THE EFFECTS OF TRAINEE ABILITY AND MOTIVATION ON THE TRANSFER PROCESS

by

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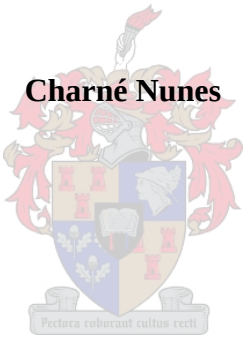


THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF COMMERCE (INDUSTRIAL PSYCHOLOGY) AT THE UNIVERSITY OF STELLENBOSCH

STUDY LEADERS: DR. R. DU PREEZ AND PROF. C.C. THERON

APRIL 2003

DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature:

Date: 26-11-2002

ACKNOWLEDGEMENTS

The writing of a thesis is never an individual's piece of work. For this reason, I would like to express my sincere appreciation to the following people and organisations:

- My study leader, Dr. du Preez, for her time and guidance throughout this study and for her punctuality in proofreading the documents.

- A special thank you to Prof. Theron for his patience and helpfulness right from the start of this project, his contributions to this study were immeasurable.

- Prof. J. Augustyn, for bringing the magnitude of the transfer of training problem to my attention and in doing so, giving my studies a sense of direction.

- The W&R SETA for their willingness to assist me in this research project and for their financial contributions to this study.

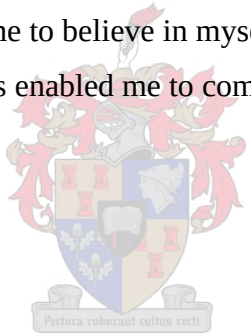
- The training provider and facilitators for being willing to assist in the project and for administering the questionnaires at the respective training sessions.

- A special word of thanks to all the participants for participating in this research and in effect for making the research possible.

- My housemates for their indescribable support, patience and tolerance this past year. You have gone through all the high's and low's of this research endeavour with me and I couldn't have asked for anyone better to share these with. Thanks.

- My Saviour for giving me the ability, strength and perseverance to complete my studies.

This thesis is dedicated to my parents who, throughout all my life,
have motivated and encouraged me to believe in myself. Their support, generosity and self-sacrifice has enabled me to come this far in life.



ABSTRACT

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THE EFFECTS OF TRAINEE ABILITY AND MOTIVATION ON THE TRANSFER PROCESS

STUDY LEADERS: Dr R du Preez, PhD (University of Stellenbosch)
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Training represents an expensive investment organisations make in their human resources. For this reason, it is imperative that the knowledge, skills, attitudes and behaviours gained in training be transferred into visible on-the-job performance and results.

Unfortunately, despite the increasing amounts of time, effort and money being spent on organisational training, the so-called "transfer problem" remains a threat. Continued low transfer puts a major portion of the training investment at risk, thus justifying practical efforts to leverage greater transfer of training. This study is one such effort.

The primary goal of this study was to develop and test an empirical model of the transfer process so as to establish the effects of trainee ability and motivation on this process. More specifically, it aimed to establish the relationships between the constructs trainee ability to learn, motivation to learn, intention to learn, learning and retention, motivation to transfer, intention to transfer and consequently, transfer.

A comprehensive study of the transfer of training literature was conducted so as to gain a better understanding of the issues relevant to the purpose of the study. The sample used for this study consisted of 116 trainees attending an assessor training course provided by the Wholesale and Retail Sector Education and Training Authorities (W&RSETA) in South Africa.

Five questionnaires were administered during the course of the study, of which two were developed especially for the purposes of the study. The Motivation to Learn Questionnaire consisted of three sections. Section A was designed to give an indication of the demographic data of the trainees. Section B measured Motivation to Learn and Section C measured Intention to Learn by means of a Likert-type scale. The Motivation to Transfer Questionnaire also consisted of three sections, with Section A providing demographic data, Section B measuring Motivation to Transfer, and Section C measuring Intention to Transfer via a Liker-type scale. A Mental Alertness Scale, giving an indication of ability to learn (i.e. general cognitive ability), as well as a pre- and post Knowledge Test, measuring learning and retention, also had to be administered during the study. These measures were distributed to the various training facilitators for administration according to specified instructions at their respective training sessions.

The data was subsequently analysed using SPSS. Unfortunately, not all hypotheses could be corroborated in this study, yet useful insights were nonetheless gained. It was discovered that ability to learn significantly affects the amount of learning and retention that occurs during training. Ability to learn was also positively correlated with motivation to learn the training material. Motivation to learn produced significant relationships with three variables, namely intention to learn, intention to transfer, as well as motivation to transfer learning into on-the-job performance. Intention to learn was also found to positively correlate with intention to transfer. Finally, motivation to transfer indicated a significant correlation with intention to transfer. Consequently, conclusions were derived from the results obtained and recommendations for future research made.

OPSOMMING

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DIE INVLOED VAN VERMOË EN MOTIVERING OP DIE OORDRAG VAN LEER

STUDIELEIERS: Dr R du Preez, PhD (Universiteit van Stellenbosch)
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Opleiding is ‘n duur belegging wat organisasies in hul menslike hulpbronne maak en daarom is dit uiters belangrik dat die kennis, vaardighede, houdings en gedrag wat tydens opleiding aangeleer word, oorgedra word tot sigbare werksprestasie en resultate.

Ongelukkig bly die oordrag van aangeleerde kennis en vaardighede ‘n probleem, ten spyte van die toenemende besteding van tyd, inspanning en fondse aan organisatoriese opleiding. ‘n Groot deel van die belegging in organisatoriese opleiding word op die spel geplaas deur voortdurende lae vlakke van oordrag. Om die rede, regverdig dit praktiese pogings om hoër oordragsvlakke te bewerkstellig. Hierdie studie poog om ‘n bydrae te maak in hierdie verband.

Die primêre doel van die studie is om ‘n empiriese model van die oordragsproses te ontwikkel en te toets, en sodoende die effek van leerders se vermoëns en motivering op hierdie proses vas te stel. Meer spesifiek, poog dit om die verband tussen die konstrukte van leervermoë, motivering om te leer, intensie om te leer, leer en retensie, motivering om oor te dra, intensie om oor te dra, en oordrag, vas te stel.

‘n Omvattende literatuurstudie van die oordrag van leer is uitgevoer om sodoende ‘n beter begrip te kry van die konstrukte ter sake. ‘n Steekproef van 116 leerders is in die studie gebruik. Die leerders het ‘n assessoropleidingsprogram bygewoon wat deur die W&R SETA verskaf is.

Vyf vraelyste is gedurende die studie toegepas, waarvan twee vir die doeleindes van die studie ontwikkel is. Die motivering-om-te-leer vraelys bestaan uit drie afdelings. Afdeling A verteenwoordig demografiese items, en Afdeling B en Afdeling C meet onderskeidelik motivering om te leer en intensie om te leer met behulp van ‘n 7-punt Likert-tipe skaal. Die oordragmotiveringsvraelys bestaan ook uit drie afdelings, waar Afdeling A weer op demografiese informasie fokus. Afdeling B en C meet onderskeidelik oordragmotivering en oordragintensie met behulp van ‘n 7-punt Likert-tipe skaal. ‘n Verstandelikehelderheidsskaal (wat leervermoë gemeet het), sowel as ‘n voor- en na-kennistoets (wat leer en retensie meet) is ook toegepas gedurende die studie. Hierdie vraelyste is aan die verskillende opleiers versprei sodat hulle dit volgens die instruksies in hulle onderskeidelike opleidingssessies kon toepas.

Die data is geanaliseer deur die gebruik van die rekenaarpakket SPSS. Al die hipoteses kon nie bevestig word nie, maar nuttige insigte is nogtans ingewin. Resultate toon dat leervermoë ‘n beduidende effek het op die hoeveelheid leer en retensie wat gedurende opleiding plaasvind. Leervermoë het ook ‘n positiewe verband met leermotivering getoon. Leermotivering het beduidende korrelasies met drie veranderlikes getoon, naamlik leerintensie, oordragintensie en oordragmotivering. Leerintensie het ook ‘n positiewe korrelasie met oordragintensie getoon. Laastens is ‘n beduidende korrelasie tussen oordragmotivering en oordragintensie bevind. Gevolgtrekkings en aanbevelings vir toekomstige navorsing is gemaak.

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CHAPTER 1

BACKGROUND AND OBJECTIVES OF THE STUDY

1.1 INTRODUCTION

The provision of workplace training is essential for organisational productivity, as well as a country's competitiveness and employment levels. Yet, training is of little use if trainees do not transfer what they have learned in training to the work environment. This chapter seeks to establish an awareness of the so-called "transfer problem" existing in organisational training so as to create a sense of urgency among all stakeholders in order to find some answers to this very costly issue.

1.2 THE SOUTH AFRICAN CONTEXT

In the past there was limited support for employee training in the workplace. Whilst many employers have provided skills development opportunities for their staff, a commitment to training has not characterised the South African Labour Market. During the apartheid era workplace training was reserved for the select few and a vast majority of the country's population received little or no training. Even the quality of training was questionable, as it tended to be infrequent, unstructured and not geared towards any clear objectives. The overall picture was one in which the training system provided limited incentives for employers to train and when training occurred, it was primarily off the job and geared towards low productivity. Another major drawback of the system was the lack of opportunities for certain groups to engage in training. The lack of support for training, particularly among Blacks and women, has created a significant number of skill shortages (Republic of South Africa, 2001).

Following the onset of majority rule in 1994 and the subsequent opening up of the economy, South Africa has entered an economic era that is characterised by trade

liberalisation, lower levels of protectionism and increased access to products internationally. Given these developments, it was essential to develop strategies to help meet the challenges posed by increased international competition and also to take advantage of the opportunities that new markets had to offer.

In an attempt to address the imbalances established under apartheid and to help introduce incentives that would encourage companies to provide training for all their employees, the Minister of Labour adopted a National Skills Development Strategy (NSDS). The NSDS represents an intervention to foster skill development in the formal economy for productivity and employment growth. The NSDS is thus aimed at providing the requisite mechanisms and opportunities for identifying and developing the needed skills for ensuring that all sectors achieve their full growth potential (Republic of South Africa, 2001).

The Skills Development Act, which provides the legal underpinnings that support the NSDS, seeks to establish a high quality skills development system that is: cost-effective and accountable; meets skills needs; and promotes employment generation and economic growth. The Act has made provision for the formation of the National Skills Authority, which in collaboration with the Department of Labour and other stakeholder organisations monitor progress on the implementation of the NSDS. Further enabling legislation promotes an incentive system for firms to invest in the skills development of their workforce. Procedures for planning and the execution of interventions around the strategy are devolved and decentralised to twenty-five Sector Education and Training Authorities (SETAs) and this in turn is driven by the needs of individual firms in each sector. SETAs are thus responsible for promoting skills development strategies within and on behalf of the Sectors in which they operate (Republic of South Africa, 2001).

A general consensus has also developed amongst policy makers that all countries are facing similar global challenges and opportunities, which include: the liberalisation of markets, the formation of new trading agreements, rapid innovations in technology, particularly in relation to telecommunications and the increasing importance of

knowledge to organisations' competitive advantage (Republic of South Africa, 2001). Skills development thus holds a central place in the activities required to enable an economy to change and grow. The NSDS plays an important role in meeting these challenges by providing South Africa with a more highly skilled workforce that is capable of responding competently, efficiently and effectively to these changes.

1.3 THE IMPORTANCE OF TRAINING

Currently, organisations function in a highly competitive environment. Globalisation has removed borders and barriers and thus South African organisations do not only have to compete with the best organisations in their own country, they now have to face the challenge of competing with the best in the world.

In an increasingly turbulent environment – characterised by a changing workforce, a changing workplace and a changing, more competitive global and predominantly knowledge-driven, borderless economy – organisations are becoming obsessed with finding new ways of gaining and sustaining competitive advantage. They are aware of the fact that competitors (both national and international) have equal access to all the resources (namely money, machinery and equipment, methods, markets and manpower) that are essential for an organisation to function efficiently and effectively. Organisations are also starting to realise that what will give an individual organisation the edge, is how well it utilises and trains its staff. The principle aim of any organisation is thus to find ways of improving the quality of its workforce so as to make its staff perform better than employees of opposition companies, and in so doing, set it apart from other similar organisations (Pearce & Robinson, 2000).

This can be done by means of developing individual level competencies within an organisations staff, which will ensure that the staff are not only equipped to perform, but to excel, providing a rich source of competitive advantage in the form of intellectual capital. In order to ensure the creation of both short and long-term competitive value,

organisations try to align and link Human Resource Development processes and practices to the external marketplace.

SETAs provide valuable assistance in this regard by coordinating the training and skills development needs in their particular sectors by means of Sector Skills Plans (Republic of South Africa, 2001). Training and development in South Africa is thus receiving increased attention on both sectoral and national level.

1.4 JUSTIFICATION FOR THIS RESEARCH

Goldstein (1993, p.3) defines training as "the systematic acquisition of skills, rules, concepts, or attitudes that result in improved performance in another environment". From this definition it is clear that training seeks to create changes that last beyond the immediate training environment and is thus of little use if it fails to induce significant new behaviour on the job.

The amount of time and money spent on corporate education continues to grow (Anthony & Norton, 1991). Yet, research has indicated that very little of what is learned in training actually gets transferred to the workplace (Baldwin & Ford, 1988; Georgenson, 1982; Newstrom, 1986). When managers analyse on-the-job performance, they often find that the newly acquired knowledge, skills, attitudes and behaviours are not being put into practice once the trainees leave the training environment and return to their jobs. Skills so carefully shaped during training do not survive the transition to the workplace.

There is thus a growing recognition of a "transfer problem" in organisational training (Anthony & Norton, 1991; Burke, 1997; Newstrom, 1986). Performance technologists and trainers are reluctant to estimate transfer failure rates, but they are equally unable to estimate with any degree of certainty what percentage of training actually does transfer (Fitzpatrick, 2001). Many believe it is extremely low and that much of it is extinguished over time (Broad & Newstrom, 1992; Georges, 1988; Grabowski, 1983; Kelly, 1982).

Continued low transfer puts a major portion of training investment at risk and justifies practical efforts to leverage greater transfer of training.

It is thus of utmost importance to realise that successful training involves *two* phases: (1) the acquisition of the knowledge, skills, attitudes and behaviour, and (2) the application and maintenance thereof (Baldwin & Ford, 1988). Unfortunately, trainers often put all their efforts into the former and neglect the latter. The issue of training transfer has thus not received the empirical attention it deserves. To a large extent, Human Resource Development practitioners have emphasised and developed sophisticated delivery devices at the expense of the critical connection between the training site and the work environment. That is, most of the scholarly work and practice in Human Resource Development is focused on the design and delivery of learning interventions. But it is becoming increasingly apparent that more effective and efficient learning alone will do little, if anything, to reverse the trend toward lack of transfer if trainees encounter negative reinforcement upon returning to the job after training. For this reason, many scholars and practitioners are calling for more participation by all of the key training players – trainers, trainees and immediate supervisors – to bridge the gap between training and job performance by managing the entire transfer-of-training process (Brinkerhoff & Gill, 1994; Broad & Newstrom, 1992; Huczynski & Lewis, 1980; Marx, 1986; Tracey, 1992).

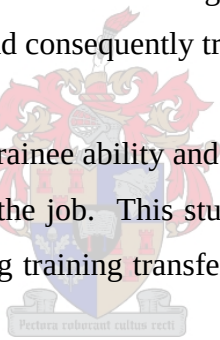
1.5 VALUE OF THIS STUDY

Training which does not transfer to the workplace is a waste of time, effort and money. This study should make a valuable contribution to finding answers to the so-called "transfer of training problem" that exists in organisational training. It will deliver valuable results that can be used to facilitate the development and implementation of appropriate interventions so as to ensure that training does in fact lead to on-the-job performance and results.

For Human Resource Development professionals to be able to actively and purposefully improve transfer of training, the factors/determinants of training transfer need to be identified, investigated and understood. In this way managers can be guided toward techniques for facilitating the application of newly acquired knowledge, skills, attitudes and behaviours, and enhance the likelihood that time, money and effort devoted to training is indeed well-spent. In this way, companies can reap the benefits of investing in their people.

1.6 OBJECTIVES OF THIS STUDY

The overall objective of this study is to develop and empirically test a structural model of training transfer. This model focuses on two factors which are essential for transfer to occur, namely trainee ability and motivation. It is suggested that without sufficient levels of ability and motivation, learning and consequently transfer, cannot and will not occur.



In this study, it is not proposed that trainee ability and motivation are the only factors that influence the transfer of training to the job. This study only attempts to explain two of the many possible factors influencing training transfer so that more light can be shed on this issue.

The specific objectives of this research are as follows:

- To increase understanding of the transfer of training process by focussing on two trainee characteristics affecting transfer, namely ability and motivation.
- To design a study that has both theoretical and practical relevance, with results being significant and of considerable interest to Human Resource Development practitioners and researchers alike.
- To develop a structural model of the transfer process.
- To define the constructs of the proposed model.
- To establish whether significant relationships exist between the variables of interest as proposed in the structural model.

- To make a contribution to theory building in the field of Human Resource Development.

1.7 COMPOSITION OF THE THESIS

Chapter one provides an introduction to the research problem, focuses on the training and development situation in South Africa and outlines the objectives of the study.

Chapter two provides an extensive review of the transfer of training literature. In this chapter terminology is clarified with respect to the different constructs and an empirical model is developed. The primary focus is on defining the constructs of interest, namely transfer of training, ability to learn, motivation to learn, intention to learn, learning and retention , motivation to transfer and intention to transfer, and consequently outlining the possible relationships between these constructs.

Chapter three deals with the research strategy followed in the study. The hypotheses, sample, training program, measuring instruments and statistical analysis are outlined in this chapter. Chapter four reports on the analysis of the research data and the subsequent findings. Finally, chapter five contains the final conclusions of the study, as well as the proposals for future research.

CHAPTER 2

LITERATURE OVERVIEW

2.1 INTRODUCTION

For any formal training program to be effective, it is imperative that learning be transferred into on-the-job performance. Transfer, however, is not a random event, but rather an expression of the functioning of a complex nomological network of determining factors. The training literature has generally recognised that transfer of training can be influenced by a variety of factors. These can be characterised into three broad categories, namely individual characteristics, work environment factors and training design and delivery factors (Baldwin & Ford, 1988; Holton, 1996; Smith-Jentsch, Salas & Brannick, 2001; Tannenbaum & Yukl, 1992; Tracey & Tews, 1995). Human resource management efforts to facilitate transfer necessitates an understanding of the identity of these factors that systematically affect learning transfer and the manner in which they impact on a trainee's ability, motivation and opportunity to apply his/her newly acquired knowledge, skills and abilities in his/her on-the-job performance.

Figure 2.1 represents a conceptual model of the factors which influence transfer of training through the intervening mechanism of trainees' intention to transfer (the corresponding sections in this chapter are also indicated). The majority of this chapter will focus on explaining the concepts which are included in the conceptual model, as well as the relationships among them. The chapter is then concluded by moving towards a more simplified model of the transfer of training process.

This chapter thus seeks to better understand transfer of training by summarising the literature on potential predictors of transfer, integrating existing work into a conceptual model and then proposing a simplified transfer of training model which will be the focus of the rest of the study.

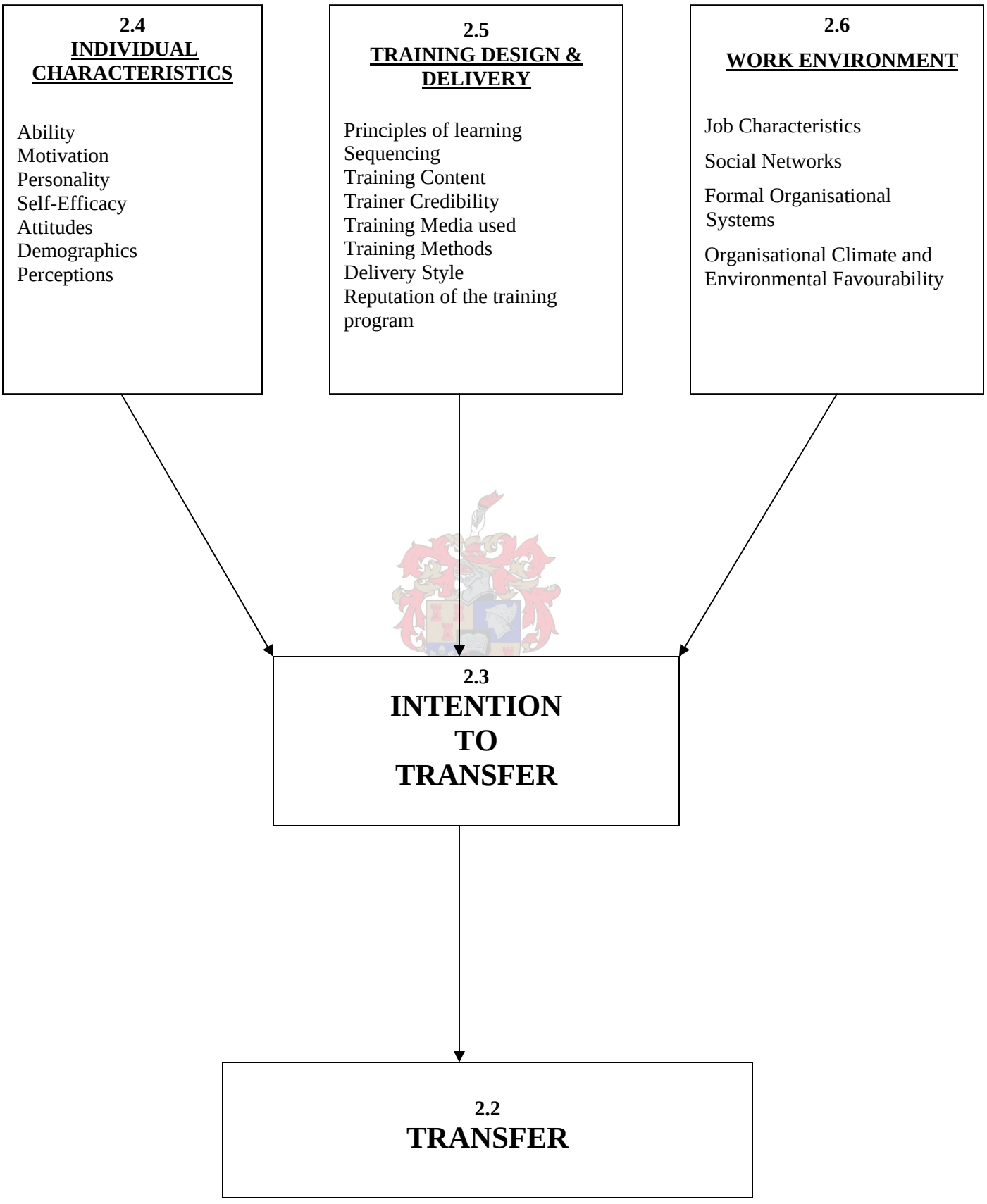
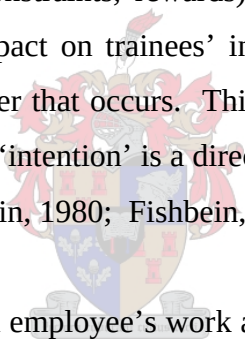


Figure 2.1 A Conceptual Model of Factors affecting the Transfer Process

2.2 TRANSFER

Transfer of training has been defined as the degree to which trainees effectively apply knowledge, skills, behaviours and attitudes gained in training to their jobs (Wexley & Latham, 1981). This definition suggests that transfer of training is a function of the characteristics of the trainee, factors within the formal training context (i.e. training environment), as well as factors in the transfer - or work environment.

Research has also indicated that a wide range of variables influence transfer, namely trainee characteristics (motivation, ability, self-efficacy, attitude, expectancies, personality), training design and delivery factors (training content, principles of learning, sequencing, media used, training methods, trainer credibility) and the work environment (support, opportunities for use, constraints, rewards) (Baldwin & Ford, 1988). These variables should have a direct impact on trainees' intention to transfer, which in turn, should impact the degree of transfer that occurs. This is based on Fishbein's Theory of Reasoned Action which states that 'intention' is a direct determinant of behaviour (Ajzen & Fishbein, 1975; Ajzen & Fishbein, 1980; Fishbein,1967)



It seems intuitively obvious that an employee's work attitudes influence preparation for a particular training program, or that the reward system of an organisation may affect the extent to which trainees use their newly acquired knowledge and skills. However, these and other variables have been given little attention in the training literature and training researchers have not focused much attention on factors outside the learning or training environment. Only recently have the individual and work-related factors which are not directly associated with training been empirically studied (Tracey & Tews, 1995).

What follows is a discussion of the variables which impact transfer of training either directly or indirectly i.e. intention to transfer, individual characteristics, the work environment and training design and delivery factors.

2.3 INTENTION TO TRANSFER

Transfer appears to depend as much on an inclination to apply the learning as it is on post-training capability (Knox, 1988; Richey, 1990; Yelon, 1992). Many researchers have defined intention to transfer as the end-of-course motivation of the trainee to apply aspects of the learning environment to the work environment (Huczynski & Lewis, 1980; Noe, 1986). Yet, in this thesis motivation to transfer and intention to transfer are seen as two different concepts. This is due to the fact that motivation and effort do not necessarily result in the desired behavioural action. There is thus a need to create a possibility that between the decision to act (i.e. intention) and executing this intention, events could occur that prevent the implementation of the intention/decision (i.e. events could occur that have a negative impact on a trainee's training motivation, resulting in no intention to act).

Motivation to transfer is thus the trainee's desire to use the knowledge and skills mastered in the training program on the job and can be seen as the force that brings a trainee's decision to action (Noe & Schmitt, 1986). 'Intention' is defined as: "an aim or a plan that guides action; a concept derived from an object of thought" (Crowther & Kavanagh, 1995). It is when a person's mind is fastened upon some purpose. In the training environment, that purpose is to transfer the learning to the work environment. Thus, intention to transfer can be defined as an inclination to apply the learning to the work environment. '*Intention*' can thus be seen as a trainee's decision to act.

Intuitively, one would expect the level of post-training intention to transfer to directly affect the extent of transfer. To date, this is an unresearched area (Foxon, 1993). If trainees leave training with a low level of transfer intention it is unlikely that they will demonstrate a high degree of transfer on the job some months later. Transfer initiation is more likely to occur among trainees with a higher level of intention to transfer (Foxon, 1993; Huczynski & Lewis, 1980; Noe, 1986). Comparatively little research has been done on measuring end-of-course transfer intention and its effect on the transfer process (Foxon, 1993). In the only study assessing the outcomes of intention to transfer, Huczynski and Lewis (1980) questioned course attendees four months after the training

and found that those who attempted to use the skills at least once had demonstrated more motivation at the commencement and close of the course than those who failed to make any attempt. Transfer initiation was more likely to occur among trainees with a higher level of intention to transfer (Foxon, 1993). Intention to transfer should therefore be directly affected by the following broad factors: trainee characteristics, work environment factors and training design and delivery factors.

Trainee Characteristics: Aspects of the individual may have an impact on a trainee's intention to transfer. These may be a trainee's ability, motivation, personality, attitudes, self-efficacy, expectations, perceptions and demographics. Since these characteristics determine the way individuals think, feel and act, they should influence trainees' intention to transfer, motivation to transfer, and consequently actual transfer.

Work environment: The intention to transfer is affected by factors operating within the training environment. It is subsequently also affected by factors operating within the immediate workplace, as well as the larger organisational environment. The trainee's perception of organisational support from supervisors and co-workers and the likely availability of resources and technologies necessary to support transfer create a "culture of transfer" (Pea, 1987) which positively influences motivation to learn as well as intention to transfer (Laker, 1990; Noe, 1986). When the trainee attempts to apply and maintain the new knowledge and skills, the presence of inhibiting factors in excess of, or stronger than, the supporting factors will act to constrain the implementation. This leads to a declining intention to continue using the skills, resulting in partial or failed transfer (Foxon, 1993).

Training Design and Delivery Factors: Training design factors refers to the course content which may be too theoretical or not practical enough, that may be perceived to be in conflict with the values of the organisation, or which is presented out of sync with on-the-job requirements. These could all inhibit transfer motivation, as well as transfer intention and consequently actual transfer (Foxon, 1993).

Training delivery factors refer to the methods and media used during training. Certain training methods and/or media, as well as the level of trainer credibility, may inhibit the

degree of learning that occurs, as well as trainees' intention to transfer, and consequently actual transfer of the learning which did occur, to the work situation.

2.4 TRAINEE CHARACTERISTICS

Training effectiveness is determined in part by the thoroughness of the needs analysis and the quality of the training design, but other factors also contribute to training effectiveness, including the attributes of trainees.

What the trainee brings to the instructional situation in prior knowledge, cognitive skills and experience is of crucial importance (Colquitt, LePine & Noe, 2000). Each trainee enters training with certain expectations and desires, demographic characteristics, attitudes and different levels of commitment, self-efficacy and motivation. These characteristics greatly impact training effectiveness. Individual characteristic effects do not occur at only one specific stage, they occur during the entire training process. Individual characteristics may thus be critical factors before training (by relating to training motivation), during training (by relating to learning levels), and after training (by relating to transfer and job performance) (Colquitt et al., 2000).

