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MEASURING LEARNING TRANSFER IN A FINANCIAL INSTITUTION (PART 2)

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ABSTRACT

The purpose of this study was to identify learning transfer variables impacting on learning transfer using the Learning Transfer System Inventory (LTSI). The secondary objective was to determine if there are any statistically significant differences in the mean transfer variable scores between geographical areas, years of service, age groups, sex, qualifications and language groups. The sample used in this study was a convenience sample of 240 employees working for a Banking group. Analysis of variance (ANOVA), Multivariate analysis of variance (MANOVA) and post-hoc tests were used to analyse the data. The results show that, while age and gender do not have an impact on the learning transfer factors, level of education, home language and both length of service within the organisation and in the current position do. Geographic area also impacts on learning transfer indicators. Effect sizes, however, are small to moderate

Key words
Learning transfer variables, learning transfer, Learning Transfer System Inventory

The current context i.e globalisation, increased competition and the development of information technology, requires organisations to make the most of its intellectual assets (Donovan, Hannigan & Crowe, 2001). Development interventions require a substantial allocation of financial, human and time resources, but there is little evidence in research that the skills, knowledge and behaviour learnt in training programmes are transferred to the job or result in changed behaviour in the workplace (Baldwin & Ford, 1988; Ford & Weissbein, 1997; Gist, Bavetta & Stevens, 1990). This implies that learned behaviour is not generalised to the job context and maintained over a period of time in the job. The most commonly cited estimate in the literature is that only 10% of learning is transferred to improved job performance (Holton & Baldwin, 2000).

Learning transfer can be considered one of the fundamental cornerstones in the establishment of a learning organisation (Senge, 1990) and to enable an organisation to utilise learned knowledge, skills and behaviour acquired during a learning event, learning transfer must take place between the classroom and the workplace. Baldwin and Ford (1988) as well as Ford and Weissbein (1997) define transfer as "*...generalisation of the skills acquired during a learning event to the work environment and the maintenance of the acquired skills over time*". Further to the preceding statement Broad and Newstrom (1992) state that transfer of training can be defined as "*the effective and continuing application, by trainees to their jobs, of the knowledge and skills gained in training – both on and off the job*". From the definitions, one can concur that there is consensus that the transfer of learning involves the application, generalisability and maintenance of newly-learned knowledge and skills. There is, however, no concensus regarding which factors influence learning transfer. Table 1 gives a concise layout of the most important components and variables cited in literature that could influence the effectiveness of learning transfer.

From Table 1 it can be seen that there are numerous factors that could influence the effectiveness of an intervention. It is almost impossible to make an informed decision regarding the effectiveness of an HRD intervention if the stated variables are not taken into consideration. Numerous learning transfer studies (Table 1) conducted in the past utilised a wide variety of instruments and measures (with questionable psychometric properties) to measure the transfer of learning (Holton, 2000). Much of the research has focused on training design factors that influence transfer (Kraiger, Salas & Cannon-Bowers, 1995; Warr & Bunce, 1995). A second research focus has focused on factors in the organisational environment that influence the individual's ability and opportunity to used newly learned knowledge in the work environment (Noe 1986; Rouillier & Goldstein, 1993). Another stream of research has focused on individual differences that affect transfer (Gist, Stevens & Bavetta, 1991) and contemporary research has focused on developing measuring instruments to measure transfer and its antecedent factors (Holton, Bates, Seyler & CArvalho, 1997)

Authors such as Ford and Weisbein (1997) and Rouiller and Goldstein (1993) regard the transfer climate as an important variable that may impact on intervention effectiveness. In this regard Rouiller and Goldstein (1993, p. 379) conceptualise transfer climate as "... those situations and consequences which either inhibit or help facilitate the transfer of what has been learned in training into the job situation". Bates et al. (1996) concur with Rouiller and Goldstein (1993) in regarding the transfer climate as the learner's perception of the job environment and that it affects the extent to which a learner will utilise skills within the work environment. Research done by Tracy, Tannenbaum and Kavanagh (1995); Rouiller and Goldstein (1993); and Xiao (1996), found that transfer climate has an important influence on the learner's motivation to apply acquired knowledge and skills within the job environment. Transfer climate can therefore act as mediator between the organisational context and the learner's work attitude and work behaviour.

