption of internal consistency in the present study was made based on acceptable levels reported in previous studies (e.g., Noe & Schmitt, 1986; Tziner et al., 1991), and this assumption must be regarded as questionable. The face validity (Nunnally, 1978) was not tested with the respondents in the present study and this might have identified possible problems with the clarity of the items used. Although the studies cited above extracted the work-related items from the original Rotter (1966) 23-item scale, this may have introduced psychometric problems in the current study.

Another assumption made which may point to limitations in the present study was that of the effectiveness of the training course. No formal checks were included to assess the quality of the behaviour modelling training. The high standardisation of the procedures and content of the particular management training course in question led to the assumption that there would be subsequently high standardised levels of quality across the different training courses. This assumption may have been erroneous due to intrahistory (Campbell & Stanley, 1967) fluctuations. The courses were not all facilitated by the same trainer and this may have introduced significant differences in the trainees' experiences of the training. The courses were also not all trained on the same premises - training was conducted at three different training centres in three different cities. The reliance on the high course standardisation may have introduced limitations into the present study, even though that standardisation relates to facilitator style and facilitator accreditation, course material, course content and course procedures.

A final point regarding the efficacy of training relates to individual learning differences. It is not known whether the behavioural modelling approach was effective for all the trainees concerned. For example, Simon and Werner (1996) utilised Kolb's (1984) learning styles theory to guide the construction of the training course that they used in their study. The essence of Kolb's (1984) theory is that adult learning is most effective when learners experience learning by progressing through a variety of learning formats. He contends that these formats comprise a natural cycle of approaches, such as experience (e.g., uncoached experiential exercises in a training course), reflection (e.g., discussion groups), theory (e.g., lectures), and practice (e.g., role plays). Most learners will have stronger preferences for one or two of the approaches and this introduces differences in learning style preferences. It is not known, then, whether the behavioural modelling approach of the course in the present study had differential effects on individual learning style preferences.

One final possible limitation to be noticed is that in the current study it was not possible to base the decision for the posttraining period on any definitive guidelines. Previous research has conducted posttraining measures ranging

from immediately after training to one year after training (e.g., Axtell et al., 1997; Baldwin & Ford, 1988; Den Ouden, 1995; Ford et al., 1992), and it is noted in these studies that definite knowledge does not exist which indicates what posttraining time period is most appropriate for behaviour changes to be evidenced. The time period decided upon in the present study was largely determined by practical considerations (and limitations).

The first consideration related to the timing of the organisational training schedule for training and nontraining group candidates: in particular, it was necessary to obtain pretest and posttest scores from the nontraining participants before they themselves attended their scheduled training. As noted in the chapter on the research method for the current study, the nontraining sample was matched for training candicacy so that many of them had actually been scheduled to attend the training course. The second consideration was that of threats to response rates. There were both research participants (i.e., subjects) and their seniors who were concerned about whether the data gathering would interfere with their work activities, and it was thus necessary to compromise on the extent of data gathering. Hence, only one pretest and one posttest for each group was administered, to ensure their maximum cooperation.

As a result of the abovementioned practical limitations, the posttraining period for the present study was six to eight months after training, and the possibility exists that this might not have been the most appropriate time period. It is possible that a measure immediately after training (i.e., within one month) may have added relevant information in the present study. It may also be reasoned that an immediate posttraining measure does not add much value. Baldwin and Ford (1988) identified two components of transfer, generalisation and maintenance, where the former refers to whether a skill is used soon after training and the latter refers to whether a person continues to use the skill over time and by doing so internalises it. Den Ouden (1995) found that generalisation was a significant predictor of maintenance, and thus it can be contended that if there is no evidence of maintenance then transfer has not in fact occurred, irrespective of whether we know about initial generalisation or not.

However, such conjecture is not intended to reason away the limitations inherent in the chosen posttraining time period in the present study.

Recommendations for Future Research

The first recommendation has to do with research design. Despite the attempts to approximate equivalence of the training and nontraining groups, the present study cannot claim that it was invulnerable to threats to internal validity. Where it is at all possible, it is recommended that future research incorporates randomisation of both research participants to experimental/control groups and groups to treatment/ nontreatment conditions. Particularly where more complex behaviours are being studied such as the interpersonal skills investigated in the current study, it may be advisable to adopt multiple pretest measures and multiple posttest measures, such as the Interrupted Time-Series design described by Cook and Campbell (1983). This kind of design would identify possible effects of history and would help to identify whether there were behavioural patterns and fluctuations which might have gone undetected in a design which uses only one pretest and one posttest. The time-series format would also contribute useful knowledge around the question of what posttraining time period is most appropriate for behaviour changes to be evidenced.

The second recommendation has to do with sample size. It was evident that the sample size in the present study produced equivocal results, and it is likely that although the regression analysis yielded apparantly significant relationships among the variables under study, the iterative nature of the stepwise regression analysis makes the present study vulnerable to the erroneous acceptance of such results, or a Type 1 error.

The third recommendation is that the validity of the measurement instruments must not be taken for granted. It is likely that the study of more rather than fewer variables is necessary for contributing relevant knowledge to the field of

transfer of training (Baldwin & Ford, 1988), and this means that extra care must be taken to ensure that measurement instruments are valid if research efforts have to include multiple variables. In particular, extremely careful attention must be paid to the construction of the criterion measures in this field. The study of training transfer will inevitably involve a range of skills in question, and it is not known whether or not the natures of these skills themselves influence the transfer of training. For instance, perhaps interpersonal skills are subject to different kinds of transfer influences from, say, planning skills. Certainly, further research into these phenomena would contribute valuable knowledge.

A fourth recommendation is that the training effectiveness should not be assumed. A study which includes an objective evaluation of the quality of the training itself would tighten its design validity. Aligned with this evaluation would be a consideration of the effects of trainer style regardless of how standardised a training course may be, and an investigation into how the differences in the learners, such as learning style preferences (e.g., Kolb, 1984), interact with the design of the training course.

The final recommendation has to do with the particular skills focused on in the present study, namely managerial interpersonal skills. Where the skills of interest in transfer have to do with managerial skills, perhaps an additional operationalisation of transfer could be changes in manager-subordinate rating discrepancies. Church (1997) has raised this as an interesting avenue, having found significant relationships between managerial self awareness, managerial performance, satisfaction with the manager-subordinate relationship, and manager-subordinate ratings convergence. Although the current study used a behaviourally-based questionnaire, it is suggested that interpersonal styles may be related to other personality attributes which it may be useful to include in future research that focuses on the transfer of interpersonal skills.

It was also proposed in the previous chapter that within the field of performance management, people-oriented skills are more difficult to learn and transfer than task-oriented skills. Further research into this aspect would contribute to knowledge about the training of such skills and the subsequent study of their

transfer. Included in research which might study transfer differences between task-oriented and people-oriented skills it is recommended that the simultaneous measurement of work environment characteristics also includes this distinction. For example, it would be appropriate to include a measure of the extent to which task-oriented and people-oriented skills are included in managers' job descriptions and likewise rewarded.

General Summary and Conclusion

The present study addressed the phenomenon of the transfer of trained skills from the learning setting (the training room) into the application setting (the work environment). The skills in question were managerial skills and in particular the interpersonal aspects of management as opposed to the more technical aspects such as business skills. A review of relevant literature and research highlighted that the probability of a trainee transferring newly-acquired skills is not merely dependent upon the quality of the training received, but that it is likely that extraneous variables intervene and mediate to influence whether or not a person transfers newly-learnt behaviours. The theoretical model of transfer of training proposed by Baldwin and Ford (1988) was adopted. This model identifies three categories of variables that should be considered when investigating transfer of training, (a) individual (i.e., trainee) characteristics, (b) training design characteristics, and (c) application setting (i.e., work environment) characteristics.