Since the impact of training design and delivery variables (training media, instructional settings, sequencing of content, etc), as well as work environment variables, varies on individuals' learning and behaviour, it is important to examine how individual characteristics relate to training effectiveness (Campbell, 1988; Tannenbaum & Yukl, 1992). Attention should thus be given to understanding the relationships among trainee characteristics and their relative contribution in facilitating learning, skill acquisition and transfer. The following individual trainee characteristics will be discussed in the subsequent section: ability, training motivation, personality, self-efficacy, attitudes, demographics and perceptions.

2.4.1 ABILITY

Abilities are generally regarded as relatively enduring attributes of individuals related to the performance of a set of tasks (Fleishman & Mumford, 1989). Trainees' ability to learn as well as their ability to transfer learning into actual on the job performance affects eventual transfer.

2.4.1.1 Ability to Learn

Perhaps the most commonly examined individual characteristic is cognitive ability. Although there is debate about the underlying determinants (ie. generic vs environmental), it is clear that individuals differ in terms of basic information processing capabilities or their levels of cognitive resources (Ackerman, 1999; Kanfer & Ackerman, 1989; Norman & Bobrow, 1975). Individual differences in information processing capacity relate to individual differences in learning or, more precisely, the speed of learning (Jensen, 1998). The literature on skill acquisition, for example, is very consistent in showing that information processing capacity is very important during early stages of task performance, when a great deal of information from the environment and recalled knowledge must be represented in working memory (Ackerman, 1986, 1987; Anderson, 1982, 1987).

Regardless of how cognitive psychologists describe the process of information processing, individual differences in cognitive capability can be captured by a single factor underlying scores on tests that measure a broad array of cognitive abilities (Hunter, 1986; Jensen, 1986; Kass, Mitchell, Grafton & Wing, 1983; Ree & Earles, 1991; Welsh, Watson & Ree, 1990). This single factor has been called *general cognitive ability* or simply *g* and has occasionally been defined as the ability to learn (Hunter, 1986). An individual's ability to learn and acquire new knowledge and skills has a direct influence on training preparation and performance (Tracey & Tews, 1995). Accordingly, because acquisition of knowledge and skill depends on learning and because learning depends on

individual differences in *g*, *g* should predict success in training. Indeed, *g* has been found to be the primary determinant of training success across a variety of jobs, and some have suggested that there is "not much more than *g*" when it comes to factors that influence training effectiveness (Ree & Earles, 1991). Psychologists have demonstrated that general cognitive ability has a significant impact on trainee success (Ree & Earles, 1991) and interacts with motivation (Kanfer & Ackerman, 1989) to enhance outcomes.

The cognitive and psychomotor skills that trainees possess directly influence whether or not they will be able to understand and master the content of the training program. However, as Maier (1973) indicates, even if trainees possess the prerequisite skills needed to learn the training program content, performance in the program will be poor if motivation is low or absent. Ability and motivation are important influences on individual performance (Porter & Lawler, 1968). Consistent with this, the notion that "trainability" (the degree to which training participants are able to learn and apply the material emphasized in the training program) is a function of an individual's ability and motivation to learn is widely accepted among researchers and practitioners in education and training (Goldstein, 1986; Wexley & Latham, 1981).

2.4.1.2 Ability to Transfer

Ability to transfer can be defined as the degree to which trainees are capable of coping with situations that threaten skill maintenance. It is the degree to which trainees have the "tools" needed to cope with difficult situations once they leave the training session (Burke, 1997). Failure to transfer could be caused by the design of the training not providing for the ability to transfer the learning. In other words, cognitive learning may well occur, but the trainees may not have an opportunity to practice the training in a job context or may not be taught the manner in which to apply their new knowledge on the job (Holton, 1996).

Trainees who are taught how to apply new knowledge and skills in a job context should have the ability to transfer learning which, when combined with motivation to transfer and positive transfer conditions, is likely to result in greater transfer. Clearly, even the

most motivated trainee will be unable to transfer the learning if he or she does not know how to do so (Holton, 1996).

2.4.2 TRAINING MOTIVATION

It is widely accepted that learning and consequently, transfer will occur only when trainees have both the ability ("can do") and motivation ("will do") to acquire and apply new skills (Wexley & Latham, 1981; Noe, 1986). Maier (1973) indicates that even if trainees possess the prerequisite skills needed to learn the training program content, performance in the program will be poor if motivation is low or absent. Noe (1986) suggested that whereas trainees may have the ability (e.g. cognitive, spatial or psychomotor ability) to benefit from training, they may fail to do so because of low motivation. Countless studies in the field of education and educational psychology have shown that classrooms that foster student motivation are often the ones in which the largest amount of learning takes place (Ames, 1992). In organisational settings, the empirical evidence has upheld the importance of motivation as a determinant of training effectiveness (Quinones, 1995; Ryman & Biersner, 1975).

Motivation is typically defined as variability in behaviour not attributable to stable individual differences (e.g. cognitive ability) or strong situational coercion (Kanfer, 1991). Thus, motivation involves a choice by the individual to expend energy toward one particular set of behaviours over another. Kanfer (1991) defines training motivation as the direction, intensity and persistence of learning-directed behaviour in training contexts.

Training motivation thus differs from general motivation in terms of its context and its correlates. The training context differs from contexts in which general job performance is assessed because the task content is necessarily new and often complex. Although it is true that some correlates of training motivation may not be context sensitive (e.g. valence, self-efficacy), other correlates could be either more critical or more relevant in a training context (e.g. age, anxiety, career exploration). Still other correlates do not exist outside of training settings (e.g. transfer climate) (Colquitt et al., 2000).

Steers and Porter (1975) suggest that motivation is composed of energizing, directing and maintenance components. In a training situation, motivation can be seen as a force that influences enthusiasm about the program (energizer), a stimulus that directs participants to learn and attempt to master the content of the program (director) and a force that influences the use of newly acquired knowledge and skills, even in the presence of criticism and lack of reinforcement for use of the training content (maintenance). In a training setting, training motivation can thus express itself in a number of ways. Motivation can affect whether or not an individual decides to attend a training session in the first place (Maurer & Tarulli, 1994; Noe & Wilk, 1993). It can also influence the amount of effort exerted during the training session (Ryman & Biersner, 1975). Finally, motivation can affect whether or not an individual chooses to apply the trained skills on the job (Baldwin & Ford, 1988).

The training literature has generally recognized that training motivation can be influenced by both individual and situational characteristics (Kanfer, 1991; Mathieu & Martineau, 1997; Noe, 1986; Tannenbaum & Yukl, 1992; Colquitt et al., 2000). These will be discussed shortly in the following two sections, whereafter the two types of training motivation, motivation to learn and motivation to transfer, will be discussed.

2.4.2.1 Individual Influences on Training Motivation

Expectancies and Valence: Vroom's (1964) expectancy theory suggests that individuals (eg. trainees) have preferences among the different outcomes that can result from participation in various activities (i.e. valence) such as training. Trainees also have expectations regarding the likelihood that effort invested in training will result in mastery of training content (i.e. expectancy). Past research has shown that expectancy theory is useful for predicting behaviour when the behaviour is under the employees' control, the work environment provides consistent contingent rewards, behaviour-outcome linkages are unambiguous, and there is a limited time span between assessment of predictors and observation of a criterion (Mitchell, 1982). Because these conditions are usually met in a training context (e.g. attending training is under the employees' control and is purported

to result in positive outcomes), this theory has frequently been used to understand training motivation (Baldwin & Ford, 1988; Colquitt et al., 2000; Farr & Middlebrooks, 1990; Mathieu & Martineau, 1997; Tannenbaum, Mathieu, Salas & Cannon-Bowers, 1991; Williams, Thayer & Pond, 1991). Noe (1986) submitted that trainees will be more motivated to perform well in training if they perceive that (1) high effort will lead to high performance in training (2) high performance in training will lead to high job performance and (3) high job performance is instrumental in obtaining desired outcomes and avoiding undesirable outcomes. It also follows that trainees will be motivated to do well if they perceive that performance in training will help them to obtain outcomes not directly tied to their current positions, such as career development opportunities. Colquitt and Simmering (1988) found that trainees who valued outcomes linked to learning showed increased motivation levels.

The following influences affect training motivation through their effects on valence:

Career Exploration and Planning: Individuals who are more career-oriented should recognize the importance of developing different skill sets and refining their current skills. Those who engage in self-exploration are more likely than others to know their strengths and weaknesses. As a result, individuals who engage in extensive career planning should be more likely to realize the potential benefits of training and should perceive training to be highly instrumental for obtaining valued career opportunities (Matthieu, Tannenbaum & Salas, 1992). Thus, trainees' exploration of various career options and their plans for future career accomplishments should have a positive influence on training motivation. Yet, conflicting findings have been found in studies regarding the impact of career exploration and planning on training motivation (Facteau, Dobbins, Russel, Ladd & Kudisch, 1995).

Job Involvement: Job involvement is the degree to which the job situation is central to the individual and his/her identity (Blau, 1985). Individuals who are highly involved in their jobs should value work-related outcomes that follow from doing well in training. Noe and Schmitt (1986) obtained a significant, positive correlation between trainees' job involvement and pre-training motivation (i.e. motivation to learn). Clark (1990) reported

that individuals' job involvement significantly predicted training motivation even after the perceived utility of a program had been considered.

Organisational Commitment: Organisational commitment refers to the relative strength of an individual's identification with and involvement in a particular organisation (Mowday, Porter & Steers, 1982). Employees who are more committed to the organisation should be more motivated to learn during training and to transfer skills back to the job since such behaviours are consistent with the goals and the mission of the organisation. Tannenbaum et al. (1991) stated that organisational commitment was highly correlated with motivation to learn during training. The results of Facteau et al. (1995) also support this stating that individuals who are committed to the values and goals of the organisation have higher levels of pre-training motivation (i.e. motivation to attend and learn from training).

Perceived Training Reputation: Prior to actually taking a training course, an employee often has an expectation about the quality of the course and its job relevance. Such expectations may be based on past experiences with a specific training program or may actually come from comments made by co-workers who have already completed the training. If training is perceived as a waste of time, employees may lack training motivation irrespective of the actual quality of the training program. In other words, the reputation of the training program or training department may affect an employee's training motivation (Facteau et al., 1995).

Having discussed the individual influences on training motivation, the focus will now turn to situational factors influencing training motivation.

2.4.2.2 Situational Influences on Training Motivation

Goldstein (1991) argued that work environment perceptions influence trainees' motivation to learn as well as various training outcomes. As a consequence, a change in the external environment can affect a person's level of motivation. In fact, a number of theories exist linking environmental factors to motivational levels (Kanfer, 1991;

Vroom, 1964).

Situational Constraints: Situational constraints are characteristics of the work situation that interfere with employees' work performance (Peters & O'Connor, 1980; Peters, O'Connor & Eulberg, 1985; Phillips & Freedman, 1984). There is a negative relationship between individuals' perceptions of situational constraints and their work motivation (Mathieu et al., 1992; Phillips & Freedman, 1984).

Trainees' perceptions regarding task constraints such as lack of equipment or financial resources may indirectly influence behaviour change by decreasing motivation to learn new skills or to apply skills acquired in training to job tasks (Noe & Schmitt, 1986). Trainees confronted with situational constraints may believe that learning new skills will not be instrumental in gaining valued outcomes because their job performance is constrained. Consequently, they may not perform well in training (Mathieu et al., 1992). They may also become frustrated because they cannot translate work motivation into higher performance (Peters & O'Connor, 1980; Peters, O'Connor & Eulberg, 1985).

Support: Training motivation should be affected by the degree to which a supportive social context exists in the organisation. A supportive social context is one in which employees believe that others provide them with opportunities and reinforcement for practicing skills or for using knowledge acquired in training (Noe, 1986). Training motivation should thus be affected by the extent to which training is rewarded in the organisation. Rewards may take the form of both intrinsic or extrinsic incentives. Intrinsic incentives refers to the extent to which training meets internal needs or provides employees with growth opportunities, while extrinsic incentives refers to the extent to which training results in tangible external rewards such as promotions, pay rises, and higher performance evaluations (Facteau et al., 1995). Training motivation should also be affected by the degree to which the trainee is provided with opportunities to use the knowledge, skills and abilities gained in training on the job.

Managers can enhance their employees' motivation for training, but to do so they must understand their employees' values and needs. Individuals enter training with differing

expectations and desires. As such, it is vital for managers to determine which extrinsic factors (e.g. monetary rewards) and intrinsic factors (e.g. autonomy) motivate each employee. Managers can motivate employees for training by making the critical link between employee needs and training outcomes (Tracey & Tews, 1995).

Social networks: Social networks are a major element of the work environment that can influence training effectiveness. The organisations social norms and values that support learning can have a positive influence on an individual's willingness to attend and learn during training, as well as to transfer learning back to the job. In addition, the use of training may be facilitated when managers or peers openly encourage the use of newly acquired knowledge and skills. The positive, open support of training tells employees that the acquisition and application of new knowledge and skills is important and beneficial (Tracey & Tews, 1995).

2.4.2.3 Motivation to Learn

Motivation to learn can be defined as a specific desire on the part of the trainee to learn the content of the training program (Colquitt et al., 2000; Hicks & Klimoski, 1987; Noe & Schmitt, 1986; Ryman & Biersner, 1975).

There is a robust positive relationship between motivation to learn and learning outcomes (Baldwin, Magjuka & Loher, 1991; Martocchio & Webster, 1992; Mathieu et al., 1992; Noe & Schmitt, 1986; Quinones, 1995; Tannenbaum et al., 1991). Individual motivation to learn has been found to be directly related to learning and program completion (Baldwin et al., 1991; Mathieu & Zajac, 1990; Mathieu et al., 1992; Ryman & Biersner, 1975) and has been cited as an important factor affecting transfer (Hicks & Klimoski, 1987; Tannenbaum et al., 1991).

As Noe (1986) points out, the ability component of trainability has received the vast majority of literature attention. Most investigators concerned with the trainability issue have focused on trainee ability levels as the primary variable of interest (Gordon & Cohen, 1973; Siegel & Ruth, 1973). This focus on ability has evolved despite a

recurring lament of management trainers that their trainees generally have ample ability to learn course content, but often lack sufficient motivation to learn (Baldwin et al., 1991).

Individuals enter training with differing levels of motivation resulting from their personal characteristics and work environments. Trainees who enter training with higher levels of motivation to do well in training will learn more, perform better and are more likely to complete training than their less motivated counterparts (Baldwin et al., 1991; Mathieu et al., 1992). Motivation to learn may prepare trainees to receive the maximum benefits from training by heightening their attention and increasing their receptivity to new ideas. Motivated trainees are thus more primed, or ready to learn. Several training practitioners stated that motivated trainees take a more active role in training and get more from the experience than individuals who are not motivated. In addition, the research literature provides some convincing evidence that those who are motivated to attend training are more likely to learn and apply their newly acquired knowledge and skills once training has been completed. Several studies have found empirical support for a link between trainees' motivation and learning (Baldwin et al., 1991; Clark, 1990; Hicks & Klimoski, 1987; Ralls & Klein, 1991). Individuals who enter training unmotivated are not likely to learn very much even if they enjoy a program, simply because they are not prepared to learn. On the other hand, a negative reaction to a program may turn off even motivated trainees, reducing their attention, lowering their receptivity to new ideas and inhibiting learning (Matthieu et al., 1992).

Recent attempts to understand the factors that influence training effectiveness have suggested that motivation to attend and learn from training may influence important training outcomes. Studies indicate that motivation to learn has an important influence on the extent to which trainees actually learn the material presented to them during a training program (Baldwin et al., 1991; Baldwin & Karl, 1987; Mathieu et al., 1992). Furthermore, the amount of learning that occurs during training may influence other indicators of training effectiveness, such as trainees' behavioural changes on the job and other organisational criteria (e.g. absenteeism, productivity) (Goldstein, 1993). Thus, because of its relationship to these training outcomes, motivation to attend and learn from

training appears to be an important antecedant to training effectiveness (Facteau, et al., 1995). While motivation to learn may influence training effectiveness, relatively little research has examined the factors which contribute to trainees' motivation.

An individual's level of motivation is dependent on a number of internal and external factors (Kanfer, 1990). As a consequence, a change in the external environment can affect a person's level of motivation. In fact, a number of theories exist linking environmental factors to motivational levels (Kanfer, 1991; Vroom, 1964). In the same way, motivation to learn is likely to arise from contextual factors surrounding the training event (Clark, Dobbins & Ladd, 1993; Mathieu et al., 1992).

Motivation to learn has a direct relationship with learning and should have an indirect relationship with transfer since the degree of learning that takes place during training indirectly affects the degree of transfer that occurs back on the job**.** Categories of variables that are primary influences on a participant's motivation to learn are: readiness for the intervention, job attitudes, personality characteristics and motivation to transfer learning.

Intervention Readiness: It is likely that motivation to learn will vary by trainees' readiness for the intervention. Readiness includes variables such as the degree to which trainees are involved in assessing needs, involvement in planning the training, degree to which expectations are clarified, degree of choice and other unexplored influences (Holton, 1996). Several studies (Hicks & Klimoski, 1987; Baldwin et al., 1991; Tannenbaum et al., 1991) have examined influences on readiness to enter and participate in training programs. The degree to which a trainee is involved in the needs analysis process and given choices about training would be expected to influence motivation to learn.

Adult learning theorists (Knowles, 1984; Scheer, 1979) posit that because adults will learn only what they feel a desire to learn**,** involvement in the selection of training is potentially a potent motivator. Unfortunately, empirical evidence in support of the notion that trainee involvement enhances motivation and learning is sparse (Baldwin et al.,

1991). One recurring prescription for enhancing motivation to learn is to have trainees participate in the assessment stage of the training process (Newstrom & Lylyquist, 1979; Oppenheimer, 1982; Wlodkowski, 1985; Baldwin et al., 1991).

In a study conducted by Hicks and Klimoski (1987), trainees who received a realistic preview or had a high degree of choice were more motivated to learn than the other trainees. Hicks and Klimoski (1987) found that giving trainees the choice to attend training or not increased their motivation to learn and improved learning outcomes. Baldwin et al. (1991) found that trainees who had a choice of training content had greater motivation to learn prior to entering the training session. However, those who were allowed to choose but then not given their choice of training became less motivated than those who were not allowed to choose at all. Their study lends empirical support to the notion that motivation can be enhanced by providing trainees with choices of training content, but only under the condition that they ultimately receive the training they choose. Intrinsic motivation theory suggests that offering a choice among alternative outcomes is a crucial mechanism for increasing feelings of mastery and self-determination (Deci, 1980). Yet, as stated above, there is a potential risk involved in affording choice in a training context. That is, when trainees made a choice but did not receive their choice, there was a significant decline in their motivation to learn and in their subsequent learning. This finding is consistent with Folger, Rosenfield, Grove and Corkran's (1979) notion of a frustration effect and also with Brehm's (1972) notion of psychological reluctance. From an organisational training perspective, then, choice may be a good thing only when trainee choice is ultimately reflected in the training received (Baldwin et al., 1991). When trainees had no choice their learning scores were linked, not surprisingly, to the degree to which the training session motivated them to learn. This suggests that when the provision of choice is bypassed, an administrator can still induce learning, but that learning will be significantly more dependent on the effectiveness of the training session itself (Baldwin et al., 1991).

The notion of meeting trainees' expectations and desires for training has also received support in the literature (Hicks & Klimoski, 1987; Tannenbaum et al., 1991). Those trainees who do not feel the training will meet their needs will be less motivated and less

likely to learn.

Job Attitudes: Trainees' job attitudes affect their motivation to learn. Research indicates that employees who portray more positive job attitudes should be more motivated to learn and, in turn, should learn more during training than trainees with negative job attitudes (Baldwin & Magjuka, 1991; Holton, 1996; Tannenbaum et al., 1991). Noe and Schmitt (1986) found a significant relationship between job involvement and learning, while Tannenbaum et al. (1991) found that more committed employees performed better in training. Baldwin et al. (1991) in turn, found that the level of motivation to learn increases when training is perceived as mandatory (thus challenging a widely-held assumption) and when the learner has an expectation of post-training accountability to management.

Personality Characteristics: The "Big Five" personality dimensions (extroversion, openness to experience, neuroticism, agreeableness and conscientiousness) have been shown to have validity in explaining some of the variance in performance (Tett, Jackson & Rothstein, 1991). Other characteristics such as self-efficacy (Gist, Stevens & Bavetta, 1991), locus of control (Noe & Schmitt, 1986) and need achievement (Baumgartel, Reynolds & Pathan, 1984) have been shown to be related to training outcomes due to their effects on valence and expectancies. Thus, certain personality characteristics are expected to influence motivation to learn due to their influences on trainees' expectancies and valence. Since these personality characteristics affect motivation to learn, they should subsequently also influence learning itself.

Motivation to Transfer: Behaviour change will likely occur for trainees who learn the material presented in training *and* desire to apply new knowledge or skills to work activities. For this reason it is necessary to consider motivation to transfer. Motivation to transfer will be dealt with in detail in the next section.

2.4.2.4 Motivation to Transfer

Motivation to transfer can be defined as the trainees' desire to use the knowledge and skills learned in training on the job (Burke, 1997). Trainees are likely to be motivated to transfer new skills to the work situation when they feel confident about using the skills, perceive that job-performance improvements will likely occur as a result of use of the new skills, and believe that the knowledge and skills emphasized in the training program will help solve work-related problems and frequent job demands (Noe, 1986). It has also been suggested that trainees' motivation to transfer learning can be enhanced if they can either be enabled to make their own decision regarding course attendance, or else be directly involved with others in the process (Huczynski & Lewis, 1980).

Factors operating during the course as well as immediately afterwards may serve to increase the motivation to transfer – for example, increased confidence levels after skill practice, anticipation of the usefulness of the skills, clear ideas about how and when to use the training on the job and the expectation of encouragement to implement the training (Foxon, 1993). Trainees leave training programs with a certain level of motivation to utilize their learning on the job. A variety of influences on transfer motivation have been suggested (Baldwin & Ford, 1988; Broad & Newstrom, 1992) and fall into five categories: intervention fulfillment, learning outcomes, job attitudes, expected utility, or ROI, of results and transfer conditions.

Intervention Fulfillment: Earlier research (Hicks & Klimoski, 1987; Hoiberg & Berry, 1978) has suggested that the degree to which trainees' expectations about training are met has a significant impact on post-training attitudes. Tannenbaum et al. (1991) conducted a rigorous study of the effects of training fulfillment on a variety of training outcomes, including motivation. They operationalised training fulfillment as a combination of expectations with desires and perceptions of training related primarily to the relevance of training to the job. Their analyses controlled for the effects of pre-training attitudes, affective reactions to training (reactions) and performance in training itself. They found that training fulfillment played a significant role in understanding post-training academic self-efficacy, commitment to the organisation and training motivation. Training

motivation was similar to motivation to transfer because it was a measure of the trainees' perceived relationship between training success and future job performance. It is expected that trainees who perceive that an intervention has met their expectations and fulfilled their need for performance-related learning will be more motivated to transfer learning into on-the-job performance. Unmet expectations for training can thus play an important role in determining training effectiveness (Hicks & Klimoski, 1987; Hoiberg & Berry, 1978; Tannenbaum et al., 1991).

Learning Outcomes: Expectancy theory (Vroom, 1964) suggests that individuals will be more motivated if they believe that their effort will lead to enhanced performance. More successful learners would be expected to feel better able to perform and thus more motivated to transfer. In contrast, less successful learners would be expected to be less motivated to transfer learning (Holton, 1996). This is due to the effect of learning performance on transfer expectancies.

Job Attitudes: Just as job attitudes are expected to influence motivation to learn, they should also influence motivation to transfer learning to performance. Expectancy theory (Vroom, 1964) would lead us to speculate that people with high commitment and job satisfaction would be more likely to exert effort to transfer and to perceive the rewards from transfer as having higher valence. In general, participants with more positive job attitudes would be expected to be more motivated to transfer learning to performance (Holton, 1996).

Expected utility of results: Desired training results (i.e. improved job performance) are more likely to be achieved if the benefits are calculated and known to the persons involved in the intervention, including both organisational sponsors and participants. Consistent with expectancy theory, which states that individuals will be more motivated if they perceive that their effort will lead to rewards they value, interventions with high utility to the organisation are also more likely to have high utility to the individual if there is a link between rewards and contribution to the organisation. High expected utility of organisational results from performance change should result in greater motivation to transfer learning into individual performance, and, in turn, in greater motivation to learn.

Thus, organisational results are more likely to occur when training has a high expected utility or payoff to both the organisation and the individuals (Holton, 1996).

Transfer conditions: Research has shown that non-training factors such as supervisor support for training and rewards for using training affect a trainee's motivation to transfer learning into individual performance change on the job. People who work in positive transfer conditions are more likely to have high motivation to transfer (Holton, 1996).

Despite many unanswered questions about the relationship between motivation to learn and motivation to transfer and its effect on transfer initiation and transfer maintenance, interventions which will enhance the level of pre- and/or post-training motivation should be given serious consideration by trainers since they are likely to result in a greater degree of transfer (Tannenbaum et al., 1991).

In the previous sections trainee characteristics - ability and training motivation - were discussed. Other trainee characteristics – personality, self-efficacy, attitudes, demographics and perceptions – will now be the focus in the following sections.

2.4.3 PERSONALITY

Personality refers to the relatively stable characteristics of individuals (other than ability) that influence their cognition and behaviour (Colquitt et al., 2000). Behaviour in many situations is the result of both an individual's personality and the characteristics of the environment. Personality as a construct is found in many motivation theories because it creates differences in self-set goals and the cognitive construction of individuals' environments, both of which go on to create between-person differences in behaviour (Kanfer, 1991). Selection researchers have long been interested in the validity of personality measures in predicting performance. Although Human Resource Development researchers have not explored these directly, characteristics such as self-efficacy (Gist, Stevens & Bavetta, 1991) have been shown to be related to training outcomes. Empirical evidence suggests that need achievement (Baumgartel & Jeanpierre, 1972; Baumgartel et al., 1984) and locus of control (Noe & Schmitt, 1986)

can be factors in learning and transferring skills. Thus, certain personality characteristics would be expected to influence motivation to learn and in turn learning itself (Holton, 1996).

2.4.3.1 The "Big Five" Personality Dimensions

The "Big 5" personality dimensions (extraversion, openness to experience, neuroticism, agreeableness and conscientiousness) have been shown in a recent meta-analysis to have validity in explaining some of the variance in performance (Tett et al., 1991). Research linking personality to training motivation has examined narrow traits as well as wider traits included in the "Big 5" personality taxonomy (Digman, 1990). In terms of the former, Mathieu, Martineau and Tannenbaum (1993) showed that trainees high in *achievement motivation* were motivated to learn. Webster and Martocchio (1993) linked *anxiety* to reduced training motivation. Noe (1986) proposed that individuals with an internal *locus of control* have more positive attitudes toward training opportunities because they are more likely to feel that training will result in tangible benefits. This relationship was confirmed in Noe and Schmitt (1986). Although these three narrow traits have been examined with some frequency, other traits have been explored in only one or two studies. These include *cognitive playfulness* (Martocchio & Webster, 1992), *positive and negative affectivity* (Bretz & Thompsett, 1992), *need for dominance* (Kabanoff & Bottger, 1991) and *competitiveness* (Mumford, Baughman, Uhlman, Costnanza & Trelfall, 1993). Mount and Barrick (1998, p. 852) noted that despite the impact of their meta-analysis of the "Big 5", "there remains a relative void in the literature regarding the relationship between personality dimensions and training outcomes".

However, recent research has in fact linked the *conscientiousness* factor of the "Big 5" to training motivation. Martocchio and Judge (1997) reported that conscientious individuals had more confidence in their ability to learn the training materials. Similarly, Colquitt and Simmering (1998) stated that conscientious learners had higher self-efficacy and a stronger desire to learn the training content. Other "Big 5" variables, such as

extraversion had limited coverage (Colquitt et al., 2000; Ferris, Youngblood & Yates, 1985).

2.4.3.2 Locus of Control

Locus of control refers to an individual's tendency to attribute control over his/her outcomes either to him- or herself (internal) or to the environment (external) (Rotter, 1966). It is likely that certain personality characteristics may lead two trainees to view the same transfer environment as more or less supportive. These characteristics may impact trainees' ability and willingness to change or to ignore non-supportive aspects of their transfer environment. For example, trainees with an internal locus of control may be more resilient to the demotivating effects of a non-supportive team transfer climate (Smith-Jentch et al., 2001).

The extent to which the individual is able to make internal or external attributions regarding work outcomes (locus of control) directly influences his/her reaction to skill assessment, expectancies concerning the link between effort and mastery of training program content (expectancy 1) and rewards resulting from successful completion of the program (expectancy 2) and career and job attitudes. Internals are more likely to identify psychologically with their work and careers (Thornton, 1978), perceive effort-performance and performance-outcome linkages (Broedling, 1975) and accept assessment of their skill strengths and weaknesses than are externals (Phares, 1976). Noe and Schmitt (1986) found that an internal locus of control was positively related to the degree to which trainees reported that they engaged in exploratory-type behaviours. This supports the belief that because internals are more likely to seek control over their environment, they will become involved in their careers (i.e. they will attempt to acquire information concerning career opportunities and engage in self-assessment activities).