TABLE 1
FACTORS INFLUENCING THE EFFECTIVENESS OF LEARNING TRANSFER

Factor	Variable	Description
Learner	• Training motivation (Facteau et al 1995; Warr and Bunce 1995) • Self-concept (Mink et al. 1994; Knowles 1984) • Learning motivation (Mathieu et al. 1992; Baldwin et al. 1991) • Ability (Wexley en Latham 1981) • Attitude (Ford en Noe 1987) • Age, tenure; (Warr & Bunce, 1995) • Self-efficacy (Gist, Stevens & Bavetta, 1991; Stevens & Gist, 1997; Seyler, Holton, Bates, Burnett, Carvalho, 1998) • Ability to receive feedback (Knowles 1984) • Post-training maintenance (Gist et al. 1990) • Pre-training discussions/ motivations (Brinkerhoff & Montesino, 1995; Facteau, Dobbins, Russell, Ladd & Kudish, 1995); • Organisational commitment and job involvement (Tesluk, Farr, Mathieu & Vance, 1995)	Intra-personal processes refer to character traits unique to the individual and that could influence the effectiveness of an intervention. The individual learner does not function in a vacuum, but forms part of a greater system. This implies that the interaction process between the individual and the greater system results in reciprocal influencing that should be taken into account during the evaluation process.
Environ-mental factors	• Transfer climate (Baldwin en Ford 1988; Rouiller en Goldstein 1993; Xiao 1996; Ford en Weissbein 1997) • Culture (Marquardt and Engel 1993; Veldsman, 1998) • Supervisory attitudes and support, workgroup support (Ford, Quinones, Sego & Sorra, 1992; Quinones, Ford, Sego & Smith, 1995; Xiao, 1996) • Team learning conditions and processes (Watkins and Marsick 1993; Kasl et al. 1995)	In order to have an impact within the organisation, the learner must apply newly acquired knowledge, skills and attitudes in the workplace. Critical factors for intervention success are work environment aspects such as support, learning transfer climate and the opportunity to apply new skills. The effectiveness of an intervention is influenced by a variety of factors over which the practitioner has little or no control. These factors should thus be taken into account during the evaluation process.
Learning event	• Applicability of intervention; Needs analysis processes; design; implementation and evaluation practices (Sullivan et al. 1990; Brinkerhoff 1987; Broad and Newstrom 1992) • Adult learning principles (Knowles, 1984; Knowles, Holton, Swanson, 1998)	The effect of the previously mentioned processes on intervention effectiveness is well known and researched. Therefore, the inclusion of these factors in the evaluation process is instrumental in determining intervention effectiveness.

Rouiller and Goldstein (1993) operationalise the construct Learning Transfer Climate by distinguishing between two categories of indicators, namely Situational Indicators (which remind learners of the training they have undergone or by providing learners with the opportunity to use their skills and knowledge in the workplace) and Consequential Indicators (which indicate that learners experience certain results or consequences when entering the workplace after training). Rouiller and Goldstein (1993) regard four types of dimensions, namely indicators concerning objectives, social indicators, task indicators and self-control indicators, as indicators which will either remind learners of what has been learned or which will provide learners with the opportunity to utilise what they have learned. The aforementioned thus refers to Situational Indicators encountered in the workplace. These dimensions are schematically represented in Table 2 as follows:

TABLE 2
SITUATIONAL INDICATORS

Indicators concerning Objectives	These indicators remind the learner to apply newly acquired knowledge within the workplace. For example, by setting objectives a superior would encourage the learner to apply knowledge within the workplace.
Social Indicators	These indicators pertain to the extent to which group membership promotes or inhibits learning transference. This includes what the effect of the behaviour and influence of the superior, colleagues and subordinates would be on the learner.
Task Indicators	These indicators refer to the nature and design of the learner's job. It also refers to the way tasks have been designed and the availability of equipment to assist learning transfer within the workplace.
Indicators concerning Self-control	The indicators here pertain to a variety of self-control processes that permit the learner to utilise newly acquired knowledge within the workplace.