Within each of these categories the most frequently cited variables were discussed and were included in the present study for investigation. The individual characteristics identified and investigated in this study were cognitive ability, motivation to transfer, self efficacy, and locus of control. The work environment characteristics investigated were those related to social and task factors in a person's work environment. Social factors included support from seniors, peers and subordinates, and task factors included levels of work

pressure, clarity of work goals, efficiency of a particular work unit, relative levels of freedom to make one's own decisions and to try out new approaches, and the physical comfort of one's work surroundings.

It was decided to make use of a management training course that has been in use and highly regarded for twenty years in general and for approximately eight years in the organisation in which the study was conducted. The choice of this particular course was also based on the fact that it is a highly structured programme, with standardised content and procedures, and it was important to be able to maintain uniformity of the training design characteristics as they were not under the researcher's control in the study. Its training design characteristics were documented and discussed: it falls under the general heading of behavioural modelling training (Goldstein & Sorcher, 1974).

The behaviourally-based criterion questionnaire directly reflected the content taught in this course, and was administered to a group of managers who were attending the course (the training group) and to a group of managers who were had been scheduled to attend but had not yet attended (the nontraining group). The managers themselves and their subordinates completed these questionnaires, to provide multiple sources of observations.

Results from this study indicated that there were very small levels of transfer of trained skills in the training group, and that, more importantly for the purpose of the study, there were low levels of support for the hypotheses proposed. In particular, hypotheses predicting the effects of cognitive ability, motivation to transfer and self efficacy on transfer of training were not supported. Locus of control was identified consistently as being significantly related to aspects of the transferred skills. The social factors of supervisor and peer support were identified as significant to a lesser extent. The task factors of physical comfort and a control-oriented environment were evident as significant but small influences.

The limitations of the present study were discussed. Being a quasi-experimental field study, it was pointed out nonrandomisation of samples rendered the study

inherently vulnerable to alternative hypotheses (Campbell & Stanley, 1967; Cook & Campbell, 1983). Although an attempt was made to match the two groups on the basis of their managerial functions and their candidacy for training before the pretests, it was possible that other individual characteristics specifically relevant to interpersonal dynamics were unexamined. The sample size was also identified as a possible limitation.

It was also noted that the validity of the measuring instruments could be criticised. Although locus of control was the most consistently significant mediator variable identified, the low alpha scores on the scale used raise questions about these results. For the criterion measurement instrument, the course-content behaviourally-based questionnaire, the question was raised as to whether it was reflecting actual differences in behaviour or whether it was psychometrically unsound. While its alpha scores were high for all respondents test-retest reliability scores were not as high.

No formal checks on the quality of the training course were made, and it is still possible that the assumption of its quality was unfounded and erroneous. For future research it was recommended that even in a field setting the practices of randomisation should be followed. Where possible, a larger sample should be used, and particularly where complex interpersonal skills are being studied, it would be advisable to implement the use of multiple pretest and posttest measures to control for the effects of history and to identify fluctuations in behaviour patterns over time. The validity of measurement instruments should be carefully established and not assumed on the basis of previous studies, particularly where a scale is not being used in its original full form. Finally, in studying transfer of training, the quality of the training should be formally checked, and further work relating to learner characteristics such as learning style preferences may be of value in this field.

The low levels of transferred skills do not, in the present researcher's opinion, come as a surprise. Referring to the points discussed in the previous section regarding the distinction between people-oriented and task-oriented managerial skills, it is contended that the interpersonal skills being trained are in fact difficult

to learn, particularly for many managers whose preferences and achievements are business-related. Although the support or nonsupport from seniors and peers may respectively facilitate or inhibit a manager's attempts to transfer interpersonal skills, the performance-management interaction skills under investigation in the current study are predominantly employed in private discussions with subordinates. This significantly reduces the chances of the managers receiving immediate corrective or reinforcing feedback from a third party.

Perhaps this is a vital dissimilarity between the training and the transfer environments. The phenomenon of similarity was discussed in chapter two in the section dealing with training design, where the principle of identical elements was reviewed as part of Baldwin and Ford's (1988) theoretical model for transfer of training. A highly important feature of the behavioural modelling format of the training course is that trainees are observed while they practise the skills being trained and then receive feedback from their fellow trainees. If, however, this component of their learning falls away in their real-life interactions with their subordinates, then the continuity of their learning is interrupted. Without feedback the managers may develop inaccurate perceptions about the efficacy of their interpersonal skills. This line of reasoning is congruent with the research conducted by Church (1997) on the relationships between managerial performance and managerial self awareness (MSA), where he operationalised his construct of MSA by measuring the congruence between managers' and subordinates' perceptions of the managers' managerial practices.

What is noticeable is that the present study did not find more definite occurrences of the identified mediator variables. On the one hand this may be seen as a contribution to research knowledge about design pitfalls. On the other hand, if there has been some validity in the current research design, then perhaps there have been some learnings regarding the transfer of trained interpersonal managerial skills. If locus of control is indeed a mediating variable then perhaps training designs can build in this awareness in the trainees in the form of a relapse-prevention module.

Such a module would, for instance, explore the implications of internal and external loci of control and it would aim to increase managers' self awareness about their own expectancies tendencies; it would accordingly include an exercise in goal setting and posttraining behaviour planning with these insights in mind. Similarly, if the support or lack thereof of seniors and peers does play a role in influencing the transfer of these interpersonal skills, then such a relapse-prevention module can include tactics for capitalising on positive support or addressing deficiencies in support.

For researchers the types of skills being investigated in the field of transfer of training seem to be worth serious attention. It may be that certain types of skills (e.g., people-oriented, task-oriented, insight-oriented) are susceptible to and differentially interact with certain types of mediating variables. It is likely that the study of complex skills in the field of transfer of training necessitates accordingly rigorous and careful research methodologies. It was observed in the present study that most of the hypothesised mediating work environment variables did not yield significant relationships with transfer of training. It is suggested that these results do not indicate that such relationships are nonexistent but that this study might have overlooked relevant variables. For instance, it might be useful to measure the extent to which trained behaviours are reinforced and rewarded in an organisation: if managers are recognised more for their business-related achievements despite receiving training in interpersonal skills, then the principle of identical elements is inherently jeopardised.

The current study appears to support the importance of multiple mediating variables in transfer, despite the small amounts of significance detected. Future research on the transfer of training of complex skills would do well to combine effective experimental design with a holistic, systemic approach which utilises conceptual and methodological continuity between the skills being taught, the trainees' learning characteristics, the training design and the environment into which the skills are to be transferred.

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APPENDIX A: Measuring instruments for pretest

(Questionnaire 1 for subordinates.)

MANAGER QUESTIONNAIRE

STRICTLY CONFIDENTIAL

This is a questionnaire which is part of a research project on management skills. Your manager has agreed to take part in this research, and it will be a great help if you will provide information as described below. This questionnaire then needs to be returned to: Mark Wortley, Human Resources.

Your manager's name:**.....**

Please respond to the following statements using the rating scale provided. Rate each item according to how it describes your manager's actions and behaviours on the job. Please make a cross (x) in the column that you choose. Thank you for your time.