Tziner, Haccoun and Kadish (1991) also suggested that work environment constraints may have a stronger impact on the behaviour of trainees who generally feel a lack of personal control. As evidence of this, these authors found that internals benefited more from a relapse-prevention module designed to enhance training transfer than did

externals. Trainees with an internal locus of control may be more resilient to the demotivating effects of a non-supportive team transfer climate (Smith-Jentch et al., 2001).

In another study, Storms and Spector (1987) reported that externals were more likely than internals to demonstrate anti-output behaviours in reaction to frustrations. Smith-Jentsch et al. (2001) found that perceptions of team transfer climate had a greater impact on behaviour for trainees who had a more external locus of control. Thus post-training relapse prevention seminars or self-regulation strategies may help to make individuals with an external locus of control more resilient to perceived organisational constraints.

Colquitt et al. (2000) stated a relationship between locus of control and motivation to learn (with internals being more motivated), as well as between locus of control and motivation to transfer (with externals showing higher levels of transfer). Baumgartel, et al. (1984) reported that managers high in need for achievement and having an internal locus of control were more likely to apply new knowledge gained in training to work settings. On the other hand, Miles (1965) in a study of a sensitivity program, concluded that personality factors had no direct effect on transfer.

2.4.4 SELF-EFFICACY

According to social cognitive theory (Bandura, 1986), learning is an ongoing process in which behaviour is motivated and regulated by one's cognitions. One important set of cognitions is self-efficacy (Bandura, 1986). Self-efficacy refers to an individual's beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997). Self-efficacy thus concerns beliefs about one's capacity to perform at designated levels.

Self-efficacy has been shown to have widespread impacts on work behaviour (Gist & Mitchell, 1992) and is positively and strongly related to job performance (Stajkovic & Luthans, 1998). Efficacy judgements are linked with self-aiding or self-hindering thought patterns that accompany performance (Wood & Bandura, 1989). Self-efficacy can thus be viewed as having a generative nature, influencing behaviour over and above

specific ability levels (Gist & Mitchell, 1992). As Gist (1986) noted, it is possible for trainees to gain relevant knowledge or skills yet retain debilitating self-efficacy perceptions that may prevent them from applying such learning effectively. For these reasons, self-efficacy should be considered as both an antecedent and an important outcome or product of training (Gist, 1987; Latham, 1989).

Self-efficacy relates to task choice, task effort and persistence in task achievement (Gist & Mitchell, 1992). In a training environment, such results are likely to translate into a positive relationship between self-efficacy and training outcomes. Indeed, research has consistently shown positive relationships between self-efficacy, motivation to learn and learning (Gist, Stevens & Bavetta, 1991; Martocchio & Webster, 1992; Mathieu et al., 1992; Quinones, 1995; Warr & Bruce, 1995). Self-efficacy thus facilitates learning and task performance, particularly early in the learning process (Mitchell, Hopper, Daniels, George-Falvy & James, 1994). For this reason, self-efficacy can be considered a potential antecedent of training effectiveness, because individuals with high self-efficacy tend to outperform individuals with low self-efficacy (Taylor, Locke, Lee & Gist, 1984; Bouffard-Bouchard, 1990). That is, trainees who enter training believing they are capable of mastering the training content (i.e. having high levels of pre-training self-efficacy) are likely to learn more during training (Gist, Schwoerer & Rosen, 1989). The positive effects of learning self-efficacy are in part due to a person being able to predict his/her performance on the basis of previous attainments, through the intervening effect of a continuing ability and awareness of that level of ability. Trainees who leave training with the belief that they can successfully perform the task they have been trained to do (i.e. having high levels of post-training self-efficacy) should be more resilient when they encounter obstacles in the transfer environment (Marx, 1982). Since self-efficacy is also related to individuals' openness to experiment (Jones, 1986) and to the likelihood that they will try new things (Hill, Smith & Mann, 1987), improving post-training self-efficacy should facilitate the transfer-of-training process. Increased self-efficacy is probably one reason for the effect of behaviour modeling on trainee behaviour. Thus, self-efficacy can be regarded as a predictor of training success, as a process variable during training, or as a desirable outcome of training (Tannenbaum & Yukl, 1992).

Because self-efficacy also influences one's thought patterns it may facilitate adoption of particular goal orientations (Gist & Mitchell, 1992). Specifically, low self-efficacy may be associated with mastery orientation. Yet these cognitions are conceptually distinct: self-efficacy refers to self-perceived capability for task performance, whereas goal orientation refers to interpretations for one's performance outcomes. Moreover, research suggests that self-efficacy may interact with one's goal-orientation on performance for difficult tasks. Elliot and Dweck (1988) found that high perceived competence (i.e. high self-efficacy) was associated with persistence, analytic task strategies and positive affect, but only for performance-oriented children. Perceived competence was unrelated to affect or outcomes for mastery-oriented children (Stevens & Gist, 1997).

Self-efficacy has been assessed quite frequently and has been found to be positively related to motivation to learn and to training outcomes such as skill-acquisition, post-training self-efficacy, transfer and job performance (Colquitt et al., 2000). The evidence continues to underscore the importance of self-efficacy and valence in models of motivation and performance (Bandura, 1997; Kanfer, 1991; Van Eerde & Thierry, 1996). Thus, trainers would do well to leverage both these constructs at the beginning of training. This could be done by persuading trainees that they are capable of succeeding since Gist and Mitchell (1992) state that vicarious experiences and verbal persuasion are both means of promoting self-efficacy.

2.4.5 ATTITUDES

An important and neglected issue in training is the attitudes of the trainees and their expectations concerning the job or task to be performed. As mentioned previously, the attitudes of trainees will affect performance both during training and subsequently in the job whilst attitudes in turn will be influenced by the experiences gained during training and in the job (Patrick, 1992). Studies show that motivation to learn and a positive pre-training attitude positively correlate with the amount of learning that occurs (Baldwin & Magjuka, 1991; Tannenbaum et al., 1991). Thus, attitudes may affect transfer of training indirectly by affecting trainees' training motivation. Trainees' attitudes and their effects on training motivation and, consequently transfer, will now be discussed in greater detail.

2.4.5.1 The effect of attitudes on training motivation

Given the rather large body of research on the relationship between job attitudes and overall motivation, it seems logical that job attitudes should affect motivation during learning interventions (Steers & Porter, 1991). It is likely that employees who exhibit more positive job attitudes would be more motivated to learn and, in turn, have more positive training outcomes (Holton, 1996). However, only two studies could be identified that tested this notion. Noe and Schmitt (1986) found a significant relationship between job involvement and learning, while Tannenbaum et al. (1991) found that more committed employees performed better in training. Although Mathieu et al. (1992) did not find a significant relationship between job involvement and motivation, they attributed it to the type of training in the study.

Just as job attitudes are expected to influence motivation to learn, they should also influence motivation to transfer learning to performance. Because of the paucity of research, the exact relationship is uncertain. However, expectancy theory would lead us to speculate that people with high commitment and job satisfaction would be more likely to exert effort to transfer and to perceive the rewards from transfer as having higher valence. Tannenbaum et al. (1991) offer some evidence of this in their finding that organisational commitment and training motivation were significantly related both before and after training. In general, participants with more positive job attitudes would be expected to be more motivated to transfer learning to performance (Holton, 1996).

2.4.5.2 Training and job attitudes

An individual's attitude toward work affects his/her preparation for and application of training.

Perceived Training Reputation: Prior to actually taking a training course, an employee often has an expectation about the quality of the course and its job relevance. Such expectations may be based upon past experiences with a specific training program or may actually come from comments made by coworkers who have already completed the

training. If training is perceived as a waste of time, employees may lack training motivation irrespective of the actual quality of the training program. In other words, the reputation of a training program or training department should affect an employee's training motivation. Facteau et al. (1995) found a positive relationship between training reputation and training motivation.

Organisational Commitment: Organisational commitment is defined as the relative strength of an individual's identification with and involvement in a particular organisation. Conceptually, it can be characterized by at least three factors: (1) a strong belief in and acceptance of the organisation's goals and values; (2) a willingness to exert considerable effort on behalf of the organisation; and (3) a strong desire to maintain membership in the organisation (Mowday et al., 1982). Meyer, Allen and Smith (1993) noted that the same type of commitment can be referenced to a person's occupation, termed here *career commitment*. Employees' organisational commitment levels are likely to predispose them to view training as more or less useful, both to themselves and to the organisation. When viewed in this way, organisational commitment can be considered as an influence on training effectiveness.

The higher trainees' levels of organisational and career commitment, the more likely they are to view training as useful for themselves and the organisation. If trainees possess a high degree of commitment to their jobs and the organisation, it is likely that they will view training as worthwhile and be committed to the opportunity to acquire new knowledge and skills. Consequently, they should be more motivated to learn during training and to transfer the knowledge and skills back to the job since such behaviours are consistent with the goals and mission of the organisation. Accordingly, such individuals will take the necessary steps to prepare for training, such as discussing with their immediate supervisor the way in which the training may enhance job performance**.**

Consistent with this orientation, several researchers have shown that commitment is positively related to motivation to learn and reactions to training (Facteau et al., 1995; Mathieu, 1988; Quinones, Ford, Sego & Smith, 1995; Tannenbaum et al., 1991). Colquitt et al. (2000) found that organisational commitment was positively related to a

variety of outcomes, including training motivation, reaction, post-training self-efficacy, transfer and job performance (Colquitt et al., 2000). Facteau et al. (1995) found that organisational commitment did not have a direct effect on perceived transfer, but it did appear to affect transfer indirectly, through its effect on pre-training motivation (where pre-training motivation could be defined as motivation to attend and learn from training).

Mowday et al. (1982) proposed that initial work experiences should influence the development of commitment. Often, an employee's first experience with an organisation occurs in a training setting. As an early socialisation process, training can induce positive or negative impressions and attitudes. Trainees will carry those attitudes with them into the workplace. In a study examining socialisation practices, Louis, Posner and Powell (1983) found that when formal offsite residential training was viewed as helpful, new employees reported greater levels of organisational commitment. Enhanced organisational commitment can be a desirable outcome of early training experiences. From an exchange theory perspective, training may be viewed as an investment in the relationship between a company and a person and can contribute to an employee's organisational commitment (Farrell & Rusbult, 1981). Employees may view an effective training experience as an indication that the company is willing to invest in them and cares about them. Thus, training may enhance their commitment to the organisation. This should be particularly true if the training met participants' expectations and desires (Tannenbaum et al., 1991). Thus, training that enhances organisational commitment should improve the company's ability to retain employees, as commitment has demonstrated negative relations with withdrawal processes (Mathieu & Zajac, 1990).

Job Involvement: Job involvement is defined as the degree to which an individual identifies psychologically with work and the importance of work to a person's total self-image (Brown, 1996; Lodahl & Kejner, 1965). It is thus the degree to which the job situation is central to the individual and his/her identity (Blau, 1985). Researchers have suggested that people who are highly involved with their jobs are more likely to be motivated to learn new skills, because participation in training activities can increase skill levels, improve job performance, and elevate feelings of self-worth (Martineau, 1995; Mathieu et al.,1992). In a study conducted by Noe and Schmitt (1986), trainees'

involvement in their jobs and careers were found to be important antecedents of learning and behaviour change. Noe and Schmitt (1986) found that trainees with high job involvement were more motivated to learn and transfer skills to the work setting. Colquitt et al. (2000) found that job involvement was positively related to a variety of outcomes, namely training motivation, reaction, post-training self-efficacy, transfer and job performance.

2.4.5.3 Individual Attitudes

Career Exploration and Planning: Exploratory behaviour refers to mental or physical activities undertaken for the purpose of eliciting information about oneself or the environment or forming decisions regarding occupational adjustment, progression or choice (Jordaan, 1963). Career exploration and career planning are both exploratory types of behaviour. Career exploration includes self-assessment of skill strengths and weaknesses, career values, interests, goals or plans, as well as the search for job-related information from family, friends, counselors and other career information outlets (Mihal, Sorce & Compte, 1984; Stumpf, Colarelli & Hartman, 1983). Career planning refers to the extent to which employees create and update clear, specific, plans for achieving career goals (Colquitt et al., 2000).

Trainees who are more career-oriented and who are exploring various career options by frequently engaging in cognitive or environmental-search activities are likely to have a better understanding of their strengths, weaknesses and interests, which should result in a high level of motivation to learn in training programs. "Explorers" may be motivated to learn because of self-realisation of skill weaknesses resulting from their investments and interests in career growth and progression as evidenced by the frequency and intensity of exploratory-type behaviours (Noe & Schmitt, 1986). They thus recognize the importance of developing different skill sets and refining their current skills and see the link between learning and the development of their strengths and weaknesses more clearly (Facteau et al. 1995; Noe & Wilk, 1993) . Consequently, they should be more motivated to learn during training.

The extent to which a person engages in career planning has been found to be related to the likelihood of participation in self-development activities, salary level and advancement (Gould, 1979; Super & Hall, 1978). Noe and Schmitt (1986) found that career planning was found to be an important prerequisite for improvement in actual on-the-job behaviour as a result of participation in the training program. Career planning might relate to training motivation, because individuals who engage in planning see more potential benefits to training (Mathieu et al., 1993), a relationship that was supported by Facteau et al. (1995), Martineau (1995) and Williams, Thayer and Pond (1991). Colquitt et al. (2000) found that career exploration and career planning were positively related to a variety of outcomes, including training motivation, reaction, post-training self-efficacy, transfer and job performance. However, in Noe and Schmitt's (1986) and Mathieu et al.'s (1992) studies, career planning was positively, but not significantly related to training motivation and Facteau et al. (1995) also found that career exploration and career planning were not significantly related to pre-training motivation (i.e. motivation to attend and learn from training).

The discrepancies among these studies may be due to the manner in which career planning was operationalised and further research is needed to clarify these results.

2.4.6 DEMOGRAPHICS

Demographics refer to the ascribed or achieved characteristics of individuals. Only rarely have demographics been the focus of empirical research, and there is little theory linking demographics to training outcomes. The two demographic variables that appear most frequently in studies of training are **gender** and **age**.

In terms of **gender** effects on learning, results appear unequivocal. Whereas Feinberg and Halperin (1978) showed that women have lower learning levels, Webster and Martocchio (1993) failed to detect significant gender effects. The failure to find consistent effects for gender is not surprising, given the lack of theoretical rationale for such effects.

In regard to **age**, however, empirical research seems more consistent. For example, many studies have provided evidence of a negative relationship between age and learning (Gist, Rosen & Schwoerer, 1988; Martocchio, 1994; Martocchio & Webster, 1992). Indeed, this relationship is supported by research investigating effects of ageing on learning memory and problem-solving (Poon, 1985, 1987). For example, some studies have suggested that although aging increases knowledge of information, job relevant skills and expertise (i.e. crystallized intelligence), it decreases the ability to engage in the type of reasoning necessary for learning (fluid intelligence) (Horn & Noll 1994; Willis 1987). As Sterns and Doverspike (1989) suggested, however, the negative relationship between age and learning may be due to both self-perceptions and managers' perceptions. Specifically, as employees age, managers may perceive that the employees' ability and training motivation decreases. Also, employees' fear of failure may increase as they age, preventing older employees from seeking training opportunities. It has also been reported that age is negatively related to participation in training and development programs. For example, Cleveland and Shore (1992) found that age was negatively related to both self-reported and managers' evaluation of participation in on-the-job training.

McEnrue (1989) found that younger employees were more willing to engage in self-development than older employees were and Colquitt et al. (2000) found that age was linked to motivation to learn and learning, as older trainees demonstrated lower motivation to learn, learning and post-training self-efficacy.

2.4.7 PERCEPTIONS

Perception is the process through which people select, organise and interpret information around them (Gibson, Ivancevich & Donnelly, 1997). Perceptions are affected by both individual and work environment factors, which must be interpreted by an individual and translated into choices among various behavioural options (Baldwin & Ford, 1988).

Attitudes and perceptions about the work environment can come as much from internal states of the individual as form external cues and may explain why in previous studies

individual level perceptions of climate have failed to cluster into socially meaningful groups (Patterson, Payne & West, 1996). Many authors have argued that perceptions of climate are a product of complex interactions among observable elements of the workplace and the values, needs and other characteristics of organisational members (Hellreigel & Slocum, 1974; James & Jones, 1974, 1976; Schneider, 1983a, 1983b). Trainees' perceptions can also be influenced by the design and nature of the training itself (Tannenbaum et al., 1991).

Goldstein (1991) argued that work environment perceptions influence trainees' motivation to learn as well as various outcome measures. The learner's perception of organisational support positively influences motivation to learn as well as intention to transfer (Laker, 1990; Noe, 1986). Some researchers have suggested that it is the perception of support, rather than the reality, which is the critical factor (Richey, 1992; Rouiller, 1989). Nevertheless, perceptions should indirectly influence the degree of transfer taking place on the job once training is completed through its effects on training motivation and intention to transfer.

Intention to transfer and consequently, transfer itself is not only influenced by a trainee's individual characteristics, but also by training design and delivery factors. These will now be discussed in detail in the next section.

2.5 TRAINING DESIGN AND DELIVERY FACTORS

Another likely cause of failure to transfer is that the design and delivery of the training does not provide the ability to transfer the learning. That is, cognitive learning may well occur, but the program participants may not have had an opportunity to practice the training in a job context or the training material could not provide participants with the in-depth understanding which is needed to transfer the learning into on-the-job performance. Clearly, even the most motivated trainee will be unable to transfer the learning if he/she does not know how to do so (Holton, 1996).

For example, several studies (Werner, O'Leary-Kelly, Baldwin & Wexley, 1994; Wexley & Baldwin, 1986) have shown that goal-setting during and after training improves transfer. In a more complex task situation such as negotiation training, improved results were obtained by augmenting goal-setting with self-management training (Gist, Bavetta & Stevens, 1990). Tziner et al. (1991) showed that adding a relapse prevention module to training resulted in higher learning and greater transfer. Others site numerous studies exploring dimensions of instructional design that enhance transfer of learning, including identical elements, conditions of practice and over-learning (Baldwin & Ford, 1988; Patrick, 1992). These training design and delivery factors influencing transfer will be discussed in sections 2.5.1 to 2.5.8.

2.5.1 Principles of Learning

A large portion of the empirical research on transfer has concentrated on improving the design of training programs through the incorporation of learning principles (McGhee & Thayer, 1961; Naylor & Briggs, 1963; Wexley & Thornton, 1972). Research has centered on four basic principles: (1) identical elements, (2) teaching of general principles, (3) stimulus variability, and (4) various conditions of practice.

Identical elements: Identical elements refers to the use of identical stimulus-response elements in both the training and transfer environment (Quinones & Ehrenstein, 1997). By using the identical elements approach, trainees are taught, in the training context, all the important dimensions of their job assignment. Motor skills and technical skills lend themselves well to this type of approach (Leifer & Newstrom, 1980). Empirical research supports the use of identical elements as a means of increasing the retention of both motor (Crafts, 1935; Gagne, Baker & Foster, 1950) and verbal behaviours (Duncan & Underwood, 1953; Underwood, 1951).

General Principles: Teaching through general principles maintains that trainers focus on the development and presentation of general rules, guidelines and principles that underlie the training content and that might be appropriate to all situations, without regard to the job environment. Trainees are then expected to return to their jobs and

identify opportunities for applications and adapt the principle to the task (Leifer & Newstrom, 1980; McGhee & Thayer, 1961). Teaching through general principles thus enhances trainees' lateral thinking ability and consequently increases the probability of transfer.

Stimulus variability: Stimulus variability is the notion that positive transfer is maximized when a variety of relevant training stimuli are employed (Ellis, 1965). Proponents state that several examples of a concept to be learned strengthen the trainee's understanding so that he/she is more likely to see the applicability of a concept in a new situation (Duncan, 1958; Ellis, 1965). The principle of stimulus variability has received empirical support with respect to training outcomes. For example, Shore and Sechrest (1961) found that using a moderate number of different examples that were repeated a few times each was more effective in enhancing learning than using one example repeatedly.

Conditions of Practice: Conditions of practice include a number of specific design issues including massed or distributed training, whole or part training, feedback and over-learning. *Massed vs. distributed training* is the issue of whether or not to divide training into segments. Material learned under distributed practice is generally retained longer than material learned by massed practice (Briggs & Naylor, 1962; Naylor & Briggs, 1963). There is evidence that difficult and complex tasks result in higher performance when massed practice sessions are given first, followed by briefer sessions with more frequent rest intervals (Holding, 1965). *Whole vs. Part training* concerns the relative efficiency of practice with all the material as opposed to practice on one part at a time. Evidence suggests that the whole method is advantageous for enhancing training outcomes when (1) the intelligence of the learner is high, (2) practice is distributed rather than massed, and (3) the training material is high in task organisation but low in task complexity (Naylor & Briggs, 1963). *Feedback, or knowledge of results*, refers to information provided to trainees about their performance. Feedback is a critical element in achieving learning and timing and specificity are critical variables in determining its effects (Baldwin & Ford, 1988; Wexley & Thornton, 1972). *Over-learning* refers to the process of providing trainees with continued practice far beyond the point when the task

has been performed successfully (McGhee & Thayer, 1961). Research indicates that the greater the amount of over-learning, the greater the subsequent retention of the trained material (Atwater, 1953; Baldwin & Ford, 1988; Gagne & Foster, 1949; Hagman & Rose, 1983; Mandler, 1954).

2.5.2 Sequencing

Sequencing is the process by which the content and the learning experiences are placed in the configuration that will produce the most learning in the shortest possible time (Tracey, 1984). The sequencing of learning material is a vital aspect of training design since it has a significant impact on the efficiency and effectiveness of the learning situation. Yet, it is often neglected by trainers and instructional designers. The result is that the trainee often suffers, that meaningful learning does not take place and consequently adequate transfer does not occur (Van Dyk, Nel, Loedolff & Haasbroek, 1997).

2.5.3 Training Content

The course content may be too theoretical or not practical enough (Broad & Newstom, 1992). It may also be perceived to be in conflict with the values of the organisation, or may be presented out of sync with on-the-job requirements (Foxon, 1993) and perceived to be irrelevant. This may confuse trainees and consequently, have a negative impact on their intention to transfer.

2.5.4 Trainer Credibility

A low level of trainer credibility can be an inhibiting factor, since this may negatively affect trainees' attitudes and motivation to learn and apply the training material on the job (Foxon, 1993).

2.5.5 Training Media

The types of audiovisual materials used are strongly influenced by the type of task to be trained. Usually, a mixture of different types of media is most effective (Foxon, 1993). Tracey (1984) proposes that the wise selection and the proper use of a variety of audio visual materials can fill the gap between verbalisation and real-life, direct experience.

2.5.6 Training Methods

The appropriateness of training methods will be strongly influenced by the nature of the task to be trained and most tasks require a mixture of methods. Inappropriate methods lead to ineffective learning, which consequently results in insufficient transfer (Foxon, 1993).

2.5.7 Delivery Style

It is important for the trainer to capture and hold the attention of the trainees. The trainer's delivery style is thus an important factor influencing training effectiveness (Foxon, 1993). Trainees may perceive training to be poorly designed and delivered, thus reducing their motivation to learn and apply the training on the job (Broad & Newstrom, 1992).

2.5.8 Reputation of the Training Program

The reputation of the training program may affect a trainee's training motivation. There is a positive relationship between training reputation and training motivation. Consequently, if the training program has a reputation of being a waste of time or of being of little use to employees, the trainees' training motivation will be low, thus negatively affecting trainees' intention to transfer (Facteau et al., 1995).

All the above factors of training design and delivery influence trainees' motivation to learn, learning, the intention to transfer, and consequently, the degree of transfer that

takes place on the job. It is therefore imperative that they should not be ignored. A training program that is well designed and delivered should have a positive impact on training effectiveness, since it lays the foundations for transfer of training to take place in the workplace. The focus will now shift towards factors in the work environment that may influence the eventual transfer of skills to the workplace.

2.6 WORK ENVIRONMENT CHARACTERISTICS

The transfer environment in which work tasks are performed is rarely the same as the training environment and may have a significant impact on trainees' preparation for and transfer of training. Individual perceptions about the work environment and systems influence learning and performance. Trainees must not only apply learned knowledge and skills to similar or different tasks but must also adapt behaviours to a more complex and demanding environment.

The training environment cannot replicate or incorporate the organisational system pressures and factors which influence trainees to revert to their former work habits and forget about the training applications. At best, the training environment is only an approximation of the application environment. Thus, when trainees return to the job a variety of organisational pressures may function to inhibit intention to transfer, and consequently, transfer. For example, trainees usually lack the time and motivation to think through how and where to apply the training and the pressure to be productive forces them back into their habitual ways of behaving. The pressure to 'catch up' after the absence from work takes precedence over thinking through the possible applications of the training (Broad & Newstrom, 1992). There are thus a variety of influences in the work environment that may promote or inhibit training transfer. These influences may affect trainees' motivation to transfer the learning to the work environment due to their effects on the valence of successful transfer. The following sections will take a detailed look at the various work environment influences that affect successful transfer of training.

2.6.1 Components of the Work Environment Influencing Training Effectiveness

The training professionals and the recent training research suggested at least three major components of the work environment that may support or impede training effectiveness. These are: job characteristics, social networks and formal organisational systems.

Job Characteristics represent the first element of the work environment that can influence training effectiveness. Jobs embody an infinite number of demands and pressures, which, in turn, can have a significant impact on the extent to which individuals can adequately prepare for training or use newly acquired skills. An individual cannot apply what has been learned if he/she is continually engaged in "fire-fighting" activities, for instance, or if the daily routine is so pressured that he/she cannot practise those new skills. To transfer skills after training, employees must have an opportunity to practise and refine them. Otherwise, any knowledge learned will likely be forgotten (Tracey & Tews, 1995).

Social networks are the second major element of the work environment that can influence training effectiveness. Organisations' norms and values that support learning can have a positive influence on an individual's willingness to attend and learn during training, as well as to transfer learning back to the job. In addition, the use of training may be facilitated when managers or peers openly encourage the use of newly acquired knowledge and skills. The positive, open support of training tells employees that the acquisition and application of new knowledge and skills is important and beneficial. However, if managers or peers downplay, ridicule of pay mere lip-service to training, individuals will go into training with negative attitudes, will not put forth effort during training and will not incorporate what they have learned in their jobs (Tracey & Tews, 1995).

Formal organisational systems, particularly the appraisal and reward systems, represent the third element of the work environment that can influence training effectiveness. There must be some kind of accountability for trainees to use their new knowledge and skills. Performance-appraisal systems should also be used to account for the training

employees are expected to demonstrate. If trainees are expected to demonstrate their new knowledge or skills, then appraisal forms and guidelines must in part comprise that training. Those who successfully apply their training should be rewarded. Compensation and benefits systems must provide valued incentives to those who demonstrate what they have acquired through training. Finally, additional learning opportunities (eg. mentoring programs, apprenticeships) and support for external professional development activities (eg. attending professional conferences, continuing education workshops and seminars) can also influence the effectiveness of training, especially when these learning opportunities complement what has been gained through training (Tracey & Tews, 1995).

Researchers have suggested that these influential situational factors may reside at the level of the department (Rousseau, 1978), job (Brass, 1981), leader (Podsakoff, MacKenzie, Moorman, & Fetter, 1990) or work group (Janz, Colquitt & Noe, 1997; Kidwell, Mossholder & Bennet, 1997; LePine & Van Dyne, 1998) and may thus have a significant effect on training effectiveness.

2.6.2 Organisational Climate and Environmental Favourability

The influence of the work environment on trainability is a factor that should not be ignored. Trainees leave a safe training environment and confront situations that may hinder transfer. The climate of the organisation concerning change is of particular importance. Recent research suggests that organisational climate is at least as important as learning in facilitating transfer (Richey, 1992; Rouiller, 1989; Russel, Terborg & Powers, 1985) and exerts a greater influence on transfer than trainee personality differences, in some cases regardless of the quality of the training (Baumgartel et al., 1984). Tracey, Tannenbaum and Kavanagh (1995) recently examined an organisation's transfer of training climate and found that such a climate predicted the extent to which employees engaged in trained behaviours on the job. Similarly, Rouiller and Goldstein (1993) found that a positive climate was associated with transfer of managerial skills in the fast-food industry. Practitioners and researchers have thus begun to recognise that trainees returning to a favourable work environment will demonstrate greater utilisation

of the training (Baumgartel et al., 1984; Broad & Newstrom, 1992; Richey, 1992; Rouiller & Goldstein, 1993).

Organisational climate can be conceptualized as individual perceptions about salient characteristics of the organisational context (Schneider, 1990). As organisational members pay attention to salient organisational characteristics, such as policies, reward systems and managerial behaviours they attach meaning to those characteristics on the basis of their personal values, beliefs, needs and other individual characteristics. Thus, climate corresponds to the shared pattern of meanings among individuals about the major characteristics of an organisational context (Tracey et al., 1995). In relation to transfer, organisational climate (also referred to as environmental favourability) refers to trainee's perceptions about characteristics of the work environment that influence the use of training content on the job, and is comprised of task constraints (eg. lack of resources) and the perceived social support for training (Noe, 1986).