(Table Taken from Rouiller and Goldstein 1993, p.383)

Managerial support for applying the skills learned in training has consistently been found to relate to more effective transfer (Facteau et al. 1995; Ford et al. 1992). In this regard Goldstein (1993) argues that superiors who are interested in and listen to the ideas employees learned in training and allow experimentation of new skills have been found to be an important factor in learning transfer. The second indicator, namely Consequential Indicators, are regarded by Holton et al. (1997:98) as "...on-the-job outcomes that affect the extent to which training is transferred". Elements such as positive, negative, no feedback and punishment can be considered as indicators (Table 3) in this regard and are tabled as follows:

TABLE 3
CONSEQUENTIAL INDICATORS

Positive Feedback	This indicator refers to positive information provided to the learner because application of acquired knowledge and skills is taking place.
Negative Feedback	Negative information is given to learners because application of knowledge and skills is not taking place.
Punishment	Learners experience negative consequences as a result of new skills and knowledge being applied, whether by superiors or by colleagues.
No Feedback	No information is given to the learner concerning the importance of utilising new knowledge and skills.

(Table taken from Rouiller and Goldstein 1993, p. 383)

Arguing that the construct *Transfer Climate* is only one set of factors that influence transfer, Holton et al (2000) use the concept *Transfer System* and define it as all the factors in the person, training and organisation that influence transfer of learning to job performance. The concept *Transfer System* is therefore a broader construct than *Transfer Climate* but includes all factors traditionally referred to as *Transfer Climate*. Building on his evaluation approach (Holton, 1996), the Transfer Systems Approach (Figure 1) describes a subset of this evaluation approach namely, the transfer of learning to individual, group and organisational performance. The model hypothesises that HRD outcomes are a function of both ability/ enabling elements and motivation and environmental influences (Noe, 1986) at three outcome levels namely learning, individual performance and organisational performance (Holton, 2000).

The outcomes are respectively defined as the achievement of learning outcomes desired in an HRD intervention, change in individual performance as a result of the learning being applied in the job, and results as a consequence of the change in individual behaviour (Holton 1996). Secondary influences are also included, especially those that affect motivation. Variables such as self-efficacy and learner readiness serve as examples in this regard. It is clear that the *Learning Transfer System* comprises four aspects (along with variables indicated in Figure 1), namely ability, motivational elements, the work environment and secondary influences. This is also indicative of mechanisms that should be measured and managed effectively in the learning transfer process in order to achieve intervention effectiveness.

Using exploratory factor analysis of the Learning Transfer System Inventory (instrument that measures the operationalised variables in Table 4) to determine if an interpretable facture structure of latent transfer system constructs can be identified when the instrument is applied within the South African context, Coetsee and Eiselen (2004) found four interpretable factors. These factors are described in Table 4.

TABLE 4
DESCRIPTION OF FACTORS

Factor	Variable	Interpretation
1	**Situational indicators**	Factor 1 is associated with learning transfer climate as maintained by Rouiller and Goldstein (1993). Work environment factors such as support, learning transfer climate and opportunity to apply acquired knowledge, can be regarded as being critical to learning transfer. Factor 1 refers to the learner's perception of the work environment and this influences the extent to which a learner will or will not utilise learned skills in the work environment. Transfer climate has an important influence on the learner's motivation to apply acquired knowledge and skills in the workplace. The learning transfer climate can furthermore act as a mediator between the organisational context and the learner's attitude towards and behaviour at work.
2	**Intra-personal indicators and motivation**	Factor 2 (Intra-personal Indicators), it has been indicated that they refer to characteristics which can be considered as being unique to the individual, and they reflect the individual's intrinsic perceptions. It is apparent that aspects such as self-efficacy, "... a judgement about task-specific capability..." (Gist, Stevens and Bavetta 1991; Warr and Bunce 1995 and Tannenbaum, Mathieu, Salas and Cannon-Bouwers 1991) and learning motivation can be considered as important Intra-personal Indicators.
3	**Conse-quential and managerial indicators**	Factor 3 (Consequential and Managerial Indicators) refer to "on-the-job outcomes that affect the extent to which training is transferred". Elements such as positive, negative, no feedback and punishment can be regarded as indicators in this regard and are closely associated with the views of Rouiller and Goldstein (1993). The role of the supervisor holds important implications for learning transfer, not only in providing feedback and sanctioning behaviour, but also as far as structuring the learner's job content, workload and so forth are concerned. Two aspects are therefore significant here, namely the extent to which he learner experiences positive or negative consequences in utilizing acquired knowledge, and the role that the superior plays in creating pportunities for applying this knowledge.
4	**Learning orientation indicators**	As far as Factor 4 is concerned, it is apparent that the extent to which a learner's' input has been obtained prior to the commencement of training, including the extent to which expectations are clarified, has a particular influence on learning transfer.

Given the results, the conceptual model of transfer (Holton, 2000), is adapted according to the results in question as indicated in Figure 1.