1=Strongly Disagree 2=Disagree 3=Undecided/Uncertain 4=Agree 5=Strongly Agree

	1	2	3	4	5
1. My manager and I get on well with each other.					
2. When discussing my performance, my manager always treats me with respect.					
3. My manager listens to what I have to say. He/she does not interrupt or ignore me.					
4. In a performance discussion my manager asks me how I think I can improve.					
5. My manager compliments me on my good points.					
6. My manager is well-organised when we have discussions about my performance (eg, keeps written records, covers all the points, uses the correct facts, etc).					
7. My manager uses my ideas/suggestions/opinions in solving problems.					
8. My manager seeks to understand how I feel and I believe that his/her understanding of my feelings is accurate.					
9. If my manager feels there is a problem with my performance/work, he/she always discusses this with me.					
10. When my work is good or has improved, my manager discusses this with me to praise me.					
11. If my manager has ever been worried about any of my personal behaviours or habits that he/she thinks are affecting my work, he/she discusses these directly with me.					
12. If my manager still feels there has been not enough improvement in my performance/ behaviour problem, he/she calls another meeting to discuss the problem again.					
13. I know that my manager would give an official disciplinary warning to me or anybody, if it were ever necessary.					
14. My manager uses other people's suggestions as part of a plan, instead of doing it all himself/herself.					
15. If a problem with someone's work does not improve, my manager makes it clear what the possible consequences could be (eg, official warning).					
16. I always feel safe to express my opinions with my manager, in good or bad situations.					
17. I always feel positive after a performance discussion with my manager.					
18. My manager always makes it possible for me to express my feelings (good or bad) in our discussions.					
19. Whatever the situation with my performance, good or bad, I can always approach my manager for help.					
20. My manager and I meet regularly, such as once a month, to keep track of my performance.					
21. I feel motivated to do my job well because of the way that my manager manages my performance with me.					

APPENDIX B: Measuring instruments used for individual characteristics

(Locus of control and Self efficacy.)

MANAGEMENT QUESTIONNAIRE

Your name: .....

How much do you agree with each of the following statements? Please mark your response with a cross (x) in the column under the rating that you choose.

1=Strongly disagree **2**= Disagree **3**= Agree **4**= Strongly agree

		1	2	3	4
1.	Becoming a success is a matter of hard work; luck has little or nothing to do with it.				
2.	In the long run, people get the respect they deserve in this world.				
3.	When I make plans, I am almost certain I can make them work.				
4.	What happens to me is of my own doing.				
5.	Without the right breaks, one cannot be a good leader.				
6.	Many of the unhappy things in people's lives are partly due to bad luck.				
7.	In my case, getting what I want has little to do with luck.				
8.	Who gets promoted depends on who was lucky enough to be in the right place first.				
9.	Most people don't realise the extent to which their lives are controlled by accidental happenings.				
10.	Many times I feel I have little influence over those things that happen to me.				
11.	In the long run, the bad things that happen to us are balanced by the good ones.				

The following statements deal with how you feel about your abilities. Please mark your response with a cross (x) in the column under the rating that you choose.

1=Strongly disagree **2**=Disagree **3**=Neither agree/disagree **4**=Agree **5**=Strongly agree

		1	2	3	4	5
1.	I am a good student.					
2.	I do well in activities where I have to remember lots of information.					
3.	I always did well in school.					
4.	I enjoy learning new things.					
5.	I have good study habits.					
6.	I liked school.					
7.	I am a smart person.					
8.	I do not mind taking tests.					

Thank you for your time, it is greatly appreciated.

(Course-specific self efficacy, motivation to transfer, environment support)

MANAGEMENT QUESTIONNAIRE

Your name: .....

The aim of this questionnaire is to obtain your comments about the Managing Daily Performance course. Please mark your response with a cross (x) in the column under the rating that you choose.

1=Strongly disagree **2**=Disagree **3**=Neither agree/disagree **4**=Agree **5**=Strongly agree

	1	2	3	4	5
1. My job performance will improve if I use the skills I learned in the course.					
2. I have time in my job to try and develop my skill weaknesses.					
3. I know I will use these management skills effectively.					
4. My manager can be counted on to help me develop my skills.					
5. I learned skills in this course that I intend to use in my everyday work.					
6. I will receive recognition and praise if I use the skills emphasised in this course back on my job.					
7. The skills I learned in the course will be helpful in solving work-related problems.					
8. The people I work with will help me develop my skills as an administrator.					
9. I have good interpersonal management skills.					
10. I feel comfortable discussing my skill weaknesses with my manager.					
11. I feel capable of using the skills developed in the course in my everyday work.					
12. My manager frequently gives me specific feedback on how well I am performing my job.					
13. I know of work situations in which I plan to use what I have learned in the course.					
14. It will be difficult for me to try and work on improving my skills because of my relations with my co-workers.					
15. I do well when it comes to motivating my subordinates.					
16. I believe it is unrealistic to try and use the skills taught in the course on my job.					
17. I do not mind dealing with difficult subordinates.					

Thank you for your time, it is greatly appreciated.

APPENDIX C: Measures used for posttest

(Questionnaire 2 for subordinates.)

MANAGER QUESTIONNAIRE - 2

STRICTLY CONFIDENTIAL

This is the second questionnaire which is part of a research project on management skills. Your manager has agreed to take part in this research, and it will be a great help if you will provide information as described below. This questionnaire then needs to be returned to: Mark Wortley, Human Resources.

Your manager's name:**.....**

Please respond to the following statements using the rating scale provided. Rate each item according to how it describes your manager's actions and behaviours on the job. Please make a cross (x) in the column that you choose. Thank you for your time.

1=Strongly Disagree **2**=Disagree **3**=Undecided/Uncertain **4**=Agree **5**=Strongly Agree

	1	2	3	4	5
1. My manager and I get on well with each other.					
2. When discussing my performance, my manager always treats me with respect.					
3. My manager listens to what I have to say. He/she does not interrupt or ignore me.					
4. In a performance discussion my manager asks me how I think I can improve.					
5. My manager compliments me on my good points.					
6. My manager is well-organised when we have discussions about my performance (eg, keeps written records, covers all the points, uses the correct facts, etc).					
7. My manager uses my ideas/suggestions/opinions in solving problems.					
8. My manager seeks to understand how I feel and I believe that his/her understanding of my feelings is accurate.					
9. If my manager feels there is a problem with my performance/work, he/she always discusses this with me.					
10. When my work is good or has improved, my manager discusses this with me to praise me.					
11. If my manager has ever been worried about any of my personal behaviours or habits that he/she thinks are affecting my work, he/she discusses these directly with me.					
12. If my manager still feels there has been not enough improvement in my performance/ behaviour problem, he/she calls another meeting to discuss the problem again.					
13. I know that my manager would give an official disciplinary warning to me or anybody, if it were ever necessary.					
14. My manager uses other people's suggestions as part of a plan, instead of doing it all himself/herself.					
15. If a problem with someone's work does not improve, my manager makes it clear what the possible consequences could be (eg, official warning).					
16. I always feel safe to express my opinions with my manager, in good or bad situations.					
17. I always feel positive after a performance discussion with my manager.					
18. My manager always makes it possible for me to express my feelings (good or bad) in our discussions.					
19. Whatever the situation with my performance, good or bad, I can always approach my manager for help.					
20. My manager and I meet regularly, such as once a month, to keep track of my performance.					
21. I feel motivated to do my job well because of the way that my manager manages my performance with me.					

APPENDIX D: Measuring instruments used for posttest

(Manager questionnaire - self rating, posttest.)

MANAGER QUESTIONNAIRE - M

STRICTLY CONFIDENTIAL

This is a follow-up questionnaire in the research project on management skills. You have completed other questionnaires for phase one of the project, and now it will a great help if you will fill in this questionnaire and then return it to: Mark Wortley, Human Resources.