The **social component** is concerned with employees' perceptions of the extent to which the social context at work supports training transfer. A supportive social context is one in which employees believe that others provide them with opportunities and reinforcement for practicing skills or for using knowledge acquired in training (Noe, 1986). A supportive work climate in which reinforcement and feedback are obtained is more likely to result in transfer of skills from the training environment to the work environment – that is, trainees are more likely to use the skills acquired in the training program on the job (Bahn, 1973; Marx, 1982; Salinger, 1973). The trainee's perception of organisational support from supervisors and co-workers, and the likely availability of resources and technologies necessary to support transfer create a "culture of transfer" (Pea, 1987), which positively influences motivation to learn as well as intention to transfer (Laker, 1990; Noe, 1986) and consequently, transfer (Baumgartel & Jean-Pierre, 1972; Baumgartel et al., 1984; Baumgartel, Sullivan & Dunn, 1978). Some researchers have suggested that it is the perception of support, rather than the reality, which is the critical factor (Richey, 1992; Rouiller, 1989).

There are several potentially important sources of social support for training. These include top management, supervisors, peers and subordinates (Baldwin & Ford, 1988; Goldstein & Musikante, 1986; Noe, 1986; Noe and Schmitt, 1986). It seems likely however that the various sources of social support may have differential effects on important training outcomes. Research has indicated that supervisors exert more influence than co-workers on the trainees' decision to implement the training and are thus an important influence on the transfer process (Broad & Newstrom, 1992). Most employees work hard to determine exactly what their boss expects and then strive to meet those expectations. This is the law of organisational life since supervisors/managers control both tangible and intangible employee rewards. This control of rewards gives the manager substantial influence over employees' work behaviour, not only affecting what is accomplished but how it is accomplished (Georgensen, 1982). Where supervisors encourage and model the desired behaviours, trainees are more likely to apply the new skills; where they do not, their attitude becomes an inhibiting factor (Huczynski & Lewis, 1980; Richey, 1992). Mosel (1957) concluded that training will only transfer to the extent that supervisors support and practise the same behaviours the staff are taught in the training environment. In other words, irrespective of the training, most trainees will adopt the behaviour of the organisational role models in their immediate work environment. If training is not congruent with what management is informally teaching and reinforcing day by day, it will not 'stick'. However, the presence of model behaviour will not of itself lead to transfer – the "missing link" is an environment in which supervisor and co-workers value the use of the training and the new work behaviours (Richey, 1990; Yelon, 1992). Thus, transfer is supported when the learning experience and the work environment work together to achieve the same objectives, and when the trainees experience encouragement and reward for mastering and using the new skills (Foxon, 1993).

Researchers have examined the perceived presence of manager support or peer support for participation in learning activities (Birdi, Allan & Warr, 1997; Clark et al., 1993; Facteau et al., 1995). Facteau et al. (1995) argued that both managers and peers can help trainees, particularly in transferring learned skills on the job (Baldwin & Ford, 1988). Their study of 967 managers in departments within state government agencies showed a

positive link between peer support and transfer and a positive link between manager support and motivation to learn. Birdi et al. (1997) linked manager support (though not peer support) to increased on-and-off-job learning, increased development and increased career planning. Finally, Clark et al. (1993) provided results that suggest that supportive managers can emphasize the utility of training to the job, thus impacting trainee motivation. Colquitt et al. (2000) also found that supervisor support, peer support and positive climate were moderately related to motivation to learn. These variables were also strongly related to transfer.

The **task component** of organisational climate refers to the extent to which characteristics of the work environment (e.g. tools and equipment, materials and supplies, financial resources, etc.) facilitate or constrain employees' ability to transfer the skills learned in training back to their job (Facteau et al., 1995). Trainees' perceptions regarding task constraints such as lack of equipment or financial resources may indirectly influence behaviour change and learning by decreasing motivation to learn new skills or to apply skills acquired in training to job tasks (Holton, 1996; Mathieu et al., 1992; Phillips & Freeman, 1984). Task constraints thus have an inhibiting effect on individual performance and therefore limit the extent to which individuals can transfer learning to the work environment (Campbell, 1988, 1989; Noe, 1986; O'Connor, Peters, Pooyan, Weekley, Frank & Erenkranz, 1984; Peters, Fisher & O'Connor, 1982; Peters, O'Connor & Rudolf, 1980). Peters and O'Connor (1980) argued that employees confronted with situational constraints become frustrated because they cannot translate work motivation into higher performance.

Rouiller and Goldstein (1993) defined "transfer of training climate" 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. They thus suggested that it consists out of two components: situational cues and consequences. Situational cues in the work environment refers to the extent to which aspects of the situation encourage employees to use what has been learned in training and includes: (a) goal cues that serve to remind trainees to use their training, (b) social cues, including the behaviour and influence processes exhibited by supervisors, peers and/or subordinates, and (c) task and structural cues, including the

design and nature of the job itself. Consequences refers to the degree to which employees are rewarded for applying what has been learned in training and includes positive and negative feedback and punishment. Another factor that could influence transfer is the extent to which the post-training environment provides opportunities for trainees to apply what they have learned. The main features of a positive climate may thus include adequate resources, cues that serve to remind trainees of what they have learned, opportunities to use skills, frequent feedback, and favourable consequences for using training content (Ford, Quinones, Sego & Sorra, 1992; Quinones et al., 1995; Roueller & Goldstein, 1993; Tracey et al., 1995). These cues and consequences provide reminders for trainees to use their training once they return to their jobs.

The two views of transfer of training climate by Noe (1986) and Rouiller and Goldstein (1990) suggest that the social context at work might support training in two ways, either by eliciting trained skills via a host of antecedent variables (eg. opportunities, situational cues), or by rewarding these behaviours via a host of consequent variables (i.e. reinforcement).

2.6.3 Pre-training Environment

Accumulating evidence suggests that events prior to training (i.e the pre-training environment) can influence training effectiveness. Management actions provide cues and signals that influence employee motivation. The pre-training environment contains many cues about training; some are conveyed by managers but others are conveyed by peers or reflected in organisational policies and practices. Some actions signal to trainees whether training is important (eg. supervisory and peer support, resource availability, and post-training follow-up). Other actions reveal to employees the amount of control, participation or input they have in the training process (eg. advance notification, participation in needs assessment, and degree of choice in attendance) (Tannenbaum & Yukl, 1992).

Environmental cues and signals: The pre-training environment can positively influence training effectiveness. For example, Cohen (1990) reported that trainees with more

supportive supervisors entered training with stronger beliefs that training would be useful. Yet, the pre-training environment can also act as an inhibitor of training effectiveness. Mathieu et al. (1992) stated that trainees who reported many situational constraints in their job (eg. lack of time, equipment and resources) entered training with lower motivation to learn. These trainees had little incentive to learn new skills in an environment where the skills could not be applied.

Baldwin and Majguka (1991) examined the effects of three organisational "signals" about the relevance of training. They stated that trainees reported greater intentions to use their training when they received relevant information before a training program, recognized that they would be held accountable for learning and perceived the training as mandatory. Another study by Tracey et al. (1995) reported a direct relationship between an organisation's culture and climate and the use of skills that were acquired in a formal training program. The two studies demonstrate that the work environment may have a significant impact on the eventual transfer of training on the job.

Training input and choice: Involving employees in decisions about the training process could enhance their motivation to learn (Wlodkowski 1985). In the pre-training context participation may include informing trainees about training content in advance, soliciting trainee preferences for training content and methods and/or allowing trainees to decide which courses to attend. Baldwin and Magjuka (1991) found that those trainees who had received information about the training ahead of time reported a greater intention than others to apply what they learned back on the job. Huczynski and Lewis (1980) also found that a management style that included pre-course discussion with one's boss and subsequent boss sponsorship contributed most to the transfer of skills.

2.6.4 Post-training Environment

The effectiveness of a training program can be influenced by events that occur after a trainee returns to the job. Some employees leave training with new skills and with strong intentions to apply those skills to their job, but limitations in the post-training environment interfere with the actual transfer of training. The personal skills, ability and

willpower that trainees possess at the conclusion of the training are potential determinants of transfer. In addition, elements of the post-training environment can encourage (eg. rewards, job aids), discourage (eg. ridicule from peers), or actually prohibit the application of new skills and knowledge on the job (eg. lack of necessary equipment). Baldwin and Ford (1988) noted that supervisory support is considered a key environmental factor that can affect the transfer process. In the post-training environment, supervisor support could include reinforcement, modelling of trained behaviours and goal-setting activities.

Many forces within the work environment operate as facilitators of transfer, while counter-transfer forces also operate . Among the forces most prominently identified in prior research are a crisis work atmosphere (Huczynski & Lewis, 1980), unpredictability of the work environment (Marx, 1986), specific job characteristics that mitigate against changes (Vandenput, 1973), the influence of peers (Mmobuosi, 1987), resistance to innovation (Stiefel, 1974), organisational policies and values (Vandenput, 1973) and organisational climate factors (Rouiller & Goldstein, 1993). Brinkerhoff and Montesino (1995) further found a relationship between management support and transfer of training. Without changes in the work setting to build in more time for innovative thinking and pursuing alternative courses of action, it is likely that individuals will return to more familiar ways of accomplishing tasks. In addition, the transfer environment may or may not be supportive of the knowledge and skills obtained during training. Thus, the environmental context must be aligned with trained skills for transfer to be effective in the end (Kozlowski & Salas,1996).

Having discussed the various influences affecting transfer of training, namely individual characteristics, training design and delivery factors and work environment characteristics, it is now necessary to move toward a more simplified model of the transfer process. The following section gives an overview of the structural model that will be the focus of the rest of the study.

2.7 TOWARDS A MODEL OF THE TRANSFER PROCESS

As discussed previously, research suggests numerous factors that influence transfer. These can be grouped into three categories: the work environment, the trainer and /or training design, and the trainee. These factors influence transfer before, during and after training, either directly or indirectly through their effects on learning.

Although there are a variety of trainee characteristics that influence learning and transfer, two of the most important are general cognitive ability and motivation (Pintrich, Cross, Kozma & McKeachie, 1986). Considerable evidence in the behavioural science literature suggests that ability and motivation combine multiplicatively to determine performance (Porter & Lawler, 1968). The notion that "trainability" is a function of an individual's ability and motivation to learn and transfer is also widely accepted among researchers and practitioners in education and training (Goldstein, 1986; Noe, 1986). That is, learning and transfer will only occur when trainees have both the ability and the desire to acquire new skills and use them on the job (Baldwin & Magjuka, 1991). Clearly, even if trainees possess the ability to learn and transfer, performance will still be low if motivation is low or absent (Maier, 1973; Noe, 1986).

In figure 2.2, a graphical representation of the effects of motivation and ability on the transfer process is given. This model is based on the research and theory discussed thus far and makes the following assumptions:

For learning to occur during a training program, trainees should have both the ability to learn, as well as the motivation to learn the training material. These two constructs should have a direct impact on trainees' intention to learn, which in turn, should affect the degree of learning that occurs. Learning should also be directly affected by trainees' ability to learn. Trainees' ability to learn should directly affect their motivation to learn, and their motivation to learn should have a direct impact on their motivation to transfer the learning to the work environment.

Once the training program is completed, trainees are expected to transfer the knowledge, skills and attitudes gained in training to the job. For this to occur, trainees should have learnt the training material and should know how to apply it to the job. They should also have the motivation to transfer what they have learnt to the work environment. In effect, the amount of learning that occurred should have a direct impact on trainees' motivation to transfer the learning to the work situation. Subsequently, learning and motivation to transfer should have a direct effect on trainees' intention to transfer, which in turn should directly impact transfer.

The constructs of the model will shortly be discussed.

2.7.1 Ability to Learn

For transfer to take place, it is crucial that trainees learn the content of the training program. Learning is thus a prerequisite for transfer (i.e. no learning = no transfer). For this reason, trainees' ability to learn is an important aspect to be considered. Trainees' ability to learn refers to their general cognitive ability. As stated previously, an individual's ability to learn and acquire new knowledge and skills directly influences training preparation and performance (Tracey & Tews, 1995).

Since individuals are continuously aware of their level of cognitive ability (Warr & Bruce, 1995), trainees' ability to learn should have a direct effect on their motivation to learn. Here the whole idea of self-efficacy comes into play. If individuals believe their ability to learn to be high, they will have greater learning confidence, which should increase their motivation to learn (all other things being equal). Trainees' ability to learn should also have a direct effect on their intention to learn the training material, because if a trainee's ability to learn is low, his/her intention to learn will also be low.

Since learning depends on individual differences in general cognitive ability, general cognitive ability (i.e. ability to learn) should directly affect the degree of learning that occurs during training. Ability to learn can thus be considered as a potential predictor of learning and consequently transfer.

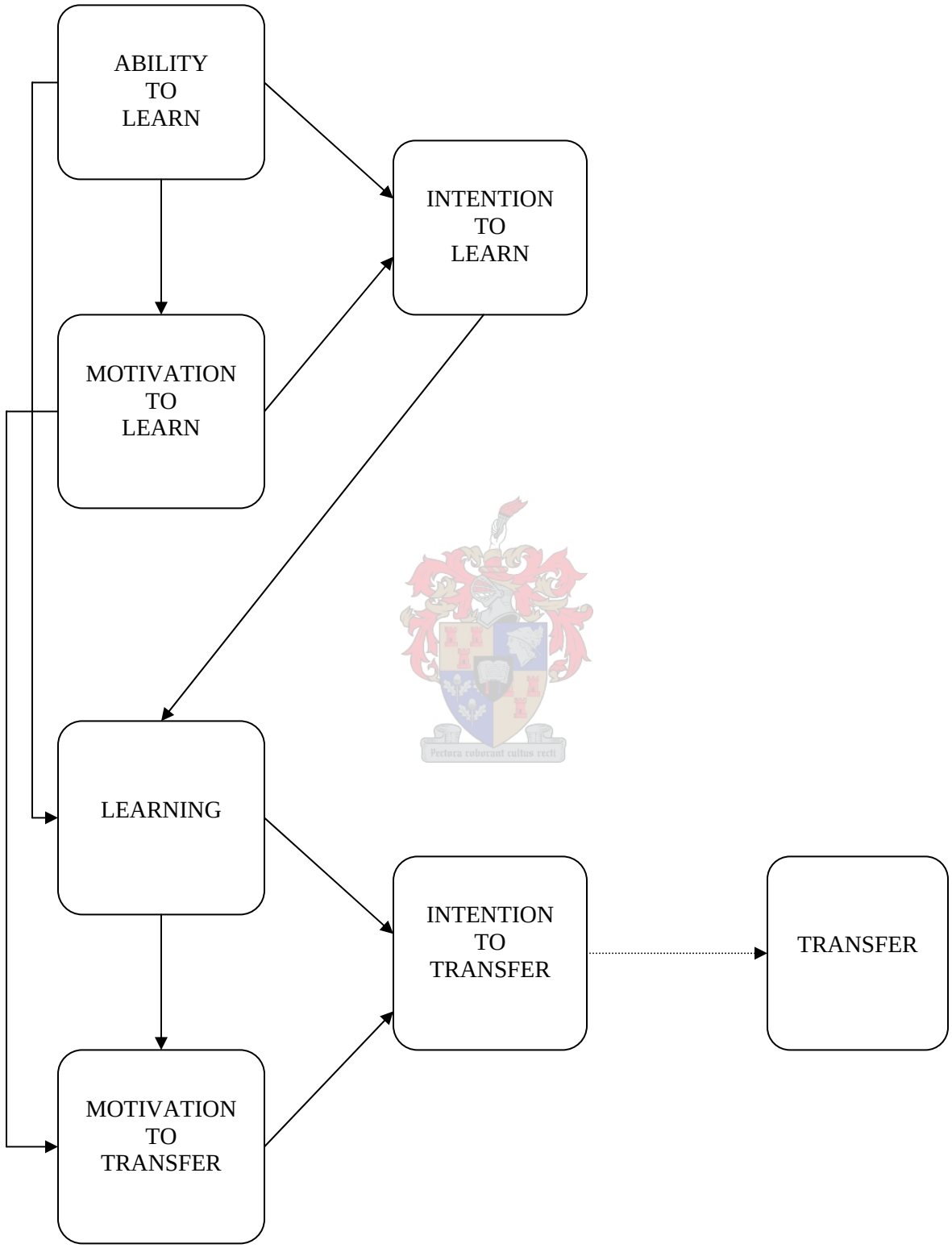


Figure 2.2 A Structural Model of the Transfer Process

2.7.2 Motivation to Learn

Even if trainees possess the ability to learn, learning will still be poor if motivation is low or absent. That is, learning and consequently transfer will only occur when trainees have both the ability and the desire to acquire new skills and to use them on the job. Motivation to learn can thus be defined as a specific desire on the part of the trainee to learn the content of the training program (Colquitt et al., 2000; Hicks & Klimoski, 1987; Noe & Schmitt, 1986; Ryman & Biersner, 1975).

A trainee's motivation to perform effectively in a training course is determined by two variables. The first is contained in the concept of an effort-reward probability. This is the trainee's subjective probability that directing a given amount of effort towards performing effectively will result in his/her obtaining a given reward or positively valued outcome. This effort-reward probability is determined by two subsidiary subjective probabilities: the probability that effort will lead to performance and the probability that performance will result in rewards. Vroom (1964) refers to the first of these subjective probabilities as an 'expectancy' and to the second as an 'instrumentality'. The second variable that is relevant here is the concept of reward value or valence. This refers to the trainee's perception of the value of the reward or outcome that might be obtained by performing effectively. Thus, for a given reward, reward value (i.e. valence) and the effort-reward probability combine multiplicatively in order to determine a person's motivation. This means that if either is low or absent, then no motivation will be present (Vroom & Deci, 1970). Thus, Vroom's (1964) expectancy theory suggests that trainees have preferences among the different outcomes that can result from participation in training (i.e. valence). Trainees also have expectations regarding the likelihood that effort invested in training will result in mastery of training content (i.e. expectancy). In order to determine an individual's motivation it is necessary to combine data concerned with a number of different outcomes. This can be done for an individual trainee by considering all the outcomes he values and then by summing the products obtained from multiplying the value of these outcomes to him/her by their respective effort-reward probabilities.

Since motivation is the force/stimulus that drives/guides behaviour, it can be said that motivation underlies all human behaviour. Studies indicate that motivation to learn has an important influence on the extent to which trainees actually learn the material presented to them during a training program (Baldwin et al., 1991; Baldwin & Karl, 1987; Tannenbaum et al., 1992) and has been cited as an important factor affecting transfer (Hicks & Klimoski, 1987; Tannenbaum et al., 1991). Based on this, this model assumes that trainees' motivation to learn should affect the degree of learning that occurs through its effect on trainees' intention to learn. It is important to note that 'intention', as stated below, is the decision to act, whereas motivation is the force that guides the individual to carry out his/her decision to learn. Trainees' motivation to learn should also directly affect trainees' motivation to transfer learning into on-the-job performance.

2.7.3 Intention to Learn

'Intention' is defined as: "an aim or a plan that guides action; a concept derived from an object of thought" (Crowther & Kavanagh, 1995). It is when a person's mind is fastened upon some purpose. At the beginning of a training program, the immediate purpose is to learn the material presented in the training program. Thus, intention to learn can be defined as an inclination to learn the training material. In layman's terms, it is thus the decision made by the trainee to learn the training material. According to the Fishbein methodology, 'intention' is the immediate determinant of behaviour and when an accurate measure of intention is obtained, it will provide the most accurate prediction of behaviour (Ajzen & Fishbein, 1975; Ajzen & Fishbein, 1980; Fishbein, 1967). Intention to learn should thus have a direct effect on the amount of actual learning that occurs during the training program and should be influenced by trainees' ability to learn (i.e. cognitive ability), as well as their motivation to learn (since motivation is the force that brings the decision to action).

2.7.4 Learning and Retention

Learning can be defined as an experiential process resulting in a relatively permanent change in behaviour that cannot be explained by temporary states, maturation, or innate

response tendencies (Klein, 1991). This definition has an important component in that learning reflects a change in the *potential* for a behaviour, it does not automatically lead to a change in behaviour. Individuals must be sufficiently motivated to translate learning into behaviour (Klein, 1991). Learning is thus the knowledge or skill which is obtained by study, experience or by being taught (Hornby, 1995). Retention is the extent to which that knowledge and skill has been fixed in the mind of the trainee.

For the transfer of knowledge, skills and attitudes to take place, it is essential for trainees to have learnt the training material. The degree of learning which took place during the training program should directly affect trainees' intention to transfer. Consistent with the above statement that trainees must be motivated to translate learning into behaviour, the degree of learning which occurred should also have a direct effect on trainees' motivation to transfer the learning into on-the-job performance. Here the whole issue of self-efficacy comes into play once again. As mentioned above, learning is also directly affected by trainees' intention to learn, as well as by their ability to learn.

2.7.5 Motivation to Transfer

Once training has been completed and a substantial amount of learning has occurred, trainees should have the ability to transfer the learning into on-the-job performance. Once again, transfer/performance will still be low if motivation is low or absent. Motivation to transfer can be defined as the trainees' desire to use the knowledge and skills learned in training on the job (Burke, 1997). Trainees' motivation to transfer should directly be affected by their motivation to learn, as well as by the degree of learning which has occurred during the training program.

Since motivation underlies all human behaviour, trainees' motivation to transfer should also have a direct effect on their intention to transfer and intention to transfer should be high if motivation to transfer is high. This is once again based on the Fishbein theory of reasoned action (Ajzen & Fishbein, 1980). Trainees' motivation to transfer should thus indirectly affect the degree of transfer through its effect on trainees' intention to transfer.

2.7.6 Intention to Transfer

'Intention' is defined as: "an aim or a plan that guides action; a concept derived from an object of thought" (Crowther & Kavanagh, 1995). It is when a person's mind is fastened upon some purpose. In the training environment, that purpose is to transfer the learning to the work environment. Intention to transfer can therefore be defined as an inclination to apply the learning to the work environment. It is thus the decision to apply what was learned in the training environment to the work environment. Trainees' intention to transfer should be directly affected by the degree of learning that occurred during the training program, and also by trainees' motivation to transfer learning into on-the-job performance.

If trainees leave training with a low level of transfer intention it is unlikely that they will demonstrate a high degree of transfer on the job some months later. Transfer initiation is more likely to occur among trainees with a higher level of intention to transfer (Foxon, 1993; Huczynski & Lewis, 1980; Noe, 1986). Thus, one would expect the level of post-training intention to transfer to directly affect the extent of transfer.

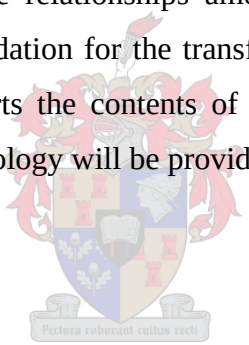
2.7.7 Transfer

Transfer of training has been defined as the degree to which trainees effectively apply knowledge, skills, behaviours and attitudes gained in training to their jobs (Wexley & Latham, 1981). Intuitively, transfer should be affected by trainees' intention to transfer, which in turn, is affected by the degree of learning that occurred, as well as by trainees' motivation to transfer their learning to the job. This is once again based on the Fishbein methodology stating that intention is a direct determinant of behaviour (Ajzen & Fishbein, 1980).

2.8 CONCLUSION: CHAPTER 2

Annually, companies spend vast amounts of money on training and developing their staff, therefore it is important that such investments lead to visible results on the job. The transfer of learned knowledge and skills from instructional programs remains a paramount concern for training researchers and practitioners alike. Researchers have concluded that much of the training conducted in organisations fails to transfer to the work setting (Goldstein, 1986; Mosel, 1957; Wexley & Latham, 1981). Highly disappointing estimates of transfer rates thus suggest an acute "transfer problem" (Anthony & Norton, 1991; Newstrom, 1986).

In this chapter a concerted effort was made to explain and define the factors that affect transfer, as well as to outline the relationships among them. This overview of the literature firstly provides the foundation for the transfer of training model at the end of the chapter, and secondly, supports the contents of the next chapter. In chapter 3 a description of the research methodology will be provided.



CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The insight gained from the research and theory discussed in the literature review forms the basis of the research methodology outlined in this chapter. This chapter provides a synopsis of the hypotheses proposed, as well as the research design, the sample and training program and the measuring instruments used in the study.

3.2 RESEARCH DESIGN

A correlative design, one of the *ex post facto* designs, was utilised in this study. According to Kerlinger (1973, p.379) "*ex post facto* research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables." In *ex post facto* research, experimental manipulation and random assignment are not possible. As in experimental design, the purpose of an *ex post facto* design is to test the empirical validity of the statement "if ξ then η". The difference with regard to the experimental design is the lack of direct control that a researcher has in manipulating the independent variables.

Ex post facto research has three major limitations, namely the inability to manipulate the independent variables, the lack of power to randomize and the risk of improper interpretation. When compared to experimental designs, *ex post facto* research lacks control and erroneous interpretations may originate from the possibility of many explanations of complex events (Kerlinger, 1986). This is especially dangerous when there are no clearly formulated hypotheses. This, however, is not true for this study, yet

Kerlinger (1986) suggests that results from *ex post facto* research should be treated with caution. Still, the value of an *ex post facto* design lies in the fact that most research in the social sciences does not lend itself to experimentation, a certain degree of controlled inquiry might be possible, but experimentation is not. An *ex post facto* design is thus valuable in this regard (Kerlinger, 1986).

The research design sets the framework of a study of the relations among variables, and is thus of great importance, because it controls variance. The principal mechanism of a research design is to maximize systematic variance and to control systematic non-relevant variance and error variance (Kerlinger, 1986).

Having established the nature and value of the research design used in this study, it is now necessary to inspect the various hypotheses that were formulated.

3.3 HYPOTHESES

In accordance with the proposed relationships among the concepts and the research problems stated earlier, various research and statistical hypotheses were formulated. These are presented below, whilst figure 3.1 provides an indication of the symbols developed to represent the indicator variables.

Hypothesis 1:

A significantly positive relationship exists between a trainee's ability to learn and his/her intention to learn.

$$H_{01}: \rho[X_1, Y_6]=0$$

$$H_{a1}: \rho[X_1, Y_6]>0$$

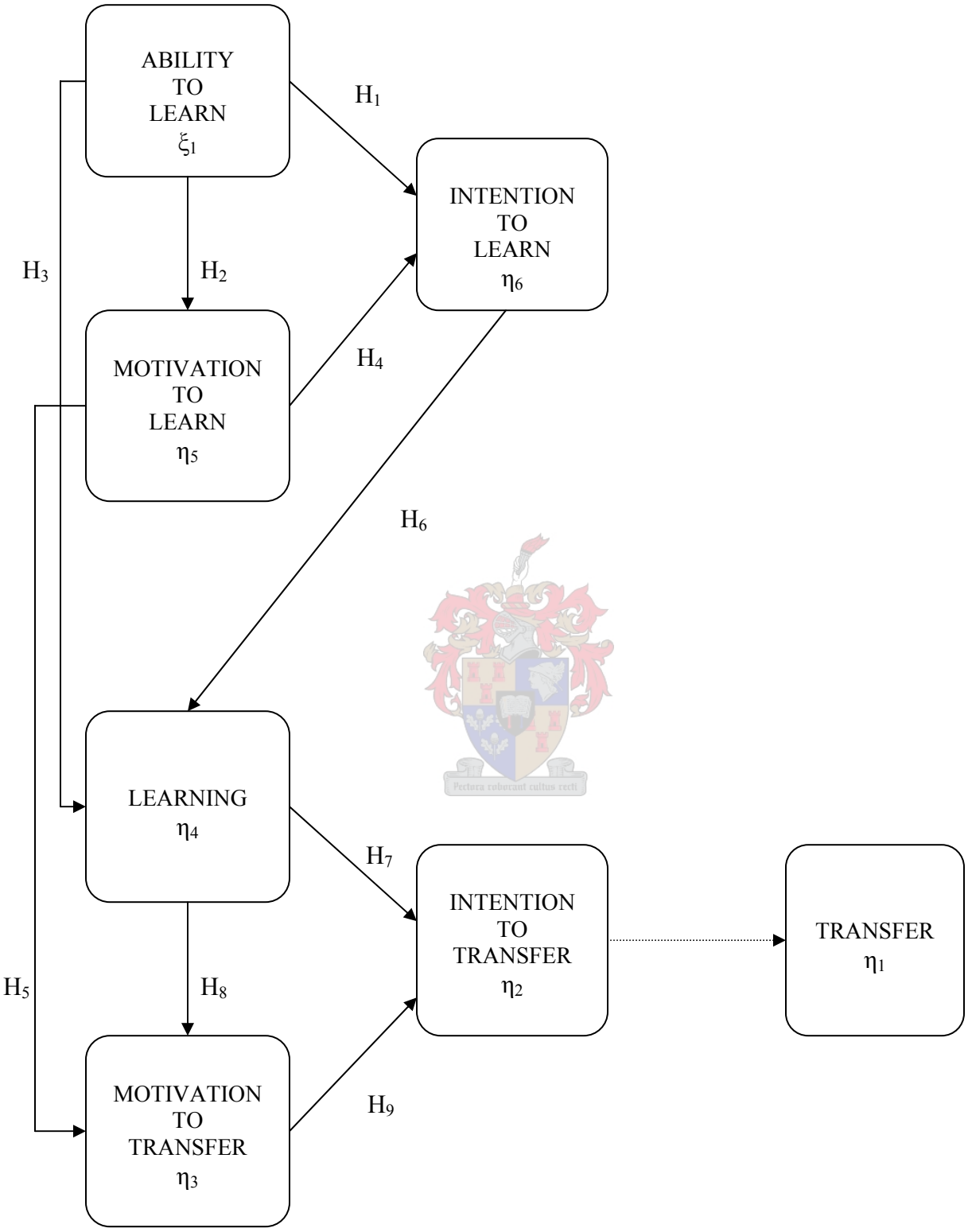


Figure 3.1 A Structural model of the Transfer Process with Symbols representing the Indicator Variables

Hypothesis 2:

A significantly positive relationship exists between a trainee's ability to learn and his/her motivation to learn.