The adapted model hypothesises that HRD outcomes are a function of ability/ enabling elements, (learning orientation indicators), individual characteristics (intrapersonal indicators and motivation) and environmental influences (situational-, consequential and managerial indicators) at three outcome levels namely learning, individual performance and organisational performance (Holton 2000). The outcomes are respectively defined as the achievement of learning outcomes desired in an HRD intervention, change in individual performance as a result of the learning being applied in the job and results as a consequence of the change in individual behaviour (Holton 1996). Figure 1 is furthermore indicative of those factors that an organisation should include in its learning transfer system and which should be managed as such.

Problem statement

The general problem examined in this study mainly centers on the measurement of learning transfer variables in the work environment. Despite the importance of learning and the transfer of learning to the work environment, the HRD field does not have a generally accepted measurement approach nor does it have clear concensus on the nomological network of factors affecting transfer of learning in the workplace. In this regard, Coetsee and Eiselen (2004) identified 4 factors in the South African context that impact on learning transfer. An

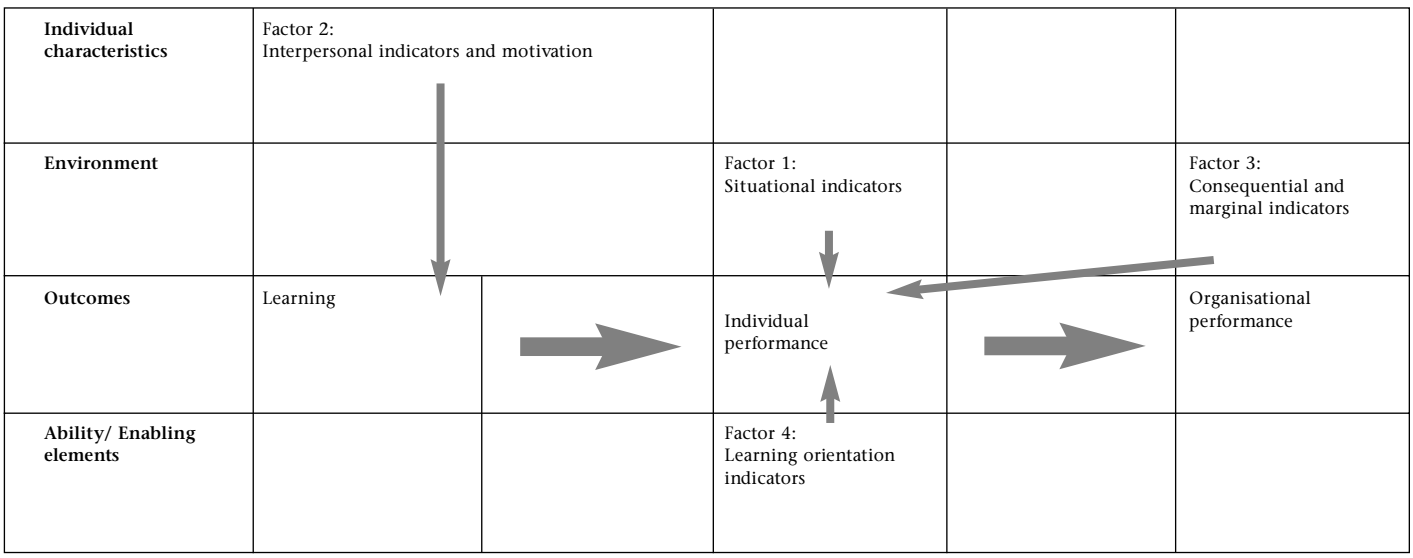

Figure 1: Adapted model

understanding of these factors that prevent learners from applying will enable the organisation to increase its Return on Investment (ROI) and identify the factors which make some learning programmes more successful than others. Against this background, the research problem in question is as follows:

- Which factors impact on the transfer of learning in the work environment?

From this, the following secondary objective was formulated:

- Are there any statistically significant differences in the mean transfer variable scores between geographical areas, years of service, age groups, sex, qualifications and language groups;

RESEARCH DESIGN

Research approach

This study is a quantitative study and a cross-sectional survey design was used to describe the information on the population collected. The study is also exploratory and descriptive as well as retrospective in nature (i.e. it was done on retrospective data). Elements of the research design are predetermined and in addition it is ex post facto and attempts to show causes and consequences after they have occurred.