Your name:**.....**

Please respond to the following statements using the rating scale provided. Rate each item according to how it describes your actions and behaviours on the job. Please make a cross (x) in the column that you choose. Thank you for your time.

1=Strongly Disagree **2**=Disagree **3**=Undecided/Uncertain **4**=Agree **5**=Strongly Agree

	1	2	3	4	5
1. My subordinate/s and I get on well with each other.					
2. When discussing my subordinates' performance, I always treat them with respect.					
3. I listen to what my subordinates have to say. I do not interrupt or ignore them.					
4. In a performance discussion I ask my subordinates how they think they can improve.					
5. I compliment my subordinates on their good points.					
6. I am well-organised when we have discussions about my subordinates' performance (eg, keep written records, cover all the points, use the correct facts, etc).					
7. I use my subordinates' ideas/suggestions/opinions in solving problems.					
8. I seek to understand how my subordinates feel and I believe that my understanding of their feelings is accurate.					
9. If I feel there is a problem with my subordinates' performance/work, I always discuss this with them.					
10. When my subordinates' work is good or has improved, I discuss this with them to praise them.					
11. If I have ever been worried about any of my subordinates' personal behaviours or habits that I think are affecting their work, I discuss these directly with them.					
12. If I still feel there has been not enough improvement in my subordinates' performance/ behaviour problem, I call another meeting to discuss the problem again.					
13. My subordinates know that I would give an official disciplinary warning to them, if it were ever necessary.					
14. I use other people's suggestions as part of a plan, instead of doing it all myself.					
15. If a problem with someone's work does not improve, I make it clear what the possible consequences could be (eg, official warning).					
16. My subordinates always feel safe to express their opinions with me, in good or bad situations.					
17. My subordinates always feel positive after a performance discussion with me.					
18. I always make it possible for my subordinates to express their feelings (good or bad) in our discussions.					
19. Whatever the situation with their performance, good or bad, my subordinates can always approach me for help.					
20. My subordinates and I meet regularly, such as once a month, to keep track of their performance.					
21. My subordinates feel motivated to do their job well because of the way that I manage their performance with them.					

APPENDIX E: Histograms of distributions for mediator and dependent variables

1. Cognitive ability

2. Motivation to transfer

3. Internal locus of control

4. External locus of control

5. Self efficacy (academic)

6. Self efficacy (course-specific)

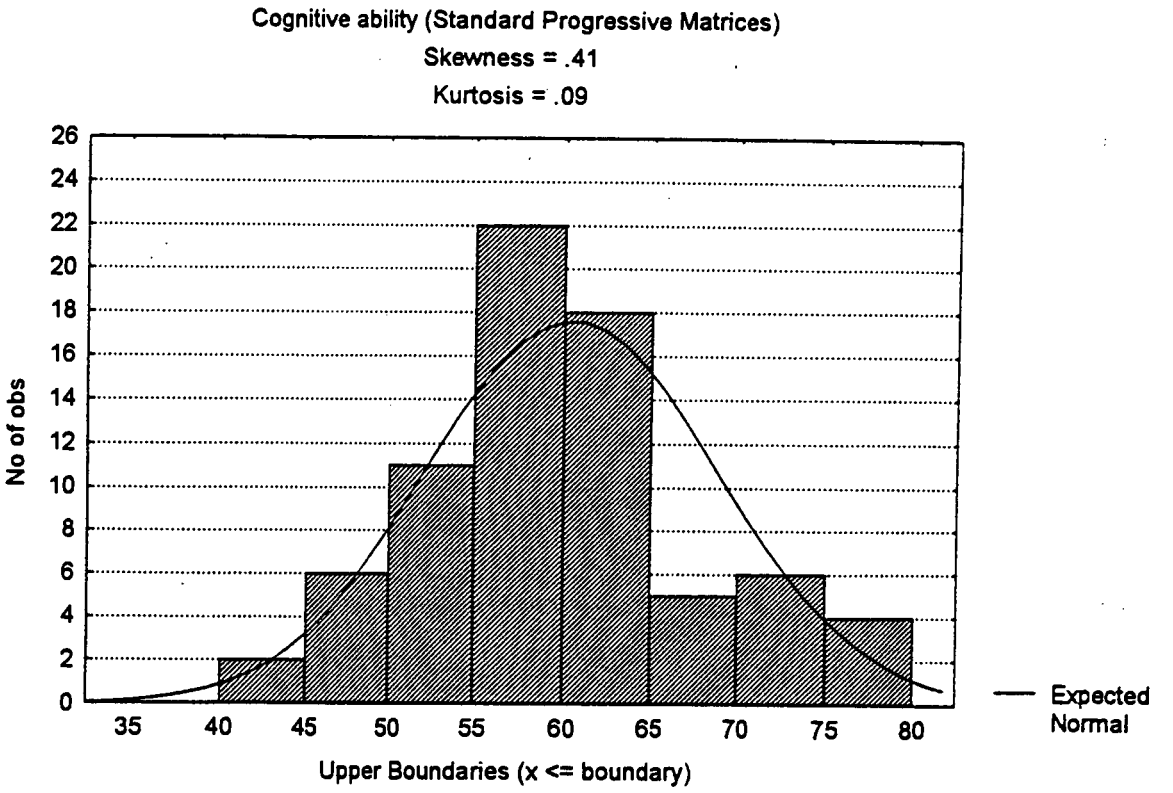
7. Environment support (course-specific)