H_{02}: $\rho[X_1,Y_5]=0$

H_{a2}: $\rho[X_1,Y_5]>0$

Hypothesis 3:

A significantly positive relationship exists between a trainee's ability to learn and the amount of learning and retention that occurs.

H_{03}: $\rho[X_1,Y_4]=0$

H_{a3}: $\rho[X_1,Y_4]>0$

Hypothesis 4:

A significantly positive relationship exists between a trainee's motivation to learn and his/her intention to learn.

H_{04}: $\rho[Y_5,Y_6]=0$

H_{a4}: $\rho[Y_5,Y_6]>0$

Hypothesis 5:

A significantly positive relationship exists between a trainee's motivation to learn and his/her motivation to transfer.

H_{05}: $\rho[Y_5,Y_3]=0$

H_{a5}: $\rho[Y_5,Y_3]>0$

Hypothesis 6:

A significantly positive relationship exists between a trainee's intention to learn and the amount of learning and retention that occurs.

H_{06}: $\rho[Y_6,Y_4]=0$

H_{a6}: $\rho[Y_6,Y_4]>0$

Hypothesis 7:

A significantly positive relationship exists between the amount of learning and retention that occurs during training and the trainee's intention to transfer.

H_{07}: $\rho[Y_4,Y_2]=0$

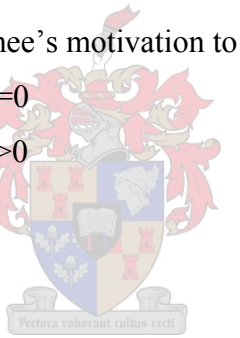
H_{a7}: $\rho[Y_4,Y_2]>0$

Hypothesis 8:

A significantly positive relationship exists between the amount of learning and retention that occurs during training and a trainee's motivation to transfer.

H_{08}: $\rho[Y_4,Y_3]=0$

H_{a8}: $\rho[Y_4,Y_3]>0$



Hypothesis 9:

A significantly positive relationship exists between a trainee's motivation to transfer and his/her intention to transfer.

H_{09}: $\rho[Y_3,Y_2]=0$

H_{a9}: $\rho[Y_3,Y_2]>0$

Hypothesis 10:

Ability to learn (ξ_1) and motivation to learn (η_5) each significantly explain unique variance in intention to learn (η_6).

H_{010}: $\beta[X_1]=0|\beta[Y_5]\neq 0$

H_{011}: $\beta[Y_5]=0|\beta[X_1]\neq 0$

H_{a10}: $\beta[X_1]>0|\beta[Y_5]\neq 0$

H_{a11}: $\beta[Y_5]>0|\beta[X_1]\neq 0$

Hypothesis 11:

The amount of learning and retention that occurs during training (η_4) and the motivation to transfer (η_3) each significantly explain unique variance in intention to transfer (η_2).

H_{012}: $\beta[Y_4]=0|\beta[Y_3]\neq 0$

H_{013}: $\beta[Y_3]=0|\beta[Y_4]\neq 0$

H_{a12}: $\beta[Y_4]>0|\beta[Y_3]\neq 0$

H_{a13}: $\beta[Y_3]>0|\beta[Y_4]\neq 0$

Hypothesis 12:

Ability to learn (ξ_1) and intention to learn (η_6) each significantly explain unique variance in learning and retention (η_4).

H_{014}: $\beta[X_1]=0|\beta[Y_6]\neq 0$

H_{015}: $\beta[Y_6]=0|\beta[X_1]\neq 0$

H_{a14}: $\beta[X_1]>0|\beta[Y_6]\neq 0$

H_{a15}: $\beta[Y_6]>0|\beta[X_1]\neq 0$

Hypothesis 13:

Motivation to learn (η_5) and the amount of learning and retention that occurs during training (η_4) each significantly explain unique variance in motivation to transfer (η_3).

H_{016}: $\beta[Y_5]=0|\beta[Y_4]\neq 0$

H_{017}: $\beta[Y_4]=0|\beta[Y_5]\neq 0$

H_{a16}: $\beta[Y_5]>0|\beta[Y_4]\neq 0$

H_{a17}: $\beta[Y_4]>0|\beta[Y_5]\neq 0$

This section provided an indication of the hypotheses which were formulated for this

study. It is now necessary to inspect the training program and participants that were the focal point of the study.

3.4 TRAINING PROGRAM AND SAMPLE

Given the need to improve the quality of learning and the need to ensure that the learning system is more responsive to the skills requirements and needs of the industry, Sector Education and Training Authorities (SETAs) have decided to assure quality by, amongst others, registering assessors. Aspiring assessors thus have to attend a formal accredited assessor training program so as to obtain recognition as registered assessors.

The sample used for this study consisted of 116 trainees attending an assessor training course provided by the Wholesale and Retail Sector Education and Training Authority (W&RSETA) in South Africa. Several individual organisations who are members of the W&RSETA sent some of their employees on the assessor training program offered by the SETA via an independent training provider. Since accidental sampling could not be avoided in the study, the sample was a non-probability sample. Non-probability sampling lacks the virtues of probability sampling in that it presents problems when there is a need to generalise findings to the population. For this reason, it is necessary to exercise extreme caution when analysing and interpreting the data (Kerlinger, 1986).

The assessor program was thus the focal point for this study and consisted of four days of training in an off-site facility. The training program consisted of eight modules and focused on providing trainees with the essential knowledge to enable them to develop and master the skills required to conduct assessments within their fields of expertise. The purpose of the training program was thus to equip trainees with the required skills in order for them to apply fair, valid and consistent assessment practices in the workplace.

Multiple training methods were used throughout the course, including lecture, discussion and audiovisual techniques to facilitate both knowledge acquisition and behaviour change. The program was delivered in various provinces, since participants were

dispersed throughout the country and was delivered on 7 different occasions over a four-week period. The trainee pool was quite diverse and included full-time working people ranging from non-management to upper-level management. The age of the trainees ranged from 23 to 56 years and 26 trainees were female. Table 3.1 provides a summary of the sample characteristics.

Table 3.1 Demographic Profile of the Sample

GENDER		
Responses	**Frequency**	**Percentage**
Male	90	77.6
Female	26	22.4
ETHNIC GROUP		
Responses	**Frequency**	**Percentage**
Black	25	21.6
Indian	12	10.3
Coloured	4	3.4
White	75	64.7
EDUCATION		
Responses	**Frequency**	**Percentage**
Less than Matric	6	5.2
Matric	71	61.2
Degree/Diploma	35	30.2
Postgraduate Degree	4	3.4
JOB LEVEL		
Responses	**Frequency**	**Percentage**
Non-managerial	13	11.2
Lower-level management	6	5.1
Middle-level management	80	69.0
Upper-level management	17	14.7
AGE		
Variable	**Mean (years)**	**Standard Deviation**
Age	35.6	7.52

3.5 MEASURING INSTRUMENTS

Ability to learn/general cognitive ability was assessed by using the **mental alertness scale** which is a sub-test of the Intermediate Battery. The mental alertness scale is a 30 minute timed test with 30 items testing general reasoning ability. The items require arithmetical and verbal reasoning, eg. codes, similarities, analogies, number and letter series. The wisdom of using a measure of crystallized ability rather than a measure of fluid intelligence/general problem solving ability could in hindsight be questioned.

Examination of the literature indicated that previous measures of motivation to learn and motivation to transfer were very specific to the training investigated in each study, and also that published reports merely cite a small number of illustrative items. It was therefore necessary to develop new measures for use in this study.

A combined questionnaire was developed to measure trainee motivation to learn and intention to learn. The **motivation to learn questionnaire** (MLQ) was divided into three sections (the questionnaire and the accompanying cover letter are presented in Appendix A).

Section A of the MLQ recorded the *demographic data* of the respective trainees and consisted of two broad sections. The first obtained an indication of the general background of the participants and questions related to gender, ethnic group and age. The second section included questions relating to trainees' level of education and job level.

Section B of the MLQ measured *motivation to learn* and consisted of three sub-sections. The first consisted of 20 general motivation to learn items and included items/statements such as "I want to improve my skills during this training program" and "I will do my best in this training program". Responses were based on a 7-point Likert-type scale ranging from *strongly disagree (1)* to *strongly agree (7)*, with *neither agree nor disagree (4)* as the midpoint. The second section consisted of 10 items relating to the objectives of the

Assessor Training Program and measured trainees' expectancies regarding the likelihood that effort invested in training will result in certain outcomes (i.e. objectives of the training course). Responses were based on a 7-point Likert-type scale ranging from *extremely unlikely (1)* to *extremely likely (7)*, with *neither likely nor unlikely (4)* as the midpoint. Example items included "How likely/unlikely is it that participation in this training program will result in…you being able to conduct assessments and document evidence with confidence" and "…you becoming an Assessor". The third section consisted of 10 items measuring the attractiveness of achieving the objectives of the training course (i.e. valence). Responses were based on a 7-point Likert-type scale with response alternatives ranging from *extremely unattractive (1)* to *extremely attractive (7)*, with *neither attractive nor unattractive (4)* as the midpoint. The expectancy and valence measures obtained from sub-sections two and three were subsequently combined multiplicatively across the identified objectives of the training program to obtain a second measure of learning motivation. The two measures of motivation were finally combined in an unweighted linear composite. The two motivation measures correlated moderately ($r=0,351$; $n=113$) and statistically significantly ($p<0,05$).

Section C of the MLQ measured trainee *intention to learn* and consisted of 6 items such as "I have decided to learn as much as I can from the material presented in this training program" and "I intend to utilise this training opportunity to its fullest". Responses were once again based on a 7-point Likert-type scale with response alternatives ranging from *strongly disagree (1)* to *strongly agree (7)*, with *neither agree nor disagree (4)* as the midpoint.

A combined questionnaire was also developed to measure trainee motivation to transfer and intention to transfer. The **motivation to transfer questionnaire** (MTQ) was divided into three sections (the questionnaire is presented in Appendix B).

Section A of the MTQ recorded the *demographic data* of the respective trainees and consisted of two broad sections. The first provided general background information such

as trainee age, gender and ethnic group. The second section included questions relating to education and job level.

Section B of the MTQ measured *motivation to transfer* and consisted of three sub-sections. The first consisted of 30 general motivation to transfer items such as "I want to apply what I've learnt in training to my job", "I believe that I will be able to apply what I have learned in this training program on the job" and "I will recommend this course to others, since it was worthwhile attending". Responses were based on a 7-point Likert-type scale ranging from *strongly disagree (1)* to *strongly agree (7)*, with *neither agree nor disagree (4)* as the midpoint. The second section consisted of 11 items measuring trainees' expectancies regarding the likelihood that successful application of the knowledge, skills, attitudes and behaviours gained in the training course will result in several job-related outcomes. Items included "How likely/unlikely is it that you will get a salary increase if you apply what you have learned in this program" and "How likely/unlikely is it that you will be promoted or get a better job if you apply what you have learned in this program". Responses were based on a 7-point Likert-type scale ranging from *extremely unlikely (1)* to *extremely likely (7)*, with *neither likely nor unlikely (4)* as the midpoint. The third section consisted of 11 items measuring the attractiveness of obtaining several job-related outcomes as a consequence of applying the newly acquired knowledge and skills on the job (i.e. valence). Items included "How attractive is an increase in salary to you?" and "How attractive is being promoted or getting a better job to you". Responses were based on a 7-point Likert-type scale with response alternatives ranging from *extremely unattractive (1)* to *extremely attractive (7),* with *neither attractive nor unattractive (4)* as the midpoint. The expectancy and valence measures obtained from sub-sections two and three were subsequently combined multiplicatively to obtain a second measure of transfer motivation. The two measures of motivation were finally combined in an unweighted linear composite. The two motivation measures correlated moderately ($r=0,552;n=114$) and statistically significantly ($p<0,05$).

Section C of the MTQ measured trainee *intention to transfer* and consisted of 5 items (e.g. "I have decided to use the skills learned in this course in my job" and "I intend to utilise the knowledge learned in this course when I return to my job"). Response alternatives were based on a 7-point Likert-type scale ranging from *strongly disagree (1)* to *strongly agree (7)*, with *neither agree nor disagree (4)* as the midpoint.

As part of the development process, the motivation to learn questionnaires and motivation to transfer questionnaires were pilot tested with a sample of 15 trainees to ensure clarity of wording and instructions.

Learning was assessed from scores on identical pre- and post-training **knowledge tests**. The tests contained multiple choice and true or false items which were derived from the content analysis of the course content and then subjected to review by the training facilitators to ensure content validity. The learning measures were scored with the maximum overall score obtainable being 40.

3.6 PROCEDURE

The questionnaires, together with detailed facilitator instructions were distributed to the various training facilitators to be administered by them at the respective training sessions. Since five separate questionnaires had to be administered at specific times throughout the training course, the researcher also personally contacted the training facilitators regularly so as to ensure that the process proceeded smoothly. A covering letter explaining the purpose and content of the study in question accompanied the questionnaires and confidentiality was assured to all participants.

At the beginning of the training course, before any training material was dealt with, trainees completed a motivation to learn questionnaire. This measure included items relating to the specific objectives of the training course as described in the previous section. The motivation to learn questionnaire was administered immediately to ensure that trainee responses were not based on the training experience, but were truly

antecedent to the training. Participation was voluntary and no names appeared on the questionnaires. Attendance register numbers were allocated to individuals so as to ensure that the motivation to learn measure matched the other four measures. However, trainees were assured of confidentiality and no individual responses were revealed.

Learning was assessed using pre- and post-training knowledge assessment measures. For this reason, trainees were required to complete a knowledge questionnaire immediately following the motivation to learn questionnaire. This included items relating to the course content.

Trainee ability to learn was assessed by using a mental alertness questionnaire which was administered to trainees for completion at the beginning of the second or third training session depending on the respective training facilitators. At the conclusion of the final training session, trainees completed the post-knowledge questionnaire, which was immediately followed by a motivation to transfer questionnaire. All the questionnaires were returned directly to the researcher. Refer to Figure 3.1 for a schematic representation of the questionnaire administration process.

3.7 DATA ANALYSIS

The Statistical Package for the Social Sciences (SPSS) was used in the statistical analysis of the data collected from the various training sessions. Statistical item analyses were performed on each of the sub-scales of the MLQ and the MTQ to identify and eliminate items not contributing to an internally consistent description of the latent variable in question. Simple (zero-order) Pearson correlation analyses were used to test H_{01} to H_{09}. Standard multiple regression proved to be the most appropriate statistical technique to test H_{010} to H_{013} (Tabachnick & Fidell, 1989). According to Tabachnick and Fidell (1989, p. 150) unless there is a good reason to use some other type of multiple regression, standard multiple regression is recommended.

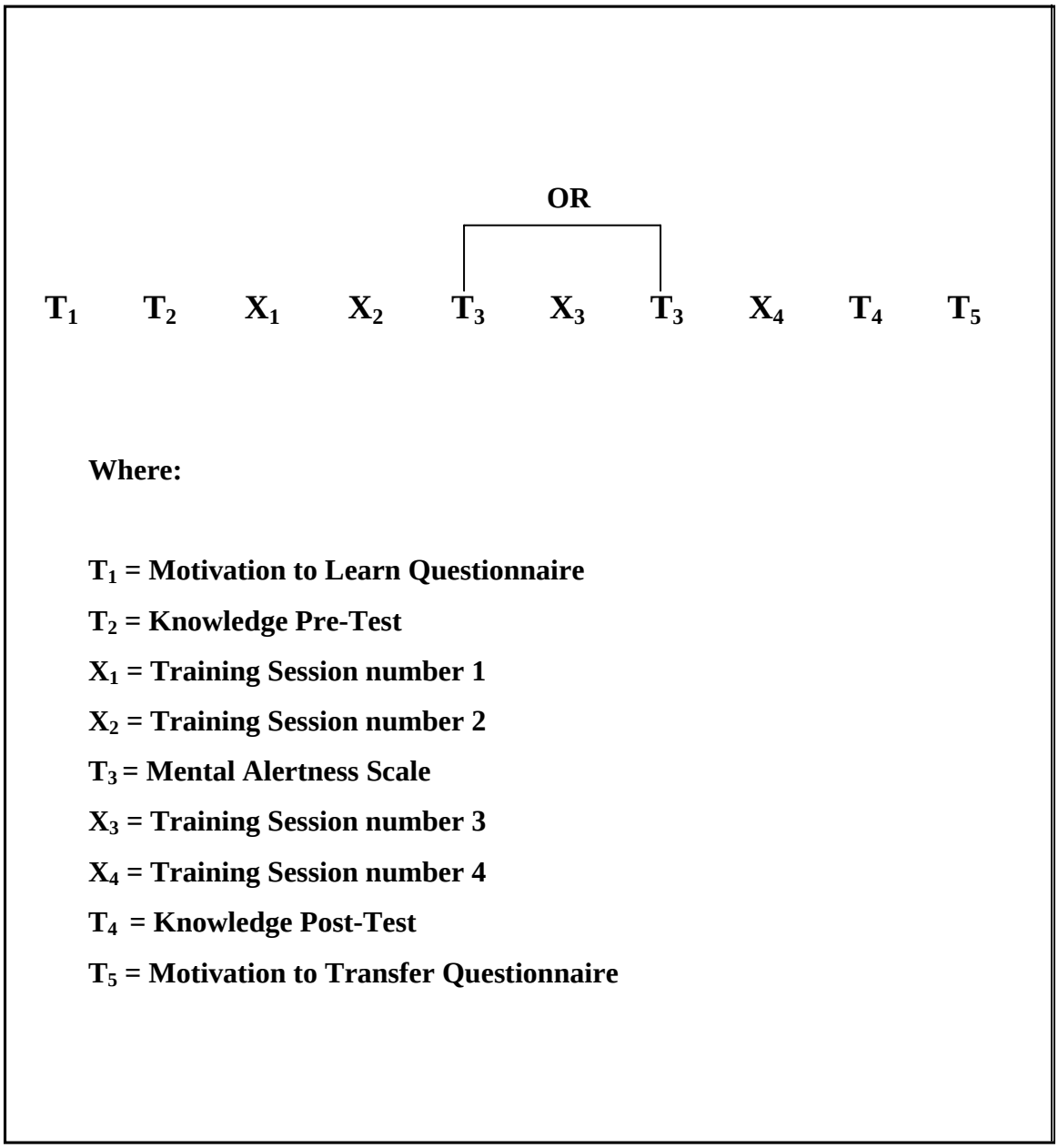


Figure 3.2 Schematic Representation of the Questionnaire Administration Procedure

3.8 CONCLUSION: CHAPTER THREE

In this chapter the hypotheses relevant to the study, as well as the research methodology used to test these, were stated. The reader was also provided with an overview of the training program, sample and measuring instruments that were utilised. Finally, a description of the statistical analysis was provided. The results obtained from the data analysis, together with a discussion thereof, will be the focus of the following chapter.

CHAPTER 4

RESEARCH RESULTS AND DISCUSSION

4.1 INTRODUCTION

In Chapter 3 the research methodology which was used in the study was described. The purpose of the present chapter is to report on the results of the statistical analyses performed. This chapter thus presents an overview of the descriptive statistics, as well as detailed results of the reliability of the measuring instruments used in the study. Based on the procedures discussed in the previous chapter, the inferential test results on the formulated statistical hypotheses are also discussed.

4.2 DESCRIPTIVE STATISTICS

The first phase of the statistical analysis involved calculating the descriptive statistics of the Motivation to Learn and Motivation to Transfer Scales. These were obtained so as to summarise the data used in the study and are presented in Chapter 3, section 3.4 (refer to table 3.1). The sample typically consisted of white, male, middle-level managers in their middle thirties with matric or a post-matric diploma.

4.3 MISSING VALUES

Missing values did not represent a problem in the analysis. A total of 116 questionnaires were received by the researcher. Only three of these had to be rejected, as they were not completed satisfactorily. All the questionnaires that were subsequently used in the analysis were fully completed by the respondents, except that some respondents did not disclose their age. This did not represent a serious problem, since age is not considered a determining factor in the proposed model.

4.4 ITEM ANALYSIS

It is imperative that measurement scales that have been constructed for empirical research be reliable. The reliability of a scale indicates the extent to which it is free from random error variance. A frequently used indicator of a scale's reliability is internal consistency, which refers to the degree to which the items that make up the scale are all measuring the same underlying attribute. Internal consistency can be measured in a variety of ways, with Cronbach's coefficient alpha being the most commonly used statistic. Cronbach's coefficient alpha provides an indication of the average correlation among all of the items that make up the scale. Values range from 0 to 1, with higher values indicating greater reliability (Nunnally, 1978).

While different levels of reliability are required, depending on the nature and purpose of the scale, Nunnally (1978) recommends a minimum level of 0,7. Cronbach alpha values are dependent on the number of items in the scale. When there are a small number of items in the scale (less that ten) Cronbach alpha values can be quite small. In this situation it may be better to calculate and report the mean inter-item correlation for the items. Optimal mean inter-item correlation values range from 0,2 to 0,4 (as recommended by Briggs and Cheek, 1986).

Item analysis was performed on all scales and sub-scales through the SPSS Reliability Procedure (SPSS, 1990) so as to identify and eliminate possible items that were not contributing to an internally consistent description of the scales and sub-scales in question. The results of the item-analyses are portrayed in Tables 4.1 to 4.11.

Inspection of the reliability coefficients of all the scales and sub-scales reveal that all have reasonably high alpha values, ranging from 0,8017 to 0,9405, which is higher than the recommended value of 0,7. The only scale not meeting this value is the Knowledge Questionnaire.

Table 4.1 to 4.4 indicates the results of the item analyses of the sub-scales of the Motivation to Learn questionnaire.

Table 4.1 Reliability Analysis of the General Motivation to Learn Sub-scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
B1	117.2719	155.0493	.7215	.9367
B2	117.4298	157.1499	.6251	.9381
B3	117.4649	153.8439	.6817	.9370
B4	117.2456	155.0188	.6424	.9376
B5	117.4737	154.7471	.7298	.9366
B6	117.4211	153.8919	.6847	.9370
B7	117.5965	152.7030	.7863	.9355
B8	117.5088	153.5442	.7322	.9363
B9	117.6930	151.1704	.7293	.9360
B10	117.6491	151.4510	.6698	.9371
B11	117.4211	153.3433	.7529	.9360
B12	117.7105	150.7562	.7455	.9358
B13	118.6491	152.1590	.4246	.9446
B14	117.7895	151.7429	.6899	.9367
B15	117.3596	154.7102	.7609	.9363
B16	117.5439	154.3388	.7307	.9365
B17	117.7281	152.1997	.7095	.9364
B18	117.7193	152.5754	.7419	.9360
B19	118.0526	155.2715	.5074	.9400
B20	118.6053	146.0640	.5156	.9446

Reliability Coefficients

N of Cases = 114.0 N of Items = 20

Alpha = .9405

Table 4.2 Reliability Analysis of the Expectancy Sub-scale of Motivation to Learn

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
OUT_1	52.3217	52.6763	.6372	.9191
OUT_2	52.2435	51.8876	.7639	.9088
OUT_3	51.9826	54.1576	.7288	.9106
OUT_4	52.0174	54.2453	.7352	.9102
OUT_5	52.0261	53.0432	.7960	.9065
OUT_6	52.0609	55.8296	.7114	.9117
OUT_7	51.9043	56.7013	.7807	.9095
OUT_8	51.9217	54.9324	.8574	.9049
OUT_9	51.6870	58.6380	.5557	.9195
OUT_10	51.5652	60.3883	.5374	.9204

Reliability Coefficients

N of Cases = 115.0 N of Items = 10

Alpha = .9203

Table 4.3 Reliability Analysis of the Valence Sub-scale of Motivation to Learn

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ATTR_1	56.2672	27.8671	.4437	.9249
ATTR_2	55.9052	28.3822	.5879	.9057
ATTR_3	55.8017	27.9169	.7955	.8928
ATTR_4	55.7328	28.1106	.7462	.8955
ATTR_5	55.7845	27.7358	.7964	.8925
ATTR_6	55.6724	28.8135	.7215	.8975
ATTR_7	55.6552	28.7670	.7711	.8954
ATTR_8	55.6638	27.6338	.7468	.8951
ATTR_9	55.4914	28.8434	.6769	.8997
ATTR_10	55.5603	29.5007	.6965	.8996

Reliability Coefficients

N of Cases = 116.0 N of Items = 10

Alpha = .9090

Table 4.4 Reliability Analysis of the Intention to Learn Sub-scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
C1	32.8103	6.2768	.7613	.9009
C2	32.7759	6.2450	.7767	.8989
C3	32.7069	6.0873	.8313	.8914
C4	32.7845	5.5792	.8473	.8883
C5	32.8448	5.9061	.7431	.9045
C6	32.6293	6.7049	.6337	.9170

Reliability Coefficients

N of Cases = 116.0 N of Items = 6

Alpha = .9157

The item analysis indicated the deletion of item 13 of the general motivation to learn sub-scale, which would bring about an increase in the alpha value from 0,9405 to 0,9446 (see Table 4.1). The item analysis of the expectancy sub-scale had an alpha value of 0,9203. With the elimination of item 10, this value could be slightly increased to an alpha-value of 0,9204 (refer to Table 4.2). The alpha coefficient of the valence sub-scale (α=0,9090) increases to 0,9249 with the deletion of item 1, as can be seen in Table 4.3. In Table 4.4 the item analysis for the intention to learn sub-scale is presented. The alpha value of 0,9157 can be increased slightly to 0,9170 with the deletion of item 6. Since the deletion of the various items would not bring about any dramatic changes in the existing alpha values of the various sub-scales, no items were deleted.

Table 4.5 presents the results of the item analysis of the Mental Alertness Scale having an alpha value of 0,8017.

Table 4.5 Reliability Analysis of the Mental Alertness Scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MAS1	14.6724	26.2918	.1527	.8011
MAS2	15.5603	27.3442	-.2841	.8110
MAS3	14.7845	26.3618	.0425	.8053
MAS4	14.8362	25.8251	.1601	.8018
MAS5	14.9397	25.0833	.2908	.7970
MAS6	14.9569	25.1720	.2661	.7981
MAS7	14.9741	25.6080	.1691	.8024
MAS8	14.8276	25.0309	.3647	.7942
MAS9	14.8103	25.3202	.3039	.7965
MAS10	14.9224	25.2026	.2704	.7978
MAS11	14.9828	25.3910	.2131	.8005
MAS12	14.9569	24.9112	.3229	.7956
MAS13	15.3276	26.5700	-.0273	.8102
MAS14	15.1034	25.0327	.2727	.7980
MAS15	15.1638	24.2947	.4267	.7907
MAS16	15.1034	24.0762	.4724	.7885
MAS17	14.9655	24.2249	.4716	.7889
MAS18	15.0345	24.2075	.4539	.7895
MAS19	14.9655	24.9031	.3219	.7956
MAS20	15.1293	24.2353	.4379	.7902
MAS21	15.2328	25.5540	.1726	.8024
MAS22	15.2241	23.7580	.5517	.7849
MAS23	15.2759	24.4972	.4050	.7919
MAS24	15.2759	24.5667	.3899	.7926
MAS25	15.2759	24.0972	.4933	.7878
MAS26	15.4310	25.3604	.2807	.7973
MAS27	15.4483	24.6669	.4780	.7902
MAS28	15.1897	23.8246	.5301	.7858
MAS29	15.4569	25.5373	.2534	.7983
MAS30	15.4224	25.3244	.2840	.7972

Reliability Coefficients

N of Cases = 116.0 N of Items = 30

Alpha = .8017

The results of the item analysis of the Pre- and Post-Knowledge scales are presented in Tables 4.6 and 4.7 respectively. The internal consistency of the Pre-knowledge scale was estimated to be 0,5694, and the alpha value of the Post-Knowledge scale was 0,6547.