Research methodology

Sample

The sample utilised in this study is a convenience sample of SA employees undergoing training and comprises all employees (N=240) of the Home Loan Processing Section of a well-known listed Banking Group in South Africa. The section is responsible for processing all home loans, including credit screening, data capturing of information and administrative loan management, for the Banking Group. The respondents (Table 5) are dispersed over five geographic areas in South Africa, namely Randburg, Pretoria, Bloemfontein, Durban and Cape Town.

Tabel 5
Reaction of the sample

Geographical area	Number of questionnaires distributed	Number of questionnaires returned	Response %
Florida/ Randburg	86	79	92%
Pretoria	54	50	93%
Cape Town	48	43	90%
Durban	27	21	78%
Bloemfontein	25	22	88%
Total	240	215	90%

A total of 240 questionnaires were distributed of which 215 (90%) were returned. The data was captured and converted into a data file. After filtering of the data based on criteria such as incompleteness and the giving of socially acceptable answers (see the following paragraph), the workable number of questionnaires was 177, that is, 82% of the total number of returned questionnaires was usable. The large number of questionnaires considered unusable can be attributed to the following factors:

- Some respondents felt threatened when confronted with the organisation being evaluated, and in spite of assurances that all information would be treated confidentially, feared being victimised by the organisation. This was particularly true for sensitive questions related to the organisation itself where respondents simply failed to answer these questions.
- Some respondents gave socially acceptable responses. This indicates the extent to which respondents' answers to the questions did not reflect the intensity of their own experiences, but rather what they believed an acceptable response should be. Some questions were formulated in such a manner that socially acceptable responses could be identified through inspection.

Measuring Instrument

The items included in the measuring instrument (LTSI) were developed by Holton (2000). The original questionnaire, the Learning Transfer System Inventory consisted of 89 items. However, only 78 items were retained as the MSA values were larger than 0,6 (Coetsee & Eiselen, 2004).

Research procedure

Questionnaires were distributed electronically to the employees of the section. Prior to sending out the questionnaires, the Training Section of the Banking Group familiarised employees in each geographical area with the objectives of the investigation, the means of data collection and discussed the questionnaire's content with them. Respondents completed the questionnaires in hard copy in their own time and returned the completed questionnaires to the Training Section by internal mail. Hence, responses were anonymous.

Table 6
Reliability coefficients of the LTSI

Factor	Number of items	Cronbach Alpha
1	45	0,9640
2	15	0,8828
3	13	0,8290
4	5	0,5093

Table 6 contains number of items and Cronbach Alpha Reliabilities. In addition to completing the 78 LTSI items (each measured on a 5-point Likert-type scale), respondents were also asked to provide background information including age, gender, qualification and years of service within the Banking Group and in their current job.

RESULTS

The secondary objective of the study was to determine whether there were any statistically significant differences in the vector of factor means of groups created in terms of the different biographical variables. Groups of employees were compared in terms of the four Learning Transfer factors using MANOVA. Where the null-hypothesis of equality of the vector of factor means could be rejected, ANOVA was used to determine in terms of which factors the groups differed. Finally, post-hoc comparisons were used to ascertain which specific groups differed significantly in terms of each of the factor means where significant differences were established: the Scheffe test was used if equal group variances could be assumed whereas Dunnett's T3 was used if this assumption did not hold. Levene's test for error variances was used throughout to establish whether the assumption of equal error variances could be assumed.

Based on their responses, the following groups of employees were formed (Table 7). In each case, the number of respondents is indicated.

Based on the MANOVA results, the null-hypothesis for the equality of the vector of factor means could not be rejected for either the four age groups (Wilks' Lambda = 0,912; p-value = 0,217>0.05) or for the two gender groups (Hotelling's Trace = 0,015; p-value = 0,624>0,05).

Table 7
Groups of respondents formed by biological and background variables

Variable	Group	Number of respondents
Age group	Up to 24 years	54
	25 – 29 years	45
	30 – 39 years	40
	40 years and older	33
Gender	Males	42
	Female	134
Geographic area	Florida/Randburg	66
	Pretoria	40
	Cape Town	33
	Durban	19
	Bloemfontein	17
Length of service at the organisation	At most 5 years	96
	More than 5 years	76
Length of service in current position	At most 5 years	156
	More than 5 years	12
Education level	Less than grade 12	38
	Diploma or B-Degree	45
	Grade 12 but not a post school qualification	70
Home language	Afrikaans	93
	English	60
	Africal Language	24

The null-hypothesis for the equality of the vector of factor means was rejected for groups formed based on geographical area (Wilks' Lambda = 0,743; p-value < 0,005). The subsequent ANOVA results showed that the means of the geographic areas differed for each of the Learning Transfer factors (Table 8).