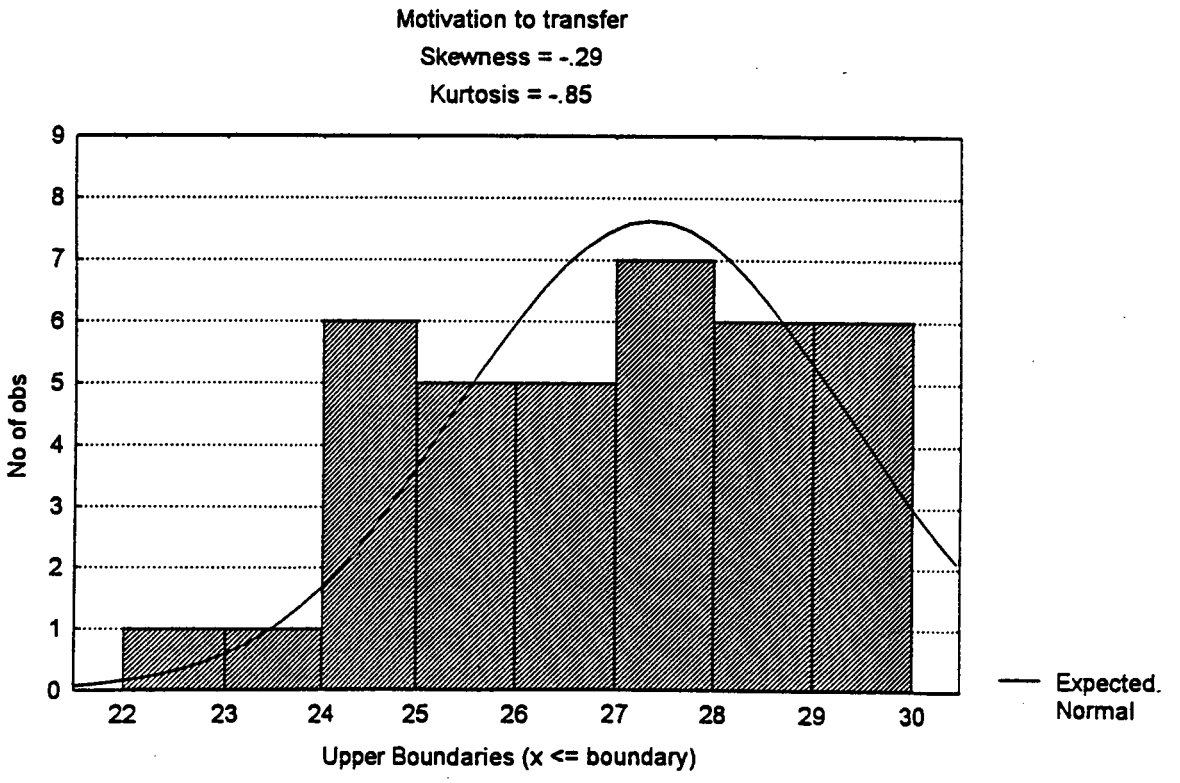
8. Work Environment Scale

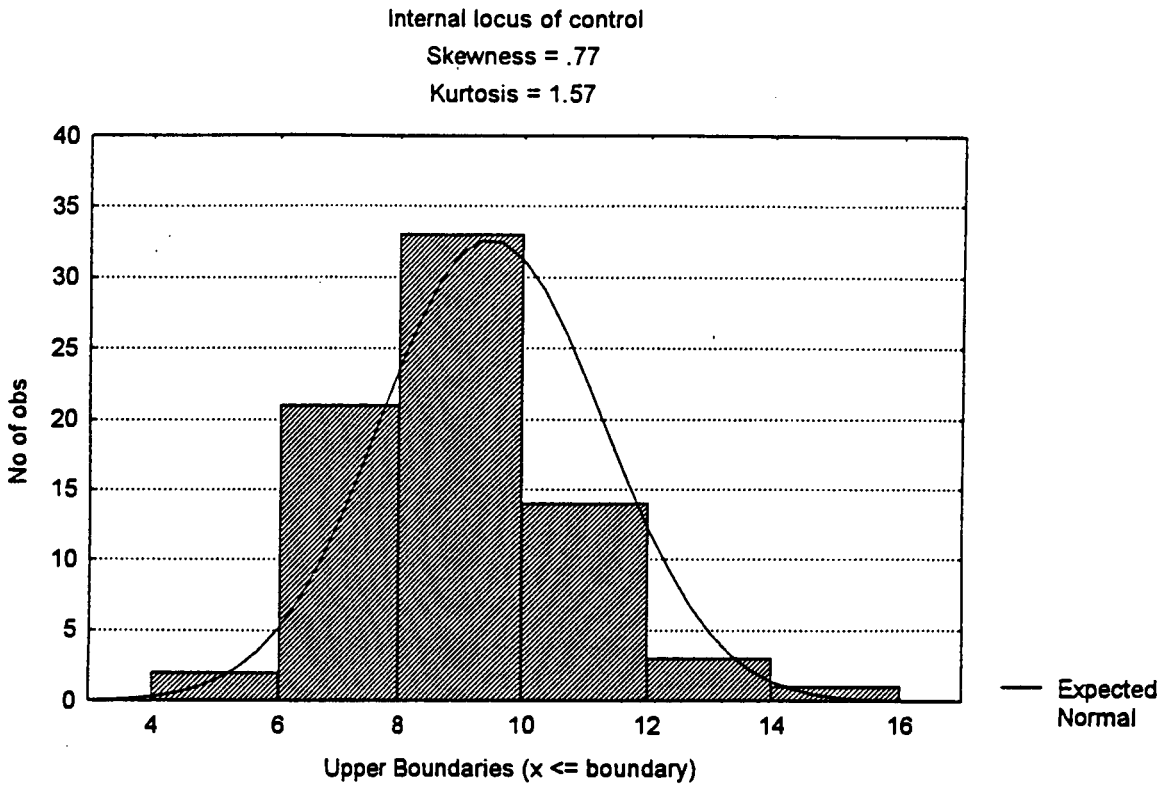
9. Pretest questionnaire

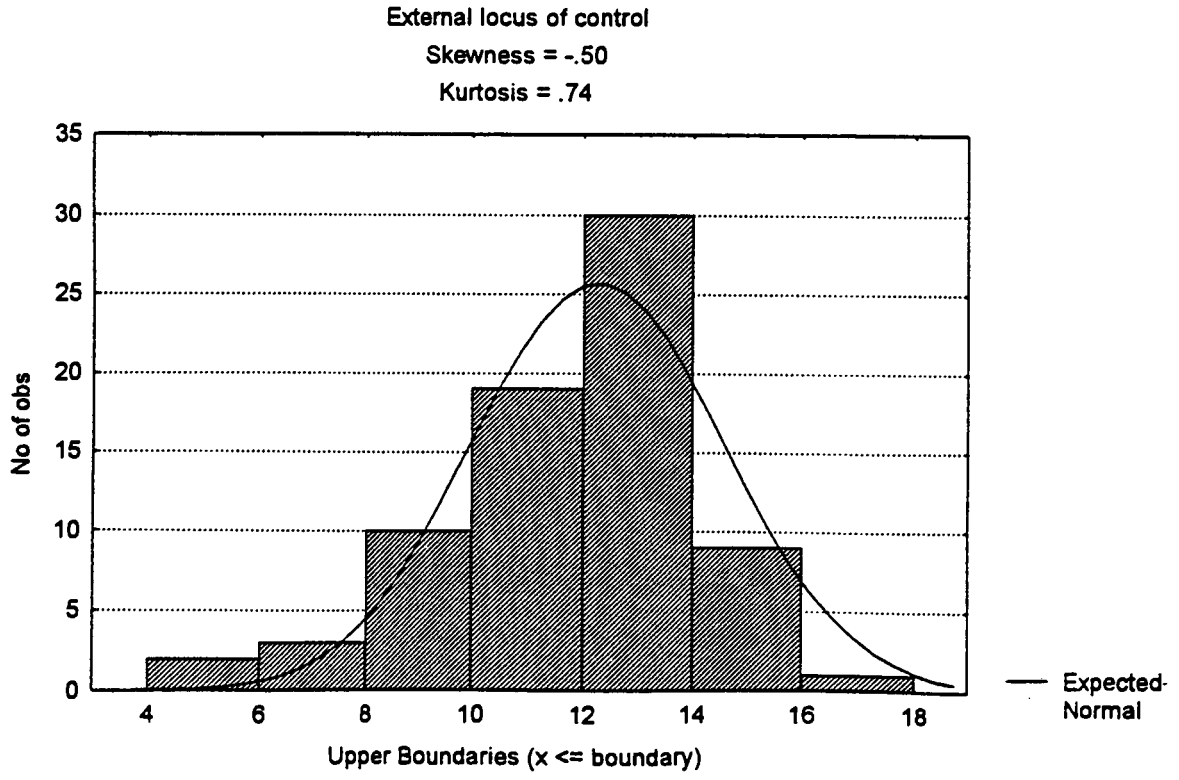
10. Posttest questionnaire

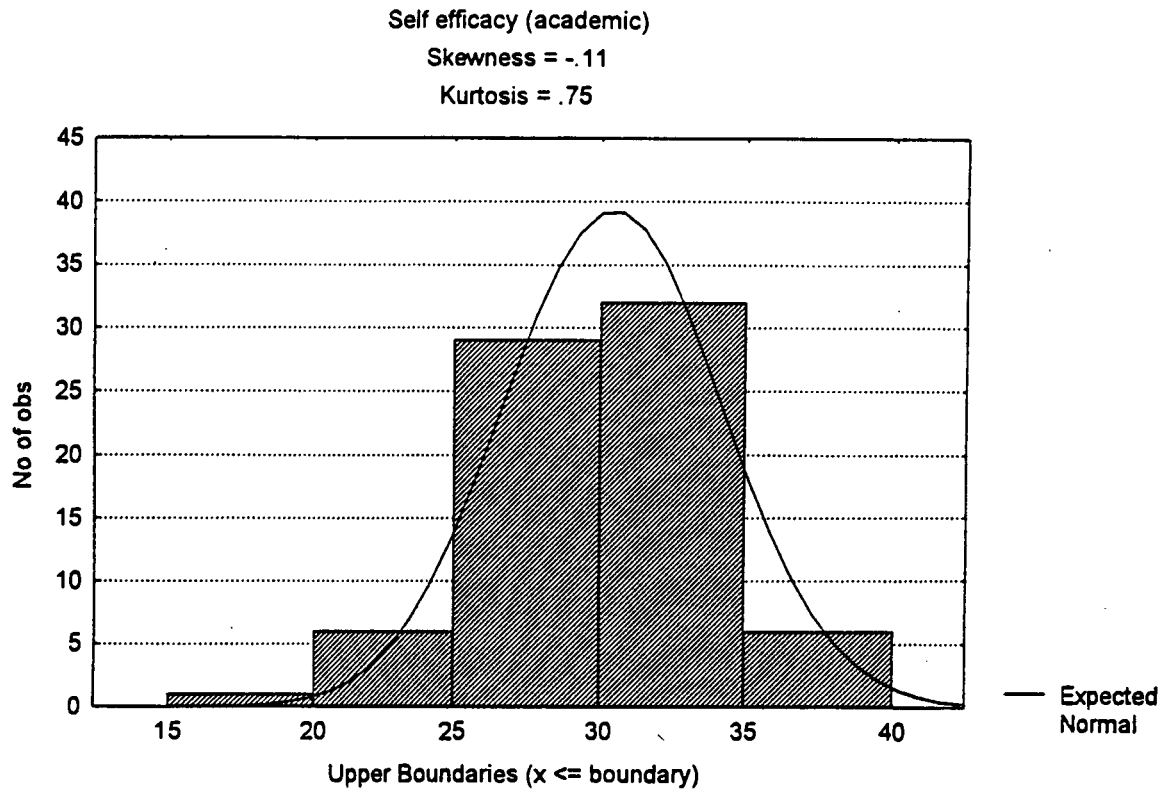
11. Managers' self ratings