Table 4.6 Reliability Analysis of the Pre-Knowledge Scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
PRKQ1A	24.3534	17.9175	.0476	.5694
PRKQ1B	24.5603	17.5355	.0956	.5670
PRKQ1C	24.6034	17.8240	.0153	.5753
PRKQ2A	25.0690	17.5256	.1266	.5639
PRKQ2B	24.7931	17.1916	.1605	.5603
PRKQ3	24.5517	16.8408	.2862	.5478
PRKQ4	24.8621	17.7373	.0313	.5742
PRKQ5	25.0862	17.8534	.0329	.5717
PRKQ6A	24.4914	17.8869	.0136	.5741
PRKQ6B	24.4569	17.3112	.1967	.5578
PRKQ7	24.4569	17.4329	.1590	.5611
PRKQ7B	24.8103	16.8159	.2545	.5499
PRKQ7C	24.8276	17.6744	.0448	.5729
PRKQ8A	24.7241	17.5232	.0805	.5691
PRKQ8B	25.0431	17.7807	.0437	.5714
PRKQ9A	24.6638	17.4599	.0997	.5669
PRKQ9B	24.8190	17.7322	.0307	.5744
PRKQ9C	24.6379	17.4852	.0962	.5672
PRKQ10A	24.5776	17.3244	.1474	.5618
PRKQ10B	24.6466	17.1870	.1698	.5594
PRKQ11A	24.4310	17.0996	.2839	.5510
PRKQ11B	24.5517	18.0408	-.0352	.5796
PRKQ12A	24.4224	17.5678	.1347	.5633
PRKQ12B	24.4569	16.7025	.3894	.5408
PRKQ13A	24.5345	17.6771	.0631	.5700
PRKQ13B	24.4310	17.3430	.2033	.5577
PRKQ13C	24.5345	18.1292	-.0571	.5814
PRKQ14A	24.4483	17.7451	.0663	.5690
PRKQ15A	24.6379	17.4504	.1048	.5663
PRKQ15B	24.7586	16.6717	.2895	.5458
PRKQ15C	24.7241	16.2537	.3983	.5334
PRKQ16A	24.4569	17.7286	.0685	.5689
PRKQ16B	24.4741	17.4515	.1452	.5622
PRKQ16C	24.4052	17.5475	.1527	.5621
PRKQ17A	24.6638	16.6947	.2925	.5458
PRKQ17B	24.7241	17.4537	.0973	.5673
PRKQ17C	24.6379	17.7982	.0188	.5753
PRKQ18A	24.7069	16.4003	.3620	.5377
PRKQ18B	24.7845	17.6314	.0539	.5720
PRKQ18C	24.6034	16.8327	.2704	.5488

Reliability Coefficients

N of Cases = 116.0 N of Items = 40

Alpha = .5694

Table 4.7 Reliability Analysis of the Post-Knowledge Scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
POSKQ1A	30.3103	15.1028	.0029	.6565
POSKQ1B	30.3276	14.6048	.2861	.6450
POSKQ1C	30.6207	14.5157	.1091	.6553
POSKQ2A	30.8190	13.8365	.2831	.6387
POSKQ2B	30.6724	13.5787	.3647	.6307
POSKQ3	30.3707	14.5484	.2253	.6461
POSKQ4	30.5862	13.7925	.3281	.6349
POSKQ5	31.1121	15.1612	-.0549	.6650
POSKQ6A	30.4914	14.3564	.1961	.6471
POSKQ6B	30.3879	15.0221	.0074	.6591
POSKQ7	30.3534	14.3175	.3693	.6390
POSKQ7B	30.4914	14.2521	.2303	.6443
POSKQ7C	30.3879	14.6047	.1799	.6486
POSKQ8A	30.7414	14.2804	.1609	.6508
POSKQ8B	30.7931	14.2351	.1726	.6497
POSKQ9A	30.2931	15.0090	.1131	.6531
POSKQ9B	30.3621	14.5112	.2561	.6447
POSKQ9C	30.3362	14.7121	.2024	.6483
POSKQ10A	30.5172	14.2171	.2280	.6444
POSKQ10B	30.6552	14.8540	.0131	.6644
POSKQ11A	30.2759	15.1406	.0000	.6552
POSKQ11B	30.2845	15.0401	.1276	.6533
POSKQ12A	30.3707	15.1570	-.0450	.6614
POSKQ12B	30.3879	14.8830	.0643	.6556
POSKQ13A	30.3017	14.7690	.2825	.6476
POSKQ13B	30.3448	14.6105	.2392	.6462
POSKQ13C	30.5603	14.8398	.0274	.6618
POSKQ14A	30.4655	14.4075	.1934	.6473
POSKQ15A	30.4655	14.3553	.2113	.6459
POSKQ15B	30.4741	13.7993	.3970	.6310
POSKQ15C	30.4914	13.7130	.4110	.6293
POSKQ16A	30.3103	14.9115	.1381	.6518
POSKQ16B	30.3534	14.4566	.2995	.6427
POSKQ16C	30.3448	15.0975	-.0109	.6585
POSKQ17A	30.6293	14.4788	.1181	.6545
POSKQ17B	30.8362	14.3816	.1350	.6533
POSKQ17C	30.6379	14.8417	.0177	.6638
POSKQ18A	30.4914	13.9391	.3344	.6357
POSKQ18B	30.7069	14.4177	.1259	.6542
POSKQ18C	30.3966	14.0675	.3936	.6346

Reliability Coefficients

N of Cases = 116.0 N of Items = 40

Alpha = .6547

Subsequent factor analysis revealed the origin of the disappointing internal consistency results. Principal component analysis of the pre-knowledge scale extracted 17 principal components with eigenvalues greater than one. The varimax rotation failed to converge in 25 iterations. A similar result emerged on the post-knowledge scale.

To obtain a reliability estimate of the difference score calculated from the Pre- and Post Knowledge measures, the following equation, as suggested by Schepers (1992, p. 55), was utilised:

$$\rho_{vv'} = \overline{\rho} - \rho_{xy}/1-\rho_{xy} \quad \text{----------4.1}$$

Where: $\rho_{vv'}$ = Reliability of the difference scores

$\overline{\rho}$ = The average of the reliabilities of the pre-test and post-test scores

ρ_{xy} = The correlation between the pre-test scores and the post-test scores

This brought about a reliability coefficient of 0,3479. The low reliability is typical of gain scores and generally argues against the use of gain scores as measures of learning performance.

Table 4.8 to 4.11 indicates the results of the item analysis of the sub-scales of the Motivation to Transfer questionnaire. The internal consistency of responses within each sub-scale was estimated using Cronbach's alpha.

Table 4.8 Reliability Analysis of the General Motivation to Transfer Sub-scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MTT1	183.0965	185.2030	.4627	.9206
MTT2	183.2807	186.9471	.2015	.9234
MTT3	183.0965	183.6278	.4113	.9208
MTT4	183.2105	181.0172	.6134	.9188
MTT5	183.2193	183.5179	.5486	.9198
MTT6	183.2456	183.0011	.5321	.9198
MTT7	183.2456	183.1958	.4907	.9201
MTT8	183.5439	176.5866	.4970	.9201
MTT9	186.4825	174.1988	.2361	.9377
MTT10	183.6842	174.2888	.5313	.9197
MTT11	183.2807	179.3895	.7353	.9176
MTT12	183.5175	170.9068	.6720	.9170
MTT13	183.4825	172.6059	.6364	.9176
MTT14	183.4474	176.6565	.6436	.9177
MTT15	183.5000	175.8274	.6774	.9172
MTT16	183.2193	179.9780	.7146	.9179
MTT17	183.5263	173.5612	.6497	.9174
MTT18	183.2018	182.1094	.6109	.9191
MTT19	183.2193	180.5267	.6785	.9183
MTT20	183.3684	178.8719	.6413	.9181
MTT21	183.2544	180.4037	.6355	.9185
MTT22	183.5000	174.1991	.7443	.9162
MTT23	183.6140	175.3718	.6043	.9182
MTT24	183.0877	182.0807	.4898	.9200
MTT25	183.0088	181.7964	.6304	.9189
MTT26	183.2105	179.2650	.7419	.9175
MTT27	183.1842	180.5764	.7189	.9181
MTT28	183.2018	182.9412	.5076	.9199
MTT29	183.2456	182.2046	.6031	.9192
MTT30	183.1930	182.1040	.3309	.9225

Reliability Coefficients

N of Cases = 114.0 N of Items = 30

Alpha = .9221

Table 4.9 Reliability Analysis of the Expectancy Sub-scale of Motivation to Transfer

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MTT1.1	52.1565	68.9051	.4136	.8192
MTT1.2	48.7130	74.5222	.3556	.8210
MTT1.3	48.2000	78.0035	.3371	.8233
MTT1.4	49.7826	60.5400	.6609	.7922
MTT1.5	48.8870	71.7152	.4602	.8131
MTT1.6	50.8609	62.6822	.5969	.8000
MTT1.7	48.1826	79.6944	.1846	.8297
MTT1.8	49.0696	63.8372	.6749	.7914
MTT1.9	50.0435	63.4279	.6374	.7950
MTT1.10	50.1043	64.9013	.5949	.7998
MTT1.11	48.4348	74.4058	.4696	.8146

Reliability Coefficients

N of Cases = 115.0 N of Items = 11

Alpha = .8244

Table 4.10 Reliability Analysis of the Valence Sub-scale of Motivation to Transfer

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MTT2.1	59.4914	70.1130	.6370	.9029
MTT2.2	58.7759	80.9232	.6442	.8937
MTT2.3	58.7500	86.3109	.5223	.9001
MTT2.4	59.0172	77.9649	.6860	.8911
MTT2.5	58.6638	82.6599	.7017	.8925
MTT2.6	59.1466	73.6740	.7245	.8892
MTT2.7	58.5431	85.9894	.6201	.8974
MTT2.8	59.0603	77.9355	.7556	.8875
MTT2.9	59.3879	77.3178	.7000	.8902
MTT2.10	59.3966	78.7631	.7118	.8899
MTT2.11	58.6466	84.4392	.6009	.8968

Reliability Coefficients

N of Cases = 116.0 N of Items = 11

Alpha = .9025

Table 4.11 Reliability Analysis of the Intention to Transfer Sub-scale

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ITT1	25.8621	4.9547	.7242	.8793
ITT2	26.0000	4.7826	.7003	.8847
ITT3	25.8966	4.5631	.6914	.8903
ITT4	25.8017	4.7169	.8349	.8563
ITT5	25.7845	4.7271	.8061	.8618

Reliability Coefficients

N of Cases = 116.0 N of Items = 5

Alpha = .8970

The item analysis indicated the deletion of item 9 of the general motivation to transfer sub-scale, which would bring about an increase in internal consistency from an alpha value of 0,9221 to a value of 0,9377 (see Table 4.8). The deletion of item 7 of the expectancy sub-scale would increase the alpha value from 0,8244 to 0,8297 (refer to Table 4.9). Table 4.10 presents the results of the item analysis of the valence sub-scale. With the elimination of item 1 the alpha value can be increased slightly from 0,9025 to 0,9029. Finally, Table 4.11 indicates the intention to transfer sub-scale as having an alpha value of 0,8970. Once again, the deletion of the various items would not bring about any dramatic changes with respect to the internal consistencies of the various sub-scales. For this reason, no items were deleted.

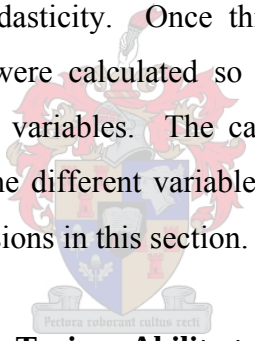
Generally, the Cronbach alpha values are satisfactorily high. In the case of the Knowledge questionnaire, the combined value for internal consistency lies below the generally accepted value of 0,70 (Nunnally, 1978).

4.5 RESULTS

This section outlines the results of the study. First, the results of the correlation analysis will be discussed, whereafter the results of the standard multiple regression analyses, carried out to determine the relative importance of the independent variables, will be presented.

4.5.1 INTER-CORRELATIONS

This section focuses on the results of the study by first highlighting the notable findings in the correlation matrix and then reviewing the results as they relate to the original hypotheses. Before calculating the Pearson product-moment correlation coefficients, preliminary analyses were performed so as to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Once this was assured, Pearson product-moment correlation coefficients were calculated so as to establish the nature of the various relationships between the variables. The calculated Pearson product-moment correlation coefficients between the different variables are displayed in Table 4.12 and will be referred to on various occasions in this section.



4.5.1.1 The Relationship between Trainee Ability to Learn and Intention to Learn

The relationship between trainee ability to learn (as measured by the Mental Alertness Scale) and intention to learn (as measured by the Intention to Learn Sub-scale), was investigated using the Pearson product-moment correlation coefficient. The results indicated a very small, negative (r=-0,008) and insignificant relationship (p>0,05) between trainee ability to learn and trainee intention to learn. H_{01} can therefore not be rejected. Hypothesis 1, stating that a significantly positive relationship exists between a trainee's ability to learn and his/her intention to learn, is thus not corroborated.

Table 4.12 Correlations between the Variables of Interest

		Ability to Learn (ξ_1)	Motivation to Learn (η_5)	Intention to Learn (η_6)	Learning & Retention (η_4)	Motivation to Transfer (η_3)	Intention to Transfer (η_2)
Ability to Learn (ξ_1)	Pearson Correlation	1.000	.260**	-.008	.151	-.007	-.050
	Sig. (1-tailed)	.	.003	.464	.053	.470	.298
	N	116	113	116	116	114	116
Motivation to Learn (η_5)	Pearson Correlation	.260**	1.000	.313**	.029	.161*	.302**
	Sig. (1-tailed)	.003	.	.000	.381	.045	.001
	N	113	113	113	113	112	113
Intention to Learn (η_6)	Pearson Correlation	-.008	.313**	1.000	.040	.016	.306**
	Sig. (1-tailed)	.464	.000	.	.335	.433	.000
	N	116	113	116	116	114	116
Learning & Retention (η_4)	Pearson Correlation	.151	.029	.040	1.000	.024	.115
	Sig. (1-tailed)	.053	.381	.335	.	.399	.110
	N	116	113	116	116	114	116
Motivation to Transfer (η_3)	Pearson Correlation	-.007	.161*	.016	.024	1.000	.396**
	Sig. (1-tailed)	.470	.045	.433	.399	.	.000
	N	114	112	114	114	114	114
Intention to Transfer (η_2)	Pearson Correlation	-.050	.302**	.306**	.115	.396**	1.000
	Sig. (1-tailed)	.298	.001	.000	.110	.000	.
	N	116	113	116	116	114	116

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

4.5.1.2 The Relationship between Trainee Ability to Learn and Motivation to Learn

The relationship between trainee ability to learn (as measured by the Mental Alertness Scale) and trainee motivation to learn (as measured by the Motivation to Learn Scale), was investigated using Pearson's product-moment correlation coefficient. It can be seen

that a small, positive and significant correlation exists between the variables (r=0,260, n=113, p<0,05), with high levels of ability to learn associated with high levels of motivation to learn. H_{02} can therefore be rejected.

With respect to the above findings, Hypothesis 2, stating that a significantly positive relationship exists between a trainee's ability to learn and his/her motivation to learn, was thus confirmed. This implies that trainees who have sufficient ability to master the content of the training course should also be more motivated to learn the content than trainees who do not have sufficient ability to learn the training material. This finding is consistent with the training literature that suggests that a person's self-efficacy affects his/her motivation to learn. This is due to the fact that individuals are continuously aware of their level of cognitive ability (Warr & Bruce, 1995). In this case, it can be argued that trainees' perceptions of their level of cognitive ability will directly affect their motivational levels.

4.5.1.3 The Relationship between Trainee Ability to Learn and the amount of Learning and Retention

The relationship between trainee ability to learn (as measured by the Mental Alertness Scale) and the amount of learning and retention that occurred (measured as the difference between the total scores obtained on the Pre- and Post-Knowledge Scales respectively), was investigated using the Pearson product-moment correlation coefficient. As seen in Table 4.12, the results indicated an insignificant correlation (p>0,05) of r=0,151. Hypothesis 3, stating that a significantly positive relationship exists between a trainee's ability to learn and the amount of learning and retention that occurs, could thus not be corroborated, since there was not sufficient evidence to reject H_{03}. The insignificant correlation found between trainee ability to learn and the amount of learning and retention could in part be explained by the low reliability of the gain scores used to reflect learning and retention. When the post-knowledge scale scores are regressed on trainee ability after having controlled for pre-knowledge differences a more positive picture emerges. Table 4.13 indicates that trainee ability does significantly (p<0.05) produce variance in post-knowledge scores when included in a model already containing the pre-knowledge effect. Ability is therefore significantly related to post-knowledge

differences when controlling for pre-training knowledge differences. This finding is consistent with the training literature that states that the acquisition of knowledge and skills depends on learning and that since learning depends on individual differences in general cognitive ability, general cognitive ability (i.e. ability to learn) should predict success in training (Ree & Earles, 1991).

Table 4.13 Hierarchical Multiple Regression of Trainee Ability on Post-knowledge Scores while statistically controlling for Pre-knowledge scores

Tests of Between-Subjects Effects

Dependent Variable: Total Post-Knowledge Score

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	482.576[a]	2	241.288	21.663	.000
Intercept	113468.828	1	113468.828	10187.524	.000
Total Pre-Knowledge	286.018	1	286.018	25.679	.000
Ability to Learn	196.559	1	196.559	17.648	.000
Error	1258.596	113	11.138		
Total	115210.000	116			
Corrected Total	1741.172	115			

a. R Squared = .277 (Adjusted R Squared = .264)

4.5.1.4 The Relationship between Trainee Motivation to Learn and Trainee Intention to Learn

The relationship between trainee motivation to learn (as measured by the Motivation to Learn Scale) and intention to learn (as measured by the Intention to Learn Sub-scale) was investigated using Pearson's product-moment correlation coefficient and the results presented in Table 4.12. A moderate, positive and significant correlation was found between the two variables (r=0,313, n=116, p<0,05), with high levels of motivation to learn associated with high levels of intention to learn. H_{04} is therefore rejected in favour of H_{a4}. Consequently, Hypothesis 4, stating that a significantly positive relationship exists between a trainee's motivation to learn and his/her intention to learn, was confirmed. This implies that a trainee who is motivated to learn should also have the intention to learn the training content. This supports the theory that motivation is the

force behind the decision (i.e. intention) to act and that it is necessary so as to bring the intention to action.

4.5.1.5 The Relationship between Trainee Motivation to Learn and Trainee Motivation to Transfer

Hypothesis 5, stating that a significantly positive relationship exists between a trainee's motivation to learn (as measured by the Motivation to Learn Scale) and his/her motivation to transfer (as measured by the Motivation to Transfer Scale) was tested using Pearson's product-moment correlation coefficient. The results presented in Table 4.12 indicate a small, significantly positive correlation between these two variables ($r=0,161$, $n=112$, $p<0,05$). H_{05} can thus be rejected and Hypothesis 5 is corroborated, indicating that high levels of motivation to learn the training content can be associated with high levels of motivation to transfer the training content to the work environment. This finding is consistent with the training literature that states that motivation to learn is an important factor affecting transfer (Hicks & Klimoski, 1987; Tannenbaum et al., 1991).

4.5.1.6 The Relationship between Trainee Intention to Learn and the amount of Learning and Retention

Hypothesis 6, stating that a significantly positive relationship exists between a trainee's intention to learn (as measured by the Intention to Learn Sub-scale) and the amount of learning and retention that occurs (measured as the difference in the total scores of the Pre- and Post-Knowledge Scales) was tested using the Pearson product-moment correlation coefficient. The results presented in Table 4.12 were insignificant ($r=0,040$, $n=116$, $p>0,05$). H_{06} can therefore not be rejected and Hypothesis 6 could thus not be confirmed. Consequently, the findings of Ajzen & Fishbein (1975) cannot be wholly supported in this training situation. Hierarchical multiple regression with pre-training knowledge as a covariate was again used to test whether trainee intention to learn significantly explains variance in post-training knowledge when controlling for differences in initial knowledge levels. This time, however, controlling for pre-training knowledge differences did not produce a significant intention to learn effect on post-training knowledge. The results are presented in Table 4.14.

Table 4.14 Hierarchical Multiple Regression of Trainee Intention to Learn on Post-knowledge Scores while statistically controlling for Pre-knowledge Scores

Tests of Between-Subjects Effects

Dependent Variable: Total Post-Knowledge Score

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	286.023[a]	2	143.012	11.106	.000
Intercept	113468.828	1	113468.828	8811.451	.000
Total Pre-Knowledge	286.018	1	286.018	22.211	.000
Intention to Learn	5.231E-03	1	5.231E-03	.000	.984
Error	1455.149	113	12.877		
Total	115210.000	116			
Corrected Total	1741.172	115			

a. R Squared = .164 (Adjusted R Squared = .149)

4.5.1.7 The Relationship between Learning and Retention and Intention to Transfer

The relationship between learning and retention (measured as the difference in total scores of the Pre- and Post-Knowledge Scales) and trainee intention to transfer the learned material to the job situation (as measured by the Intention to Transfer Sub-scale) was investigated using Pearson's product-moment correlation coefficient. The results, which are presented in Table 4.12, were not as expected and the small positive correlation (r=0,115) found between the two variables was insignificant (p>0,05). H_{07} is thus not rejected. For this reason, Hypothesis 7, stating that a significantly positive relationship exists between the amount of learning and retention that occurs during training and the trainee's intention to transfer, could not be confirmed. The results could, however, be explained in terms of the failure of the gain score to provide an uncontaminated measure of the learning and retention latent variable.

4.5.1.8 The Relationship between Learning and Retention and Trainee Motivation to Transfer

Hypothesis 8, stating that a significantly positive relationship exists between the amount of learning and retention that occurs during training (measured as the difference in total scores between the Pre- and Post-Knowledge Scales) and a trainee's motivation to transfer (as measured by the Motivation to Transfer Scale) was tested using Pearson's product-moment correlation coefficient. The results indicated a very small, statistically insignificant correlation ($r=0,024$, $n=114$, $p>0,05$) between the variables of interest. There was thus not sufficient evidence to reject H_{08} and Hypothesis 8 could consequently not be confirmed.

4.5.1.9 The Relationship between Trainee Motivation to Transfer and Trainee Intention to Transfer

Finally, Hypothesis 9, stating that a significantly positive relationship exists between a trainee's motivation to transfer (as measured by the Motivation to Transfer Scale) and his/her intention to transfer (as measured by the Intention to Transfer Sub-scale) was tested using the Pearson product-moment correlation coefficient. A moderate, positive and significant correlation was found to exist between these two variables ($r=0,396$, $n=114$, $p<0,005$). The probability of observing the sample result under H_{09} was sufficiently small to reject H_{09}. Consequently, Hypothesis 9 could be corroborated. This leads one to believe that a trainee who is sufficiently motivated to transfer the training content to on-the-job performance, should also have the intention to do so. Once again, this supports the theory that motivation is the force behind the decision (i.e. intention) to act.

4.5.1.10 Additional Correlations indicated by the Data Analysis

During the data analysis, two other significant correlations not proposed in the model, were found. Table 4.12 indicates a significantly positive correlation between trainee intention to learn and intention to transfer ($r=0,306$, $p<0,05$) indicating that a trainee with high intentions to learn should also have high intentions to transfer.

A significantly positive correlation was also found between trainee motivation to learn and trainee intention to transfer (r=0,302, p<0,05). This indicates that high levels of motivation to learn could be associated with high levels of intention to transfer.

4.6 REGRESSION RESULTS

In the proposed structural model depicted in Figure 2.2 (p.56) four of the endogenous latent variables are hypothesised to be determined by contributions of two antecedent latent variables. The foregoing discussion shed light on the question whether individual variables significantly explained variance in dependent latent variables as proposed by the model. The question in the preceding section thus would for example have been whether ability to learn (ξ_1) significantly explains variance in the intention to learn (η_6) variable. Related to this the additional question, however, arises as to whether each variable linked to a particular endogenous latent variable significantly explains unique variance in the endogenous latent variable not explained by the other variables linked to it.

To examine the unique contribution the variables of interest make to the dependent variable they are linked to in Figure 2.2, several standard multiple regression analyses were performed. These will be discussed in more detail in sections 4.6.1 to 4.6.5.

4.6.1 STANDARD MULTIPLE REGRESSION OF ABILITY TO LEARN AND MOTIVATION TO LEARN ON TRAINEE INTENTION TO LEARN

A summary of the results of the regression analysis is presented in Table 4.15. These will be discussed shortly. The regression model, which includes ability to learn (as measured by the Mental Alertness Scale) and motivation to learn (as measured by the Motivation to Learn Scale), explains 10,6% of the variance in intention to learn. Of these two variables, motivation to learn makes the largest contribution (beta=0,338). As can be seen in Table 4.15, only motivation to learn statistically significantly explains unique variance in the intention to learn scores not explained by ability to learn. H_{010} can therefore be rejected. Ability to learn still did not significantly explain variance in

intention to learn, even when controlling for learning maturation. H_{011} can thus not be rejected.

Table 4.15 Standard Multiple Regression of Ability to Learn and Motivation to Learn on Intention to Learn

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.326[a]	.106	.090	2.8111

a. Predictors: (Constant), Motivation to Learn, Ability to Learn

b. Dependent Variable: Intention to Learn

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.547	2	51.773	6.552	.002[a]
	Residual	869.225	110	7.902		
	Total	972.771	112			

a. Predictors: (Constant), Motivation to Learn, Ability to Learn

b. Dependent Variable: Intention to Learn

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	35.080	1.460		24.034	.000		
	Ability to Learn	-5.484E-02	.053	-.096	-1.029	.306	.933	1.072
	Motivation to Learn	1.365E-03	.000	.338	3.619	.000	.933	1.072

a. Dependent Variable: Intention to Learn

4.6.2 STANDARD MULTIPLE REGRESSION OF ABILITY TO LEARN AND INTENTION TO LEARN ON LEARNING AND RETENTION

Table 4.16 presents the results of the regression analysis. The model, which includes ability to learn and intention to learn, explains a disappointing 2,4% of the variance in the dependant variable, learning and retention. Of these two variables, ability to learn makes the largest unique contribution (beta=0,151), yet the result is not statistically significant. Intention to learn also failed to make a statistically significant contribution, with the beta value being 0,041. Neither H_{014} nor H_{015} can thus be rejected.

Table 4.16 Standard Multiple Regression of Ability to Learn and Intention to Learn on Learning and Retention

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.156[a]	.024	.007	4.4366

a. Predictors: (Constant), Intention to Learn, Ability to Learn

b. Dependent Variable: Learning&Retention

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.758	2	27.879	1.416	.247[a]
	Residual	2224.208	113	19.683		
	Total	2279.966	115			

a. Predictors: (Constant), Intention to Learn, Ability to Learn

b. Dependent Variable: Learning&Retention

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.528	5.684		.269	.789		
	Ability to Learn	.130	.080	.151	1.627	.107	1.000	1.000
	Intention to Learn	6.236E-02	.140	.041	.444	.658	1.000	1.000

a. Dependent Variable: Learning&Retention

4.6.3 STANDARD MULTIPLE REGRESSION OF MOTIVATION TO LEARN AND LEARNING AND RETENTION ON MOTIVATION TO TRANSFER

The results obtained from the regression analysis are presented in Table 4.17 and can be interpreted as follows. The regression model, which includes motivation to learn and learning and retention, explains 2.6% of the variance in motivation to transfer. Of these two variables, motivation to learn makes the largest unique contribution (beta=0,160), yet this result is not statistically significant. Learning and retention made even less of a contribution (beta=0,014), with this result also being statistically insignificant. Thus neither motivation to learn, nor learning and retention made a statistically significant contribution to the prediction of motivation to transfer when controlling for the other effect in the regression model. Although the correlation between motivation to learn and motivation to transfer was significant in the correlational analysis ($r=0.161$, $p<0,05$), motivation to learn did not significantly explain variance in motivation to transfer when learning and retention is controlled in both the predictor and the criterion. Neither H_{016} nor H_{017} can thus be rejected.

4.6.4 STANDARD MULTIPLE REGRESSION OF LEARNING AND RETENTION AND MOTIVATION TO TRANSFER ON INTENTION TO TRANSFER

Table 4.18 presents the results that were obtained from the regression analysis. The regression model, which includes learning and retention and motivation to transfer, explains 16,8% of the variance in intention to transfer. Of these two variables, motivation to transfer makes the largest unique and statistically significant contribution (beta=0,394), even though learning and retention failed to make a statistically significant contribution (beta=0,105). H_{013} is thus rejected whilst H_{012} could not be rejected. Motivation to transfer therefore still significantly explains variance in intention to transfer even when statistically controlling for differences in the amount of learning and retention that took place.

Table 4.17 Standard Multiple Regression of Motivation to Learn and Learning and Retention on Motivation to Transfer

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.161[a]	.026	.008	942.0890

a. Predictors: (Constant), Learning&Retention, Motivation to Learn

b. Dependent Variable: Motivation to Transfer

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2581301	2	1290650.446	1.454	.238[a]
	Residual	96740962	109	887531.761		
	Total	99322263	111			

a. Predictors: (Constant), Learning&Retention, Motivation to Learn

b. Dependent Variable: Motivation to Transfer

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2947.542	490.845		6.005	.000		
	Motivation to Learn	.214	.127	.160	1.689	.094	.997	1.003
	Learning& Retention	2.957	19.982	.014	.148	.883	.997	1.003

a. Dependent Variable: Motivation to Transfer

Table 4.18 Standard Multiple Regression of Learning and Retention and Motivation to Transfer on Intention to Transfer

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.410[a]	.168	.153	2.4751

a. Predictors: (Constant), Motivation to Transfer,Learning&Retention

b. Dependent Variable: Intention to Transfer

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	137.430	2	68.715	11.217	.000[a]
	Residual	679.990	111	6.126		
	Total	817.420	113			

a. Predictors: (Constant), Motivation to Transfer, Learning&Retention

b. Dependent Variable: Intention to Transfer

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27.724	1.001		27.686	.000		
	Learning&Retention	6.367E-02	.052	.105	1.217	.226	.999	1.001
	Motivation to Transfer	1.126E-03	.000	.394	4.546	.000	.999	1.001

a. Dependent Variable: Intention to Transfer

4.6.5 STANDARD MULTIPLE REGRESSION OF MOTIVATION TO LEARN, INTENTION TO LEARN, LEARNING AND RETENTION AND MOTIVATION TO TRANSFER ON INTENTION TO TRANSFER

Due to the fact that the correlation analysis indicated two additional significant correlations, first between motivation to learn and intention to transfer, and secondly,

between intention to learn and intention to transfer, it was considered necessary to perform a standard multiple regression analysis of motivation to learn, intention to learn, learning and retention and motivation to transfer on the dependent variable, intention to transfer. The results obtained from the regression analysis are presented in Table 4.19.

Table 4.19 Standard Multiple Regression of Motivation to Learn, Intention to Learn, Learning and Retention and Motivation to Transfer on Intention to Transfer

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528[a]	.279	.252	2.3258

a. Predictors: (Constant), Motivation to Transfer, Intention to Learn, Learning&Retention, Motivation to Learn

b. Dependent Variable: Intention to Transfer

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	224.152	4	56.038	10.359	.000[a]
	Residual	578.801	107	5.409		
	Total	802.953	111			

a. Predictors: (Constant), Motivation to Transfer, Intention to Learn, Learning&Retention, Motivation to Learn

b. Dependent Variable: Intention to Transfer

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	17.045	3.074		5.546	.000		
	Intention to Learn	.224	.079	.245	2.835	.005	.900	1.111
	Motivation to Learn	6.045E-04	.000	.164	1.870	.064	.878	1.139
	Learning&Retention	5.532E-02	.050	.092	1.115	.268	.998	1.002
	Motivation to Transfer	1.040E-03	.000	.364	4.371	.000	.972	1.028

a. Dependent Variable: Intention to Transfer

The regression model, which includes motivation to learn, intention to learn, learning and retention and motivation to transfer, explains 27,9% of the variance in intention to transfer. Of these four independent variables, motivation to transfer makes the largest unique and statistically significant contribution (beta=0,364), with intention to learn making the second largest statistically significant contribution (beta=0,245). Although the zero-order correlation between motivation to learn and intention to transfer was significant ($r=0,302$, $p<0,05$), the proportion of the unique variance in intention to transfer (not explained by the other predictors in the model) that is explained by motivation to learn, only becomes significant at the 6% (instead of the more conventional 5%) level. Learning and retention continued to make a statistically insignificant ($p>0,05$) contribution to explaining variance in intention to transfer when controlling for the other effects in the model.

4.7 CORRECTIONS FOR ATTENUATION

Nunnally (1978) states that one of the most important uses of the reliability coefficient is in estimating the extent to which obtained correlations between variables are attenuated by measurement error. This can be done by utilising the following formula suggested by Mayer (1983, p. 207):

$$r_{att} = r_{xy}/\sqrt{r_{xx}r_{yy}} \quad \text{---------- 4.2}$$

Where: r_{att} = Correlation corrected for attenuation

r_{xy} = Pearson product-moment correlation coefficient between random variables X and Y

r_{xx} = Reliability of test X

r_{yy} = Reliability of test Y

The most important use of the correction for attenuation is in basic research, where the corrected correlation between two variables is an estimate of how much two traits correlate. In layman's terms, when investigating the correlation between two traits, the real question is how much the two traits 'go together'. If the two measures have only modest reliability, the actual correlation will suggest that the two traits 'go together' *less*

than they really do. Thus, the above formula for the correlation corrected for attenuation (r_{att}) gives an estimate of what the correlation between two random variables, X and Y, would be if the measure of each variable were perfectly reliable. This correction is thus used to assess how high a correlation might increase/rise if the reliability of the measures used is increased (Nunnally, 1978). Correcting the correlation for the attenuating effect of predictor and criterion unreliability, however, also affects the standard error of the correlation. Theron (1999) states that "the effect of the corrections could thus be that of either increasing, decreasing or leaving unaltered the posteriori probability of rejecting H_0."

Due to the fact that not all the proposed correlations between the variables of interest in this study were found to be significant, it was decided to calculate the extent to which the correlations obtained were attenuated (i.e. weakened) by measurement error. This was done by performing a series of calculations, the results of which are presented in Table 4.18.

The process started with calculating Equation 4.2, providing an indication of the correlations fully corrected for attenuation. This was followed by calculating the sampling variance of the corrected correlation with the aid of the following formula as proposed by Mayer (1983, p. 209):

$$V_{att} = [r_{att}^2/N\text{-}2]\,[r_{att}^2 + (1/r_{xy}^2) + (1/r_{xx}^2) + (1/r_{yy}^2) - (3/r_{xx}) - (3/r_{yy}) + 2] \text{ ---------- } 4.3$$

Where:
- V_{att} = Variance Estimate
- r_{att} = Correlation corrected for attenuation
- N = Sample size
- r_{xy} = Pearson product-moment correlation coefficient between the random variables X and Y
- r_{xx} = Reliability of test X
- r_{yy} = Reliability of test Y

Having calculated the correlation corrected for attenuation (r_{att}), as well as the corresponding variance estimate (V_{att}) for each proposed correlation, the standard error (SE) was calculated using the formula suggested by Forsyth and Feldt (1969):

$$SE = \sqrt{V_{att}}.\sqrt{N/N-2} \quad \text{---------- 4.4}$$

Where: SE = Standard error

V_{att}= Variance estimate

N = Sample size

Since the sampling distribution of corrected correlations is approximately normal when the sample size is sufficiently large (Forsyth & Feldt, 1969) it was considered appropriate to convert the SE scores to *z*-scores so as to enable one to test the null hypotheses. This was done by utilising the following equation:

$$z = r_{att} - \rho_{att}/SE \quad \text{----------4.5}$$

where: z = z-score

r_{att} = Correlation corrected for attenuation

ρ_{att} = rho corrected

SE = Standard error

Consequently, the critical *z*-score (z^*) was obtained by setting α=0,05 and then obtaining the critical *z*-score value from the statistical table z. The absolute value of the calculated *z*-score was then compared to the critical *z*-score value obtained from the statistical table z. This was done to determine whether the calculated *z*-score value fell into the region of rejection of the normal distribution, so as to enable one to reject the null hypothesis and to conclude that a significantly positive relationship exists between the true scores of the respective variables studied.

Table 4.20 Results of correlations corrected for attenuation

	Calcula-tions	Ability to Learn	Motivation to Learn	Intention to Learn	Learning & Retention	Motivation to Transfer	Intention to Transfer
Ability to Learn	r_{att}	.	0.3022	-0.0093	0.2859	-0.0083	-0.0589
	Vatt	.	0.0104	0.0119	0.0311	0.0126	0.0121
	SE	.	0.1028	0.1103	0.1779	0.1133	0.1111
	z-score	.	2.9391**	0.0847	1.6069	-0.0734	-0.5308
	z*	.	1.6449	1.6449	1.6449	1.6449	1.6449
Motivation to Learn	r_{att}	0.3022	.	0.3404	0.0512	0.1783	0.3318
	Vatt	0.0104	.	0.0085	0.0280	0.0105	0.0088
	SE	0.1028	.	0.0939	0.1689	0.1035	0.0948
	z-score	2.9391**	.	3.6222**	0.3029**	1.7223*	3.5008**
	z*	1.6449	.	1.6449	1.6449	1.6449	1.6449
Intention to Learn	r_{att}	-0.0093	0.3404	.	0.0709	0.0178	0.3376
	Vatt	0.0119	0.0085	.	0.0275	0.0110	0.0086
	SE	0.1103	0.0939	.	0.1673	0.1059	0.0936
	z-score	0.0847	3.6222**	.	0.4235	0.1679	3.6076**
	z*	1.6449	1.6449	.	1.6449	1.6449	1.6449
Learning & Retention	r_{att}	0.2859	0.0512	0.0709	.	0.0433	0.2058
	Vatt	0.0311	0.0280	0.0275	.	0.0290	0.0279
	SE	0.1779	0.1689	0.1673	.	0.1719	0.1701
	z-score	1.6069	0.3029**	0.4235	.	0.2518	1.2101
	z*	1.6449	1.6449	1.6449	.	1.6449	1.6449
Motivation to Transfer	r_{att}	-0.0083	0.1783	0.0178	0.0433	.	0.4449
	Vatt	0.0126	0.0105	0.0110	0.0290	.	0.0077
	SE	0.1133	0.1035	0.1059	0.1719	.	0.0886
	z-score	-0.0734	1.7223*	0.1679	0.2518	.	5.0247**
	z*	1.6449	1.6449	1.6449	1.6449	.	1.6449

Table 4.20 Results of correlation corrected for attenuation (continued)

Intention To Transfer	**r_{att}**	-0.0589	0.3318	0.3376	0.2058	0.4449	.
	Vatt	0.0121	0.0088	0.0086	0.0279	0.0077	.
	SE	0.1111	0.0948	0.0936	0.1701	0.0886	.
	z-score	-0.5308	3.5008**	3.6076**	1.2101	5.0247**	.
	z*	1.6449	1.6449	1.6449	1.6449	1.6449	.

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

The results of the calculations for attenuation for each hypothesised correlation as presented in Table 4.20 will now be discussed.

Ability to learn and intention to learn: Taking a look at the relationship between ability to learn (as measured by the Mental Alertness Scale) and intention to learn (as measured by the Intention to Learn sub-scale), it can be seen that the correlation corrected for attenuation is -0,0093. Since the results are that of a one-tailed test (i.e. indicating that the results are in a specific direction), it is important to first check whether the correlation obtained is in the direction expected with H_a, given that the statistical hypotheses are as follows: H_0: $\rho_{att}[X,Y] = 0$

H_a: $\rho_{att}[X,Y] > 0$

Since r_{att} = -0,0093 is not in the direction specified in H_a, the hypothesis testing procedure is terminated and H_0 is retained.

Ability to learn and motivation to learn: When investigating the relationship between ability to learn and motivation to learn (as measured by the Motivation to Learn Scale), it is noted that the correlation corrected for attenuation is 0,3022. This is slightly more than the uncorrected correlation of 0,260, indicating that the results were weakened by measurement error. To test whether these results were significant, a *z* test was used, yielding the result of $z=2,9391$, $p<0,05$. The correlation between ability to learn and motivation to learn, corrected for the attenuating effect of measurement error (0,3022), is therefore significant and the null hypothesis can be rejected. It can therefore be claimed that a significantly positive relationship exists between the systematic/true scores of ability to learn and motivation to learn.

Ability to learn and learning and retention: When looking at the correlation corrected for attenuation (r_{att}) between ability to learn and learning and retention, it is seen that r_{att}=0,2859. This correlation is slightly stronger than the uncorrected correlation of 0,151, indicating that the results were definitely weakened by measurement error. The variance estimate (V_{att}) amounted to 0,0311 and the standard error (SE) to 0,1779. To test whether these results were significant, a *z* test was used, yielding the result of z=1,6069, p>0,05. The attenuated correlation between ability to learn and learning and retention is therefore insignificant, leading to the inability to reject the null hypothesis.

Motivation to learn and intention to learn: Table 4.20 indicates that the correlation corrected for attenuation (r_{att}) between motivation to learn and intention to learn was calculated to be 0,3404, with the variance estimate (V_{att}) being 0,0085 and the standard error (SE) being 0,0939. The results of the *z* test (z=3,6222, p<0,05) indicate that the correlation between motivation to learn and intention to learn, corrected for the attenuating effect of measurement error (0,3404), is therefore significant. It can therefore be claimed that a significantly positive relationship exists between the systematic/true scores of motivation to learn and intention to learn.

Motivation to learn and motivation to transfer: The correlation between motivation to learn and motivation to transfer (as measured by the Motivation to Transfer Scale), which was corrected for the attenuating effect of measurement error, was estimated to be 0,1783. The subsequent calculations of the sampling variance of the correlation (V_{att}) and the standard error (SE) proved to be 0,0105 and 0,1035 respectively. The *z* score obtained from the *z* test yielded the result of z=1,7223, p<0,05, indicating that the correlation between motivation to learn and motivation to transfer, which was corrected for attenuation (0,1783), is therefore significant and consequently, H_0 can be rejected. For this reason, it can be claimed that a significantly positive relationship exists between the systematic/true scores of motivation to learn and motivation to transfer.

Intention to learn and learning and retention: Looking at the correlation corrected for attenuation (r_{att}) between intention to learn and learning and retention (measured as the difference between the total scores of the pre- and post-knowledge scale), it can be seen

that it amounts to 0,0709, with the variance estimate (V_{att}) and the standard error (SE) being 0,0275 and 0,1673 respectively and the results of the *z* test being z=0,4235, p>0,05. The correlation between intention to learn and learning and retention, corrected for the attenuating effect of measurement error (0,0709), is therefore insignificant. Consequently, it can be claimed that an insignificant relationship exists between the systematic/true scores of intention to learn and learning and retention.

Learning and retention and intention to transfer: The correlation corrected for attenuation (r_{att}) between learning and retention and intention to transfer was calculated to be 0.2058. The subsequent calculations of the sampling variance of the correlation (V_{att}), as well as the standard error (SE) amounted to 0,0279 and 0,1701 respectively. Consequently, the results of the *z* test (z=1,2101, p>0,05) indicate that the correlation between learning and retention and intention to transfer, corrected for the attenuating effect of measurement error (0,2058), is insignificant. It can therefore be claimed that an insignificant relationship exists between the systematic/true scores of learning and retention and intention to transfer.

Learning and retention and motivation to transfer: Table 4.20 indicates that the correlation corrected for attenuation (r_{att}) between learning and retention and motivation to transfer was calculated to be 0,0433, with the variance estimate (V_{att}) being 0,029 and the standard error (SE) being 0,1719. The *z* score obtained from the subsequent *z* test yielded the result of z=0,2518, p>0,05, indicating that the correlation between learning and retention and motivation to transfer, which was corrected for attenuation (0,0433), is insignificant. H_0 must thus be retained and one can thus deduce that an insignificant relationship exists between the systematic/true scores of learning and retention and motivation to transfer.

Motivation to transfer and intention to transfer: The calculated correlation corrected for attenuation (r_{att}) between motivation to transfer and intention to transfer amounted to 0,4449, with the variance estimate (V_{att}) and standard error (SE) amounting to 0,0077 and 0,0886 respectively. The subsequent results of the *z* test amounted to z=5,0247, p<0,05. The correlation between motivation to transfer and intention to transfer, corrected for the attenuating effect of measurement error (0,4449), is therefore significant. It can therefore

be claimed that a significantly positive relationship exists between the systematic/true scores of motivation to transfer and intention to transfer.

The above results of the calculated correlation corrections for the attenuating effects of measurement error do not yield dramatic changes to the correlations between the variables of interest (i.e. the corrections do not result in any insignificant relationships among variables becoming significant). This observation is consistent with the following statement by Nunnally (1978, p. 239): "What should be evident from inspecting the formulas concerning corrections for attenuation is that such corrected correlations seldom are dramatically different from the actual correlations".

4.8 CONCLUSION: CHAPTER FOUR

The purpose of this chapter was to report the results obtained in this study. Even though all hypotheses were not confirmed by the results, the objectives of the study have been met to a satisfactory extent.

The next chapter will discuss the general conclusions drawn from the research, and will offer recommendations for future research on this topic.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 focused on presenting and discussing the research results that were obtained in the study. This final chapter will first discuss general conclusions derived from the results obtained, after which the shortcomings of the study will be highlighted. Finally, the practical implications of the study will be presented and recommendations for future research provided.

5.2 GENERAL CONCLUSIONS

The main purpose of the study was to increase understanding of the transfer process by investigating the effects of trainee cognitive ability and motivation on intentions to learn and transfer learning into on-the-job performance. Given the results of the study as presented in the preceding chapter, the following conclusions are made with respect to the reliability analysis and the hypothesised relationships.

5.2.1 RELIABILITY ANALYSIS

Nunnally (1978) states that when deciding on whether an instrument reaches a satisfactory level of reliability, one must consider how the measure is being used. He argues that during the early stages of research on predictor tests or hypothesized measures of a construct, it is sufficient to work with instruments having a modest reliability, for which purposes reliability coefficients of 0,70 or higher will suffice.

Using this as a guideline, the item analysis produced satisfactory results since most scales and sub-scales exceed the recommended reliability of 0,70. The only measure having a reliability coefficient of below 0,70 was the knowledge scale (with the joint reliability

coefficient for the Pre- and Post Knowledge scale being 0,348). A possible explanation for this low reliability could be that the construct learning and retention (knowledge) was not defined narrowly enough. Knowledge can encompass a broad array of meanings outside the Assessor training spectrum. In order to obtain the reliability of the knowledge questionnaire for the Assessor Training Program specifically, it is necessary to identify the various knowledge dimensions within the assessor training course and in doing so, obtain a better indication of the reliability of the knowledge scale used within this spectrum. The preferred approach therefore would have been to explicate the connotative meaning of the specific knowledge construct, to design and construct a dedicated instrument with sub-scales for all the knowledge dimensions included in the knowledge domain and to confront the implied measurement model with empirical data.

5.2.2 HYPOTHESISED RELATIONSHIPS

Unfortunately, not all hypotheses could be corroborated in the study. In an attempt to estimate the degree to which the correlations between the variables of interest might improve if the reliability of the measures used were to be increased, it was decided to calculate/determine the correlations corrected for the attenuating effect of measurement error. Despite these calculations, no significant changes resulted in the correlations between the variables of interest. A summarised model of significant and insignificant relationships between the variables of interest is presented in Figure 5.1 and the conclusions regarding the various hypothesised relationships will be discussed in sections 5.2.2.1 to 5.2.2.7.

5.2.2.1 Ability to Learn

For transfer to eventually occur, it is imperative that trainees learn the content of the training program. Learning can thus be considered an important prerequisite for transfer (May, Moore & Zammit, 1987; Smith-Jentsch et al., 2001). For this reason, it was necessary to consider trainee ability to learn (i.e. general cognitive ability). Consequently, it was hypothesised that a significantly positive relationship exists

between a trainee's ability to learn and the actual amount of learning and retention that occurs during training. Unfortunately, this hypothesis first did not find support in this study. This finding is incongruent to the literature study that suggests that the acquisition of knowledge and skill depends on learning, and because learning depends on individual differences in *g*, *g* should predict success in training (Baldwin & Magjuka, 1991; Colquitt, et al., 2000; Fleishman & Mumford, 1989; Ree & Earles, 1991). The insignificant correlation found between ability to learn and learning and retention could be due to three factors: First, the Mental Alertness Scale which was used to measure ability to learn (i.e. general cognitive ability) is usually used for vocational guidance and for selection of staff with no more than twelve years of education (Wilcocks, 1973). Since the sample consisted of individuals with quite a bit of work experience and a few (39 trainees) with more than twelve years of education, the Mental Alertness Scale may have been too simple, resulting in higher scores than would have been obtained should a different test have been used. In addition, as indicated earlier, the Mental Alertness Scale cannot be considered a measure of fluid intelligence, but rather reflects crystalized ability. Secondly, the Pre- and Post Knowledge measures consisted only of true/false and multiple choice items. This method of questioning may have influenced the accuracy of the scores obtained from these measures, due to the fact that much guessing may have occurred while answering the questions. The scores obtained may thus be much higher or lower than scores than would otherwise have been obtained if the knowledge measures consisted of open-ended questions only. Thirdly, the insignificant correlation found between trainee ability to learn and the amount of learning and retention could in part also be explained by the low reliability of the gain scores used to reflect learning and retention.

For these reasons, it was decided to perform hierarchical multiple regression analysis with pre-training knowledge as a co-variate so as to test whether trainee ability to learn significantly explains variance in post-training knowledge scores when controlling for differences in initial knowledge levels. Subsequently, a more positive picture emerged, indicating that trainee ability to learn significantly explains variance in post-knowledge scores when included in a model already containing the pre-knowledge effect. Ability

was therefore found to be significantly related to post-knowledge differences when controlling for pre-training knowledge differences. This finding was more consistent with the training literature that suggests that trainee ability to learn predicts success in training (Baldwin & Magjuka, 1991; Colquitt et al., 2000; Fleishman & Mumford, 1989; May et al., 1987; Ree & Earles, 1991).

Since individuals are continuously aware of their level of cognitive ability (Warr & Bruce, 1995), it was hypothesised that a significantly positive relationship exists between a trainee's ability to learn and his/her motivation to learn. This hypothesis was confirmed, suggesting that a trainee who believes that he/she has sufficient ability to learn the material presented in the training course, should also have greater learning confidence, which in turn should increase his/her motivation to learn the training material (all other things being equal).

Ability to learn was hypothesised to have a direct effect on intention to learn. Unfortunately, this hypothesis was not corroborated in this research. Yet, this result by no means suggests that a trainee's ability to learn has no effect on his/her intention to learn the training material. Since motivation to learn was proven to have a direct effect on intention to learn, and due to the fact that ability to learn is directly related to motivation to learn, one can conclude that ability to learn has an indirect or mediated effect on a trainee's intention to learn, through its direct effect on motivation to learn.

5.2.2.2 Motivation to Learn

In chapter 2 it was suggested that a significantly positive relationship exists between a trainee's motivation to learn and his/her intention to learn. This notion was supported in this study and implies that motivation can indeed be seen as the force behind a person's decision (i.e. intention) to act. Motivation to learn thus serves as the force that brings a trainee's intention to learn to action.

Motivation to learn was also found to have a direct effect on a trainee's intention to transfer the training material to the work environment. This result will be discussed in detail in section 5.2.2.6.

Finally, motivation to learn was hypothesised to have a significantly positive correlation with motivation to transfer. This hypothesis was corroborated in the study.

5.2.2.3 Intention to Learn

Intention to learn was defined as the decision made by the trainee to learn the training material. According to Fishbein's theory of reasoned action, 'intention' is the immediate determinant of behaviour (Ajzen & Fishbein, 1975). Consequently, intention to learn was hypothesised to have a direct effect on learning and retention. Contrary to expectation, this hypothesis could not be supported in this study.

Additional to the proposed relationships, it was also found that a significantly positive relationship exists between intention to learn and intention to transfer. This implies that a trainee's decision to learn the training material also influences his/her decision to transfer the learned material to the work environment. This seems intuitively obvious, since a trainee who decides not to learn the training material, will consequently not be able to transfer the material to the work environment. Once again, self-efficacy comes into play, since a trainee will realise that he/she cannot transfer that which has not been learned and consequently, will thus decide not to transfer.

5.2.2.4 Learning and Retention

Contrary to expectations, the construct learning and retention was not found to be significantly related to trainee intention to learn. This result is in contrast with the training literature that suggests that learning is a prerequisite for transfer to occur (Baldwin & Ford, 1988; Baldwin & Magjuka, 1991; Kirkpatrick, 1967). As mentioned previously, a possible explanation for the poor correlations between learning and retention and the other variables proposed, is that the measurement scale that was used to

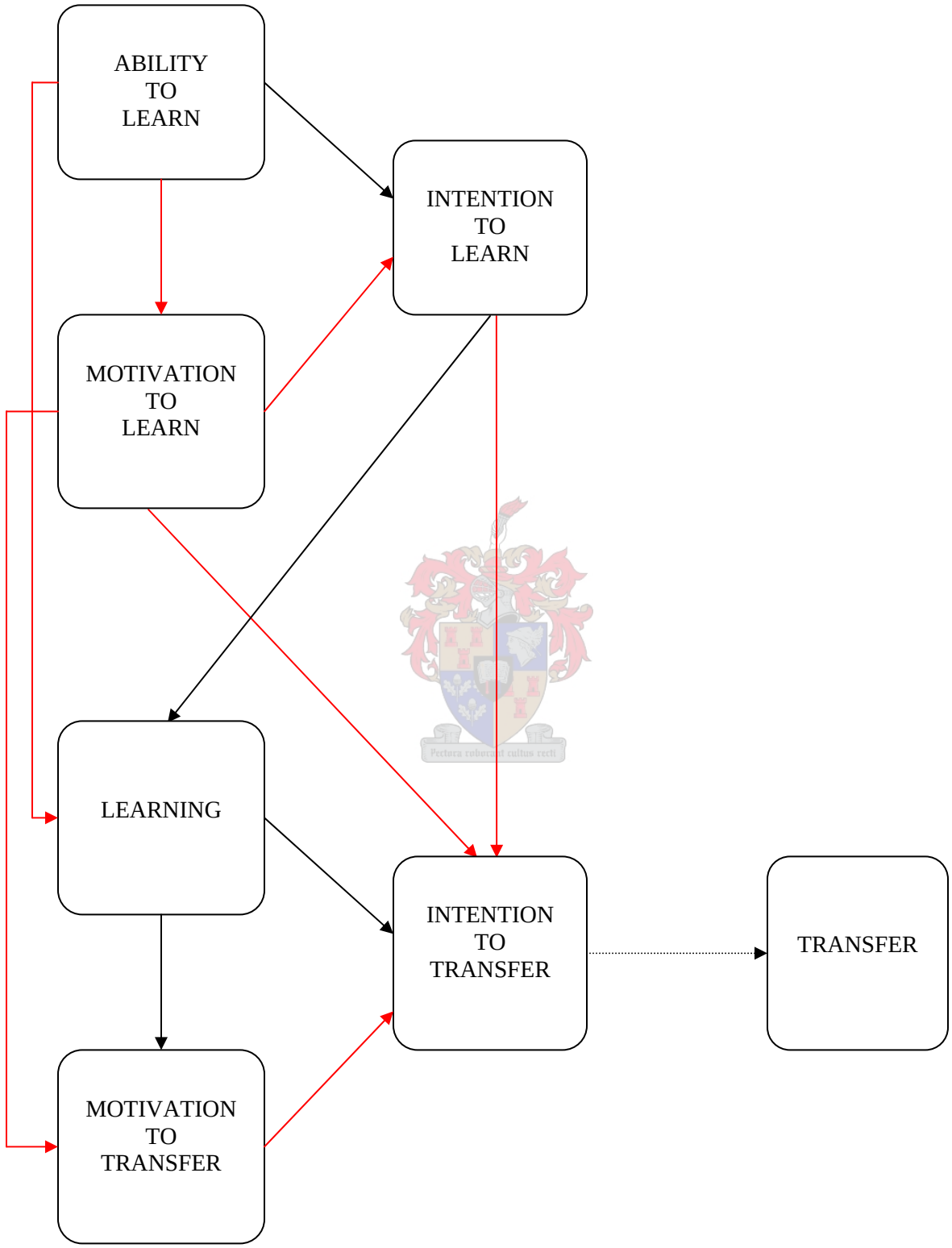
provide an indication of the degree of learning and retention that occurred during training (i.e. Pre-and Post-Knowledge Scales) did not provide an accurate indication of the construct due to the fact that trainees could have guessed the answers. Thus, the results did not portray a true indication of what trainees really knew. The results could, however, also be explained in terms of the failure of the gain score to provide an uncontaminated measure of the learning and retention latent variable.

5.2.2.5 Motivation to Transfer

As predicted, motivation to learn was found to be positively related to motivation to transfer. This implies that a trainee who is sufficiently motivated to learn the training material, will also be motivated to transfer the learned material to the job situation (all other things being equal). The converse is also true - should a trainee have low motivation to learn during the training course, his/her motivation to transfer will also be low.

Unfortunately, contrary to expectations, the notion that the amount of learning and retention that occurs during training directly affects a trainee's motivation to transfer the learning to the job situation, could not be supported in this study.

Finally, it was suggested that motivation to transfer should have a direct effect on trainees' intentions to transfer learned knowledge and skills to the work environment. This notion was supported in the study and implies that motivation is indeed the force behind the decision (i.e. intention) to act. Thus, motivation to transfer can be seen as the force behind the decision (i.e. intention) to transfer learned knowledge, skills and attitudes to the work environment.



- **Significant Relationships**
- **Insignificant Relationships**

Figure 5.1 A Summarised Model of Significant and Insignificant Relationships

5.2.2.6 Intention to Transfer

Intention to transfer was defined in Chapter 2 as the inclination to apply what was learned in the training environment to the work environment. In layman's terms, it is the decision to apply the learned knowledge, skills and attitudes to the job situation.

It was thus hypothesised that the amount of learning and retention that occurs during training should have a direct effect on a trainee's intention to transfer the acquired knowledge, skills and attitudes to the work environment. Unfortunately, this hypothesis could not be corroborated in this study.

Since motivation has been claimed to be the force behind the decision (i.e. intention) to act, it was suggested that motivation to transfer should affect trainees' intentions to transfer directly. This notion was supported in the study.