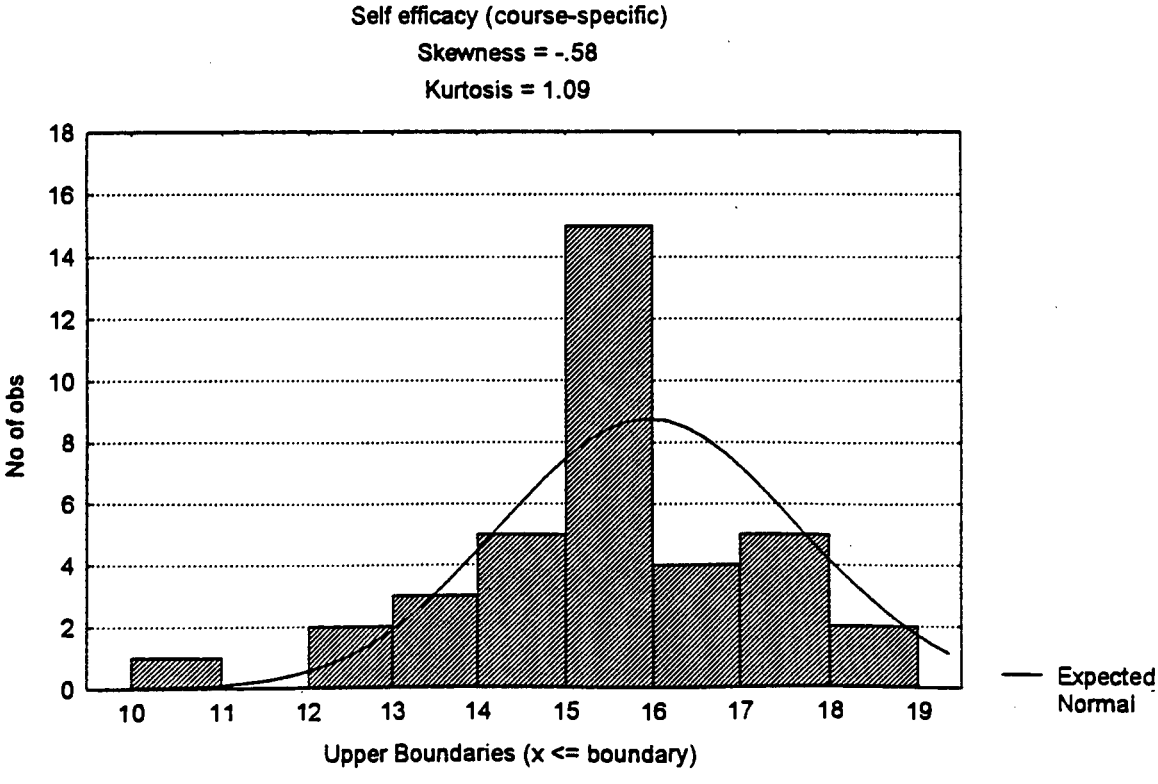

Cognitive ability (Standard Progressive Matrices)
Skewness = .41
Kurtosis = .09
No of obs
26
24
22
20
18
16
14
12
10
8
6
4
2
0
35
40
45
50
55
60
65
70
75
80
Upper Boundaries (x <= boundary)
Expected
Normal

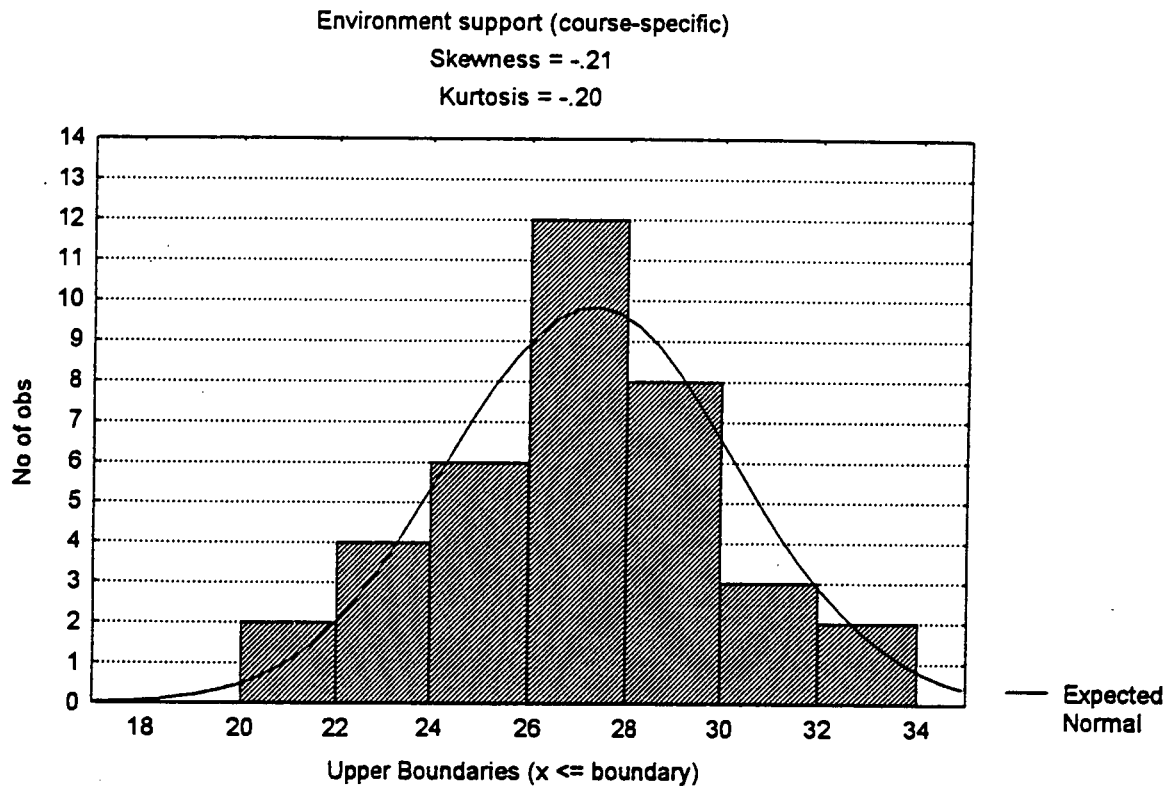

Motivation to transfer
Skewness = -.29
Kurtosis = -.85
No of obs
9
8
7
6
5
4
3
2
1
0
22
23
24
25
26
27
28
29
30
Upper Boundaries (x <= boundary)
Expected
Normal

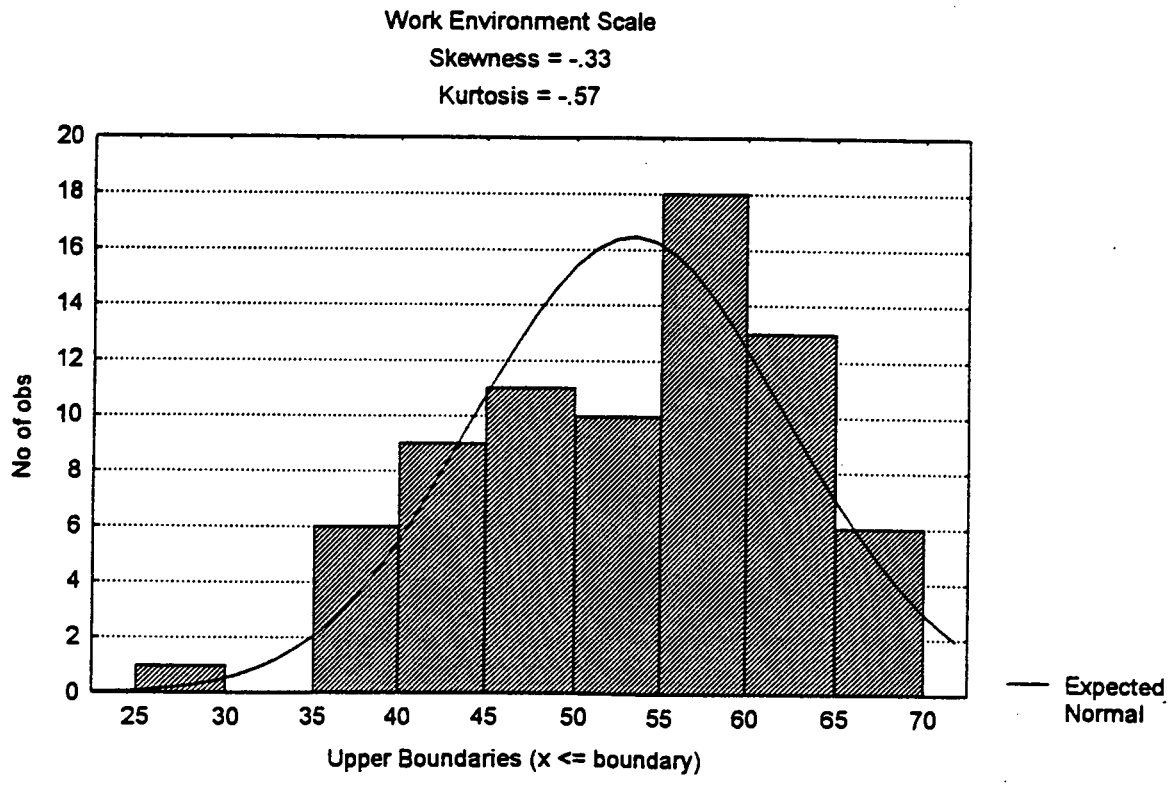

Internal locus of control
Skewness = .77
Kurtosis = 1.57
No of obs
40
35
30
25
20
15
10
5
0
4
6
8
10
12
14
16
Upper Boundaries (x <= boundary)
Expected
Normal

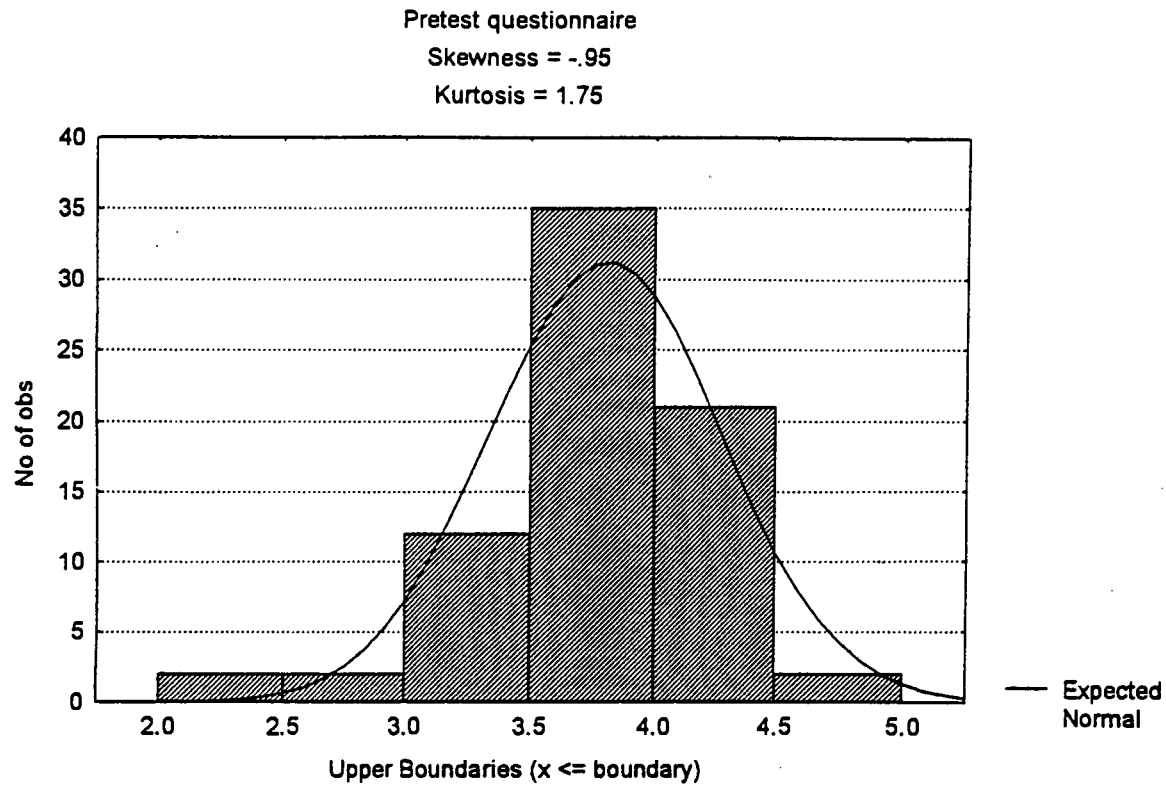

External locus of control
Skewness = -.50
Kurtosis = .74
No of obs
35
30
25
20
15
10
5
0
4
6
8
10
12
14
16
18
Upper Boundaries (x <= boundary)
Expected
Normal