The results indicated two additional variables affecting trainees' intentions to transfer, namely ability to learn and intention to learn. In this regard, the following may be suggested: Greenberg and Baron (1995) state that a decision maximises the attainment of goals and that decisions differ with respect to their degree of risk, based on how certain or uncertain various outcomes may be. This leads one to believe that individuals (such as trainees) base their decisions on various outcomes/goals that they wish to attain. Based on Vroom's (1964) expectancy theory, the valence of these goals/outcomes affects individuals' motivation, and consistent to what was discussed previously in this study, motivation is the force behind the decision to act. Thus, when individuals enter into training, their intention (i.e. decision) to learn will be based on various outcomes that they wish to attain. These outcomes will not only consist of immediate goals (first-level outcomes) to be obtained from learning (eg. knowledge and skill acquisition), but also of other subsequent goals (second-level outcomes) that result from acquiring the skills and actually applying these to the job situation (eg. improved performance, rewards). The valence of obtaining these goals/outcomes affects their motivation (motivation to learn and motivation to transfer), which in turn, leads trainees to decide on a specific course of

action (i.e. either to learn and transfer the learned skills, or not to learn and not to transfer the skills).

5.2.2.7 Transfer

Actual transfer was not assessed in this study. However, it has been suggested by Fishbein that a person's intention to perform (or not to perform) a behaviour is the immediate determinant of the action (Ajzen & Fishbein, 1975, 1980). Thus, barring unforeseen events, a person will usually act in accordance with his/her intention. Fishbein also states that when an appropriate measure of intention is obtained, it will provide the most accurate prediction of behaviour (Ajzen & Fishbein, 1975). When applying this methodology to the training setting, one is led to believe that a trainee who has the intention to transfer learned knowledge, skills and attitudes to the work environment, will consequently do so (all other things being equal).

5.3 SHORTCOMINGS OF THIS STUDY

No study is without certain flaws or limitations. For this reason, a few limitations of the present study require comment.

Perhaps most important, is the use of a non-probability sampling procedure, as well as an *ex post facto* research design, that reduces the ability to generalise the results of this study. For this reason, it should be noted that the results should be interpreted using extreme circumspection and caution.

Another limitation to this study is the reasonably small sample size, thus reducing the extent to which significant relationships could be obtained. In addition, the lack of significant relationships between the variables of interest and learning and retention was surprising. This is incongruent with the relevant training literature (Baldwin & Ford, 1988; Kirkpatrick, 1967) and warrants further investigation. As explained previously, a possible explanation for this could be the fact that the Pre- and Post-Knowledge measure

only consisted out of true/false and multiple choice items, resulting in the possibility of respondents guessing the answers and obtaining higher scores than would otherwise have been obtained. The reliability of the gain scores used to reflect learning and retention was also extremely low. Thus, another limitation to the present study is the possibility that the knowledge scale did not provide an accurate indication of the actual amount of learning and retention that occurred during training, thus leading to insignificant correlations.

Finally, the study contained no measures of actual transfer of training. It would have been interesting to track trainees into their post-training environments so as to determine whether the Fishbein theory of reasoned action does indeed hold true in this situation. This may be a valuable direction for future research.

5.4 PRACTICAL IMPLICATIONS

The present study indicates that cognitive ability, motivation to learn, intention to learn and motivation to transfer do in fact, be it directly or indirectly, affect a trainee's intention to transfer the training into on-the-job performance. Consequently, these findings have certain important implications which need to be discussed.

With regard to ability to learn, it can be concluded that trainees with different levels of general cognitive ability will differ in their acquisition of skill to the extent that either the training method or the task requires those abilities. The implications of this for training practitioners thus relates to the design of training and also the selection of individuals for training in a manner consistent with the ability levels of individuals.

What especially needs to be considered, is an individual's own perceptions of his/her level of cognitive ability. Individuals rely on their level of ability when forming self-efficacy perceptions (i.e. expectations regarding their future level of performance on a task) (Quinones & Ehrenstein, 1997). Thus, trainees' rely on their level of cognitive ability when trying to decide whether or not to learn the content of the training program.

Similarly, trainees may also rely on their perceptions regarding the degree to which they have mastered the content of a training program when deciding whether or not to transfer the learned knowledge, skills and attitudes to the work environment.

Organisational contextual factors serve as a source of information on which individual's (such as trainees) base their level of self-efficacy. For this reason, trainees can directly acquire or infer information from the environment regarding their level of performance, difficulty of training materials, appropriate attributional inferences, and even the organisation's expectations of the trainee's likelihood of success in training.

For this reason, trainers would benefit from using techniques that leverage trainees' self-efficacy levels at the beginning of training by for example, persuading trainees that they are capable of succeeding in mastering the training content. Training practitioners should also leverage trainees' levels of self-efficacy at the end of training so that trainees have more confidence in their ability to transfer the learning into on-the-job performance. Gist and Mitchell (1992) state that vicarious experiences and verbal persuasion are both means of promoting self-efficacy levels.

The findings regarding motivation to learn and transfer have some important implications for trainers and managers. If research continues to indicate that motivation to learn primes trainees and prepares them to get the most out of training, interventions should be targeted to heighten trainees' motivation to learn, and consequently also trainees' motivation to transfer learning into on-the-job performance.

When applying Vroom's (1964) expectancy theory to the training environment, it is suggested that trainees have preferences among the different outcomes that can result from participation in training (i.e. valence). They also have expectations about the likelihood that effort invested in training will result in mastery of the training content (i.e. expectancy). Thus, when trying to influence trainees' motivation to learn and motivation to transfer, it is necessary to focus on positively influencing trainees' expectancies and valences regarding the training program and the possible outcomes of participating in the

training program. Managers thus need to take steps to ensure that trainees understand both the purpose of training and the potential outcomes (promotion, raises, recognition, etc.) they may obtain by participating in, completing and applying what was learned in the program to the job situation. For this reason, greater emphasis should be placed on communication pertaining to the training program, especially information regarding the importance of the program and possible intrinsic and extrinsic rewards that may result from it.

Trainees' expectations can thus be changed by means of realistic communications about training (Hicks & Klimoski, 1987). Providing information regarding the content of the training program, as well as its relevance to the job at hand, can also influence trainees' expectations of success in completing training. Having relevant information about the training program will reduce the risk of trainees arriving at the training program, realising that it is not consistent with their preconceived expectations and in turn, decreasing their motivation to learn and subsequently their motivation to transfer the learning into on-the-job performance.

Training can be also be seen as a change intervention designed to influence learning and behaviour change (Huse, 1975). If employees do not understand why and how their strengths and weaknesses were diagnosed during the needs assessment phase, or if they doubt the accuracy of the information, they will likely be resistant to change. As a result, motivation to learn in the training program will be low, less learning will occur, and evaluation of the training will find fewer effects than expected. Thus, from a developmental perspective, providing employees with information concerning the needs assessment technique may also reduce suspicion, fear, and animosity toward the training program and, in turn, have a positive effect on motivation to learn and consequently motivation to transfer learning to the work environment.

Trainees' perceptions can also be influenced by the design and nature of the training itself. The use of thorough training needs analyses should lead to the design of training that is more consistent with trainee expectations. Trainers should also attempt to identify

trainees' expectations and should try to be as flexible as possible in meeting those needs. This can be done at the beginning of training by simply inviting trainees to utter their expectations regarding the training program.

Targeted interventions could also be designed to remove obstacles in the work environment and to encourage transfer. Trainers should thus ensure that materials, tools, job-related information, and budgetary support which are necessary for task completion are provided in the work setting *prior* to employees' participation in the training program. Employees' perceptions of the availability of situational resources prior to program participation influences motivation to learn during the training program and should thus be leveraged before the commencement of the training program.

Trainers would also benefit from emphasising job and career benefits of training to promote valence levels of trainees, from increased work performance to better career mobility to potential increases in salary or promotions. This will positively impact trainees' motivation to learn, as well as their motivation to transfer learning to the work environment.

Formal organisational systems, such as appraisal and reward systems, should be in place so as to reward trainees for their efforts in applying what they have learned in training. Compensation and benefits systems must provide valued incentives to those who demonstrate what they have acquired through training. This will show trainees that the organisation is committed to training and that it does indeed value training.

In summary, behaviours that send a message that learning is important and valued and cues that suggest that the organisation is innovative and competitive should encourage motivation to learn and motivation to transfer the newly acquired behaviours into on-the-job performance. Interventions that target supervisors, co-workers and other people who interact with trainees, as well as those targeting the trainees themselves, may yield the greatest dividends toward establishing and creating a supportive training and learning environment. This will in turn positively impact trainees' perceptions regarding their

level of ability, as well as their motivation and intention to learn and consequently their motivation and intention to transfer learning to their jobs.

5.5 RECOMMENDATIONS FOR FUTURE RESEARCH

This study examined the effects of trainee ability and motivation on the transfer process and has provided some useful insights in this regard. Given these insights, the following suggestions can be made for future research.

First and foremost, it is recommended that the structural model be tested beyond the intention to transfer variable, so as to determine actual transfer of training to the work environment. Future research thus needs to examine actual behaviour change on the job, instead of only intentions to transfer, and should complement self-report data with objective measures of actual skill application from multiple sources. This will provide more confidence in the conceptual frameworks and findings that are generated.

It is further recommended that the empirical model be tested using a knowledge assessment instrument containing open-ended questions, so as to eliminate the impact of guessing and to obtain a more accurate measure of learning and retention. It is also suggested that a different measure of general cognitive ability be used. With these recommended changes, the results of the subsequent study may turn out to be more promising.

Finally, another thrust for future research is to incorporate the subjective norm factor of the Fishbein theory of reasoned action into the structural model investigated in this present study. Subjective norm refers to an individual's perception of the social pressures put on him/her to perform or not to perform the behaviour in question (Ajzen & Fishbein, 1980). Thus, in the training context, subjective norm can be referred to as a trainee's perception of the social pressures put on him/her to learn and to transfer, or not to learn and not to transfer the skills to the work situation. It would be interesting to see how trainees deal with their perceptions that others think they should or should not

perform/apply the training behaviours after returning to the work environment. Also, it would be interesting to note how these may influence trainees' motivation and intention to learn during training. It is speculated that trainees who perceive others to be in favour of learning new skills, will be more motivated to learn the content of the training program. This should also have a positive effect on trainees' intentions to learn during training. It is also speculated that trainees' perceptions of others being in favour of practising newly learned skills on the job, will also be more motivated to transfer. These perceptions should also have a positive effect on trainees' intentions to transfer the newly acquired skills to the work environment.

5.6 CONCLUSION

This present study focused on increasing understanding of the transfer of training process by examining the impact of trainee cognitive ability and motivation on intention to learn and transfer the learning into on-the-job performance. The objective of the study was to investigate the different implied theoretical relationships between the constructs contained in the proposed empirical model.

Although the study did not confirm all the hypothesised relationships, it nevertheless makes a valuable contribution to the field of human resource development by stressing the importance of constantly taking trainee ability and motivational levels into account throughout the entire training process so as to ensure learning and consequent transfer of learned knowledge, skills, attitudes and behaviours to the work environment.

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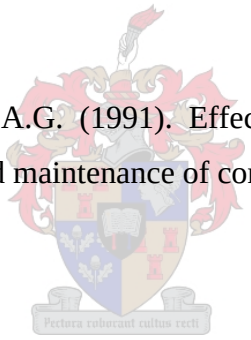

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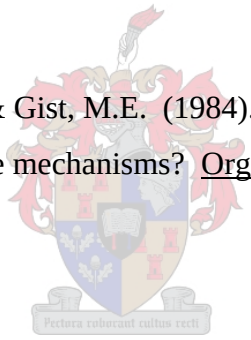

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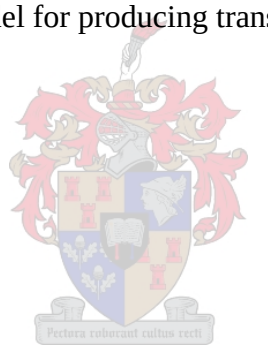


APPENDIX A: COVER LETTER AND MOTIVATION TO LEARN QUESTIONNAIRE

INSTRUCTIONS

This questionnaire forms part of a Master's study conducted by Charné Nunes at the University of Stellenbosch. The aim of the study is to determine the factors that facilitate and/or inhibit transfer of training. The management of this company has kindly agreed that all employees may partake in this research. Participation, however, remains voluntary.

The information will be kept **confidential** since the questionnaires will be handled by the researcher only.

For the research to yield valid results, it is important that you answer **all** the questions as **honestly** and **truthfully** as possible. The answers must reflect your own opinion and perception. **Confidentiality is assured**. This questionnaire consists of 3 sections (Sections A – Section C) and should take about 30 minutes to complete. Please **respond to all the questions and statements**.

Thank you for your participation and contribution to this study. It is greatly appreciated.

SECTION A: DEMOGRAPHIC INFORMATION

NO. | | | | | **(For office use only)**

Please answer the following general questions

Where appropriate, mark answers with a cross.

GENDER:

Male	
Female	

AGE (YEARS): _____

ETHNIC GROUP:

Black:	**1**	**Coloured:**	**3**
Indian:	**2**	**White:**	**4**

Please mark the following questions with a cross:

Highest level of education:

Less than Matric	**1**	**Diploma/Degree**	**3**
Matric	**2**	**Post-graduate Degree**	**4**

Job Level:	**Non-managerial**	**1**
	Lower-level management	**2**
	Middle-level management	**3**
	Upper-level management	**4**

---------- **End of section A** ----------

Please turn to Section B

SECTION B: MOTIVATION TO LEARN

This is a questionnaire to provide an assessment of learning motivation (i.e. the specific desire to learn the content of the training program). Please respond to **all** the statements.

Directions: Listed below are a set of statements about your expectations concerning the training program (Assessor Training Program) that you will participate in. **Please react to each statement as honestly and truthfully as possible.**

Use the following responses:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree

For example: If you strongly disagree with a statement, cross the box with the number 1.

1	2	3	4	5	6	7

Read each statement carefully and choose only ONE answer!

Statement	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
1. I want to improve my skills during this training program	1	2	3	4	5	6	7
2. If I can't understand some part of this training, I will try harder by for example, asking questions	1	2	3	4	5	6	7
3. I am willing to exert considerable effort in this training program in order to improve my skills	1	2	3	4	5	6	7
4. I will try to learn as much as I can from this training program	1	2	3	4	5	6	7

5. I am willing to exert considerable effort in this training program in order to improve my knowledge and abilities	1	2	3	4	5	6	7
6. I want to know how to apply fair, valid and consistent assessment practices in the workplace	1	2	3	4	5	6	7
7. I am motivated to learn the skills emphasized in this training program	1	2	3	4	5	6	7
8. I believe that I can improve my skills by participating in this training program	1	2	3	4	5	6	7
9. I am able to see the usefulness of this training for my developmental needs	1	2	3	4	5	6	7
10. This training program is NOT a waste of time	1	2	3	4	5	6	7
11. This training program is a good investment in my development	1	2	3	4	5	6	7
12. This training program is worthwhile attending	1	2	3	4	5	6	7
13. I have heard positive reports about this training program	1	2	3	4	5	6	7
14. I am looking forward to this training program	1	2	3	4	5	6	7
15. I will do my best in this training program	1	2	3	4	5	6	7
16. I anticipate that I will learn a lot from this training program	1	2	3	4	5	6	7
17. I will develop new insights by attending this training program	1	2	3	4	5	6	7
18. I will develop useful skills during this training program	1	2	3	4	5	6	7
19. I will cope quite well with the contents of this course	1	2	3	4	5	6	7

20. I would attend this course even if the organisation did not demand it	1	2	3	4	5	6	7

How **LIKELY/UNLIKELY** is it that participation in this program will result in the following outcomes? Indicate your response by making a cross in the appropriate box.

Use the following responses:

1	2	3	4	5	6	7
Extremely Unlikely	Very Unlikely	Quite Unlikely	Neither Likely Nor Unlikely	Quite Likely	Very Likely	Extremely Likely

For example: If you find an outcome to be extremely unlikely cross the box with the number 1.

1	2	3	4	5	6	7

Choose only ONE answer!

How likely/unlikely is it that participation in this training program will result in …

Outcome	Extremely Unlikely	Very Unlikely	Quite Unlikely	Neither Likely Nor Unlikely	Quite Likely	Very Likely	Extremely Likely
1. You having a basic understanding of the NQF	1	2	3	4	5	6	7
2. You having a thorough understanding of the assessment process	1	2	3	4	5	6	7
3. You being able to plan and prepare for assessment with confidence	1	2	3	4	5	6	7
4. You confidently being able to prepare candidates for assessment	1	2	3	4	5	6	7
5. You being able to conduct assessments and document evidence with confidence	1	2	3	4	5	6	7

6. You confidently being able to evaluate evidence and make valid, fair and consistent assessment judgements	1	2	3	4	5	6	7
7. You confidently being able to provide meaningful feedback to relevant parties	1	2	3	4	5	6	7
8. You being able to meaningfully review assessments	1	2	3	4	5	6	7
9. You becoming an Assessor	1	2	3	4	5	6	7
10. You acquiring new knowledge on assessment practices	1	2	3	4	5	6	7

How **ATTRACTIVE** are each of the following outcomes to you? Indicate your response by making a cross in the appropriate box.

Use the following responses:

1	2	3	4	5	6	7
Extremely Unattractive	Very Unattractive	Somewhat Unattractive	Neither Attractive Nor Unattractive	Somewhat Attractive	Very Attractive	Extremely Attractive

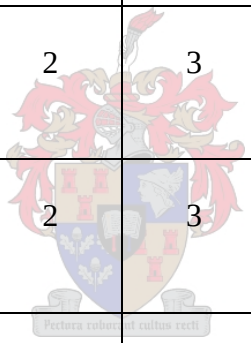
For example: If you find an oucome to be extremely unattractive cross the box with the number 1.

X 1	2	3	4	5	6	7

Choose only ONE answer!

Questions	Extremely Unattractive	Very Unattractive	Somewhat Unattractive	Neither Attractive Nor Unattractive	Somewhat Attractive	Very Attractive	Extremely Attractive
1. Having a basic understanding of the NQF	1	2	3	4	5	6	7

2. Having a thorough understanding of the assessment process	1	2	3	4	5	6	7
3. Having the ability to plan and prepare for assessment	1	2	3	4	5	6	7
4. Having the ability to prepare candidates for assessment	1	2	3	4	5	6	7
5. Having the ability to conduct assessments and document evidence	1	2	3	4	5	6	7
6. Having the ability to evaluate evidence and make valid, fair and consistent assessment judgements	1	2	3	4	5	6	7
7. Having the ability to provide meaningful feedback to relevant parties	1	2	3	4	5	6	7
8. Having the ability to meaningfully review assessments	1	2	3	4	5	6	7
9. Becoming an Assessor	1	2	3	4	5	6	7
10. Acquiring new knowledge on assessment practices	1	2	3	4	5	6	7



---------- End of section B ----------

Please turn to Section C

SECTION C: INTENTION TO LEARN

This is a questionnaire to provide a description of your intention to learn during this training course (i.e. the inclination to learn the training material). Please respond to **all** the statements.

Directions: Listed below are a set of statements about your intentions concerning the training program. **Please react to each statement as honestly and truthfully as possible.**

Use the following responses:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree

For example: If you strongly disagree with the statement cross the box with the number 1.

~~1~~	2	3	4	5	6	7

Choose only ONE answer!

Questions	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
1. I have decided to learn as much as I can from the material presented in this training program	1	2	3	4	5	6	7
2. I have made up my mind to learn as much as I can from this training program	1	2	3	4	5	6	7
3. I have committed myself to gain the maximum benefit from this training program	1	2	3	4	5	6	7
4. I have decided to go all-out to gain as much as I can from this training program	1	2	3	4	5	6	7
5. I have resolved to exert every possible effort on this training program	1	2	3	4	5	6	7

6. I intend to utilise this training opportunity to its fullest	1	2	3	4	5	6	7

END OF QUESTIONNAIRE

THANK YOU FOR YOUR CO-OPERATION!

APPENDIX B: COVER LETTER AND MOTIVATION TO TRANSFER QUESTIONNAIRE

INSTRUCTIONS

This questionnaire forms part of a Master's study conducted by Charné Nunes at the University of Stellenbosch. The aim of the study is to determine the influence of trainees' ability and motivation on their intention to transfer the learning to the work environment. The management of this company has kindly agreed that all employees may partake in this research. Participation, however, remains voluntary.

The information will be kept **confidential** since the questionnaires will be handled by the researcher only.

For the research to yield valid results, it is important that you answer **all** the questions as **honestly** and **truthfully** as possible. The answers must reflect your own opinion and perception. **Confidentiality is assured**. This questionnaire consists of 3 sections (Sections A – Section C) and should take about 30 minutes to complete. Please **respond to all the questions and statements**.

Thank you for your participation and contribution to this study. It is greatly appreciated.

SECTION A: DEMOGRAPHIC INFORMATION

NO. | | | | | **(For office use only)**

Please answer the following general questions

Where appropriate, mark answers with a cross.

GENDER:

Male	
Female	

AGE (YEARS): _____

ETHNIC GROUP:

Black:	**1**	**Coloured:**	**3**
Indian:	**2**	**White:**	**4**

Please mark the following questions with a cross:

Highest level of education:

Less than Matric	**1**	**Diploma/Degree**	**3**
Matric	**2**	**Post-graduate Degree**	**4**

Job Level:	**Non-managerial**	**1**
	Lower-level management	**2**
	Middle-level management	**3**
	Upper-level management	**4**

---------- End of section A ----------

Please turn to Section B

SECTION B: MOTIVATION TO TRANSFER

This is a questionnaire to provide an assessment of transfer motivation (i.e. the specific desire to use the knowledge and skills learned in training on the job). Please respond to **all** the statements.

Directions: Listed below are a set of statements about your expectations concerning the application of the training content. **Please react to each statement as honestly and truthfully as possible.**

Use the following responses:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree

For example: If you strongly disagree with a statement, cross the box with the number 1.

1	2	3	4	5	6	7
X						

Read each statement carefully and choose only ONE answer!

Statements	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
1. I want to apply what I've learned in training to my job	1	2	3	4	5	6	7
2. If I can't apply the training content first time round, I will try again	1	2	3	4	5	6	7
3. I will try to apply most of my new knowledge and skills to my job	1	2	3	4	5	6	7
4. I feel that I will be able to use what I've learned in this training program when I return to my job	1	2	3	4	5	6	7
5. I am willing to exert considerable effort back on the job in order to apply what I have learned in this training	1	2	3	4	5	6	7

6. I believe that I will be able to use the content of this training program in my job	1	2	3	4	5	6	7
7. I believe that I will be able to apply what I have learned in this training program on the job	1	2	3	4	5	6	7
8. I expect that applying the skills gained in this training will solve work-related problems	1	2	3	4	5	6	7
9. I believe that applying that which I have learned will help me to gain an increase in salary	1	2	3	4	5	6	7
10. I believe that my job performance will likely improve if I use the knowledge and skills acquired in this training program	1	2	3	4	5	6	7
11. I will continually try to use the knowledge, skills and behaviours acquired during this training in my job	1	2	3	4	5	6	7
12.Successfully applying what I've learned will enable me to perform my job better	1	2	3	4	5	6	7
13. I expect the on-the-job application of this training content to enhance my career	1	2	3	4	5	6	7
14. Successful on-the-job implementation of my newly acquired knowledge and skills will help me produce higher quality work	1	2	3	4	5	6	7
15. I believe that I will be more effective in carrying out my job if I apply that which I have learned in this training program	1	2	3	4	5	6	7
16. I would like to apply my newly acquired knowledge and skills to my job	1	2	3	4	5	6	7
17. Applying what I've learned in this training will be useful for me to improve my job performance	1	2	3	4	5	6	7

18. I wish to effectively apply this training content	1	2	3	4	5	6	7
19. I would like to use my newly acquired knowledge and skills	1	2	3	4	5	6	7
20. I would benefit from using this training content in my job	1	2	3	4	5	6	7
21. I would like to apply my newly acquired knowledge and skills as soon as possible	1	2	3	4	5	6	7
22. I am willing to actively apply the knowledge and skills gained in this training because I feel that it is a good way to improve my job performance	1	2	3	4	5	6	7
23. I prefer using my newly acquired knowledge and skills in carrying out my job, rather than going back to my old ways of doing things	1	2	3	4	5	6	7
24. This training program was NOT a waste of time	1	2	3	4	5	6	7
25. This training program was a good investment in my development	1	2	3	4	5	6	7
26. I am looking forward to using what I've learnt in this course, on my job	1	2	3	4	5	6	7
27. I will try my best to implement that which I have learned in this course	1	2	3	4	5	6	7

28. I have developed new insights by attending this training program	1	2	3	4	5	6	7
29. I have developed useful skills during this training program	1	2	3	4	5	6	7
30. I will recommend this course to others, since it was worthwhile attending	1	2	3	4	5	6	7

Successful application of the knowledge, skills, attitudes and behaviours gained in this training is likely to result in several job-related outcomes. How **LIKELY/UNLIKELY** is it that each of the following would happen if you apply what you have learned in this program? Indicate your response by making a cross in the appropriate box.

Use the following responses:

1	2	3	4	5	6	7
Extremely Unlikely	Very Unlikely	Quite Unlikely	Neither Likely Nor Unlikely	Quite Likely	Very Likely	Extremely Likely

For example: If you find an outcome to be extremely unlikely cross the box with the number 1.

X	2	3	4	5	6	7

Choose only ONE answer!

How **LIKELY/UNLIKELY** is it that each of the following would happen if you apply what you have learned in this program?

Outcomes	Extremely Unlikely	Very Unlikely	Quite Unlikely	Neither Likely Nor Unlikely	Quite Likely	Very Likely	Extremely Likely
1. You will get a salary increase	1	2	3	4	5	6	7

2. You will feel better about yourself as a person	1	2	3	4	5	6	7
3. You will have an opportunity to use the skills and abilities gained from this course	1	2	3	4	5	6	7
4. You will have better job security	1	2	3	4	5	6	7
5. You will be given chances to do new things	1	2	3	4	5	6	7
6. You will be promoted or get a better job	1	2	3	4	5	6	7
7. You will get a feeling that you've accomplished something worthwhile	1	2	3	4	5	6	7
8. You will be respected by the people you work with	1	2	3	4	5	6	7
9. Your supervisor will praise you	1	2	3	4	5	6	7
10. The people you work with will be friendly to you	1	2	3	4	5	6	7
11. You will have more self-confidence	1	2	3	4	5	6	7

In the section you just completed, you indicated the likelihood that certain things might happen as a consequence of applying your newly acquired knowledge and skills in your job. Below, please indicate how **ATTRACTIVE** each of the following is to you. Indicate your response by making a cross in the appropriate box.

Use the following responses:

1	2	3	4	5	6	7
Extremely Unattractive	Very Unattractive	Somewhat Unattractive	Neither Attractive Nor Unattractive	Somewhat Attractive	Very Attractive	Extremely Attractive

For example: If you find an outcome to be extremely unattractive cross the box with the number 1.

~~1~~	2	3	4	5	6	7

Choose only ONE answer!

Outcome	Extremely Unattractive	Very Unattractive	Somewhat Unattractive	Neither Attractive Nor Unattractive	Somewhat Attractive	Very Attractive	Extremely Attractive
1. Increase in salary	1	2	3	4	5	6	7
2. Feeling good about yourself as a person	1	2	3	4	5	6	7
3. The opportunity to use the skills and abilities gained from this course	1	2	3	4	5	6	7
4. Increased job security	1	2	3	4	5	6	7
5. Getting chances to do new things	1	2	3	4	5	6	7
6. Being promoted or getting a better job	1	2	3	4	5	6	7
7. Feeling that you have accomplished something worthwhile	1	2	3	4	5	6	7
8. Obtaining respect from people you work with	1	2	3	4	5	6	7
9. Receiving praise from your supervisor	1	2	3	4	5	6	7
10. Friendliness from those who work with you	1	2	3	4	5	6	7
11. Increased self-confidence	1	2	3	4	5	6	7

---------- End of Section B ----------

Please turn to Section C

SECTION C: INTENTION TO TRANSFER

This is a questionnaire to provide a description of your intention to apply what you have learned once you leave the training program and return to your job. Please respond to **all** the statements.

Directions: Listed below are a set of statements about your intentions concerning the application of the training content. **Please react to each statement as honestly and truthfully as possible.**

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree

For example: If you strongly disagree with a statement, cross the box with the number 1.

X	2	3	4	5	6	7

Choose only ONE answer!

Statements	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
1. I have decided to use the skills learned in this course in my job	1	2	3	4	5	6	7
2. I have resolved to apply the knowledge and attitudes learned during this training program to my job	1	2	3	4	5	6	7
3. I have made up my mind to use the skills learned in this course to improve my professional competence on the job	1	2	3	4	5	6	7
4. I have committed myself to make full use of the skills learned in this training program	1	2	3	4	5	6	7

5. I intend to utilise the knowledge learned in this course when I return to my job	1	2	3	4	5	6	7

END OF QUESTIONNAIRE

THANK YOU FOR YOUR CO-OPERATION!