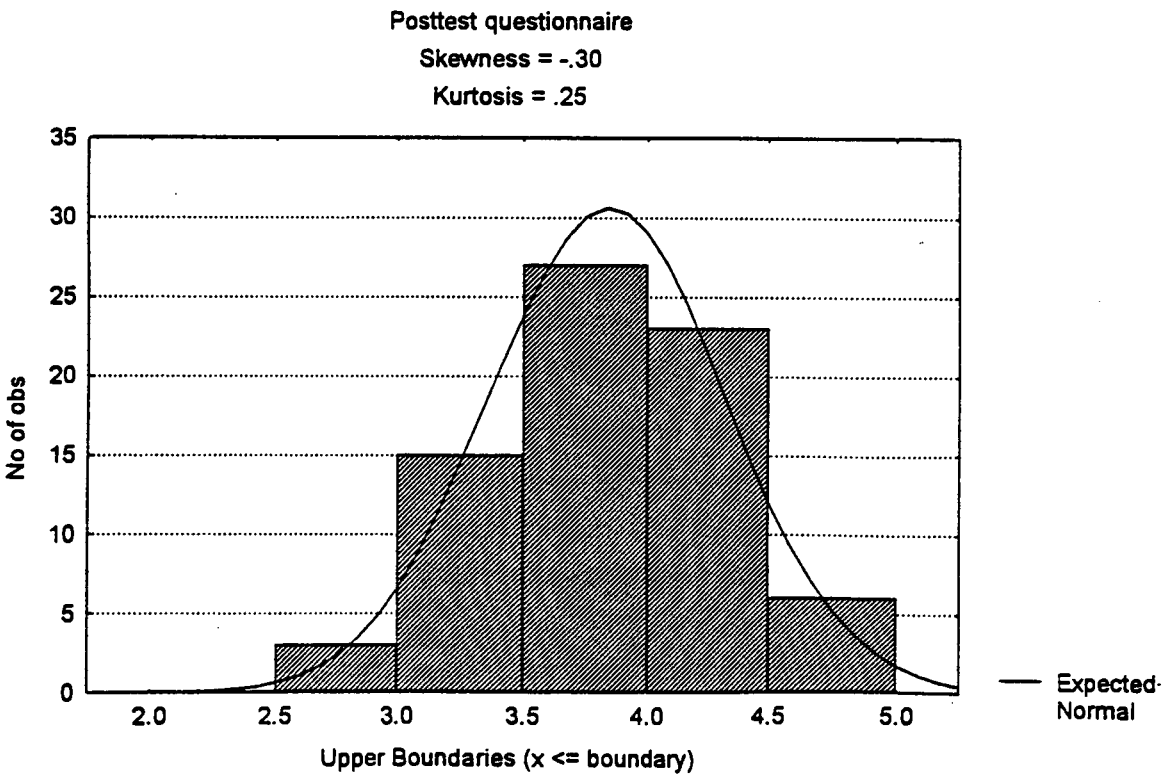

Self efficacy (academic)
Skewness = -.11
Kurtosis = .75
No of obs
45
40
35
30
25
20
15
10
5
0
15
20
25
30
35
40
Upper Boundaries (x <= boundary)
Expected
Normal

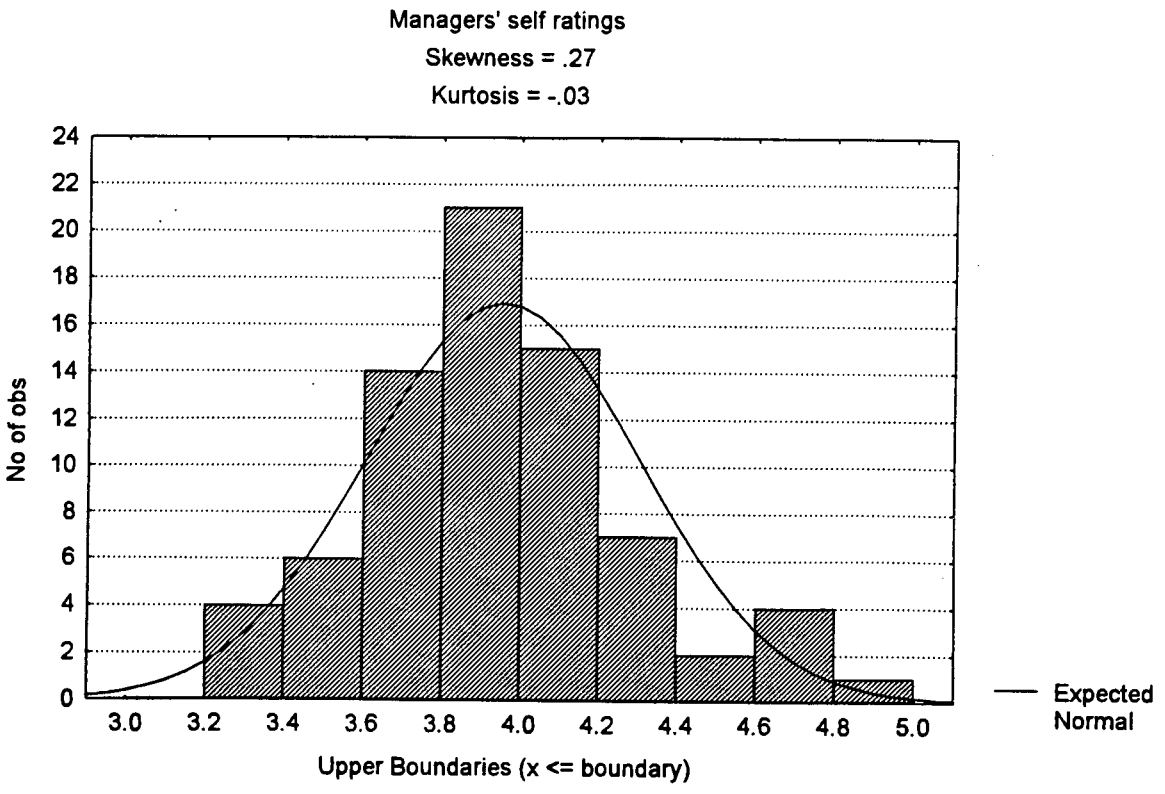

Self efficacy (course-specific)
Skewness = -.58
Kurtosis = 1.09
No of obs
18
16
14
12
10
8
6
4
2
0
10
11
12
13
14
15
16
17
18
19
Upper Boundaries (x <= boundary)
Expected
Normal


Environment support (course-specific)
Skewness = -.21
Kurtosis = -.20
No of obs
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
18
20
22
24
26
28
30
32
34
Upper Boundaries (x <= boundary)
Expected
Normal


Work Environment Scale
Skewness = -.33
Kurtosis = -.57
No of obs
0
2
4
6
8
10
12
14
16
18
20
25
30
35
40
45
50
55
60
65
70
Upper Boundaries (x <= boundary)
Expected
Normal


Pretest questionnaire
Skewness = -.95
Kurtosis = 1.75
No of obs
40
35
30
25
20
15
10
5
0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Upper Boundaries (x <= boundary)
Expected
Normal


Posttest questionnaire
Skewness = -.30
Kurtosis = .25
No of obs
35
30
25
20
15
10
5
0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Upper Boundaries (x <= boundary)
Expected
Normal


Managers' self ratings
Skewness = .27
Kurtosis = -.03
No of obs
24
22
20
18
16
14
12
10
8
6
4
2
0
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
Upper Boundaries (x <= boundary)
Expected
Normal