Table 8
ANOVA results of geographic areas

Source	Dependent Variable	Type III SS[1]	DF[2]	MS[3]	F	p-value	Effect size
Corrected Model	F_1	4,411	4	1,103	3,41	0,010	
	F_2	2,578	4	0,645	2,64	0,035	
	F_3	3,828	4	0,957	3,41	0,010	
	F_4	3,842	4	0,961	3,47	0,009	
Intercept	F_1	1414,823	1	1414,823	4377,65	0,000	
	F_2	2063,964	1	2063,964	8464,49	0,000	
	F_3	850,578	1	850,578	3030,99	0,000	
	F_4	1423,56	1	1423,560	5146,56	0,000	
AREA	F_1	4,411	4	1,103	3,41	0,010	0,27
	F_2	2,578	4	0,645	2,64	0,035	0,24
	F_3	3,828	4	0,957	3,41	0,010	0,27
	F_4	3,842	4	0,961	3,47	0,009	0,28
Error	F_1	54,943	170	0,323			
	F_2	41,452	170	0,244			
	F_3	47,707	170	0,281			
	F_4	47,023	170	0,277			
Total	F_1	1832,786	175				
	F_2	2610,29	175				
	F_3	1171,271	175				
	F_4	1810,479	175				
Corrected Total	F_1	59n354	174				
	F_2	44,031	174				
	F_3	51,535	174				
	F_4	50,865	174				

The post-hoc comparisons showed that Bloemfontein (M = 3.0138) and Cape Town (M = 3,0658) differed significantly from Durban (M = 3,5633) in terms of the first factor, F_1 (situational indicators) while in terms of F_2 (Intra-personal indicators and motivation), Cape Town (M = 3,719) differed significantly from Durban (M = 4,14). The post-hoc comparisons however, could not detect which geographic areas differed in terms of F_3 (Consequential and Managerial indicators) and F_4 (Learning Orientation indicators). The effect sises (Table 9) showed that geographic area only has a small effect (between 0.1 and 0.3) on each of the factor means. Hence, although the result is of statistical significance, the practical significance is limited.

There was a significant difference in the vector of factor means between people with at most 5 years of work experience at the organisation and those with more than 5 years experience (Hotelling's Trace = 0,058, p-value = 0,049<0,05). The ANOVA results showed that this difference could be ascribed to a significant difference (F = 5,763; df1= 1, df2 = 170; p-value = 0,017<0.05) in terms of the first factor, F_1 (Situational indicators). In particular, the sample mean for the group with at most 5 years of experience was higher (M = 3,284) than the group with a minimum of 5 years work experience (M = 3,07). This difference has limited practical significance since the effect sise is small (0,181).

A similar result was obtained for the two groups formed based on years of service in current position: the vector of factor means differed significantly between those who have been in their current position for at most 5 years and those who have been in the same position for a longer period of time (Hotelling's Trace = 0,062; p-value = 0,042<0,05). The ANOVA results showed that it is in terms of F_1 (Situational indicators) only that the two groups were significantly different (F = 8,963; df1 = 1 df2 = 166; p-value = 003 <0,05). The result is of limited practical significance since the effect sise is only 0,226 The sample mean for F_1 was higher (M = 3,216) for those who have been in the same position for at most 5 years than the sample mean for the group who have been in the same position for more than 5 years (M = 2.7).

The null-hypothesis for the equality of the vector of factor means was rejected for the three groups formed in terms of educational level (Wilks' Lambda = 0,866; p-value = 0,006<0,05). The subsequent ANOVA results showed that the null-hypothesis of equal group means could only be rejected for the third factor, F_3, i.e. Consequential and managerial indicators (F = 5,047; df1 = 2, df2 = 150; p-value = 0,008<0,05). Based on the Scheffe post-hoc comparisons, it was established that the group with a low level of education (less than grade 12) differed significantly from those who have grade 12 but not a post school qualification. The sample mean for the group with an educational level less than grade 12 was higher (M = 2,741) than the mean for the group with grade 12 but not a post school qualification (M = 2,4). This result is of limited practical significance as the effect of educational level on F_3 was small (0,25).

As far as the three home language groups are concerned (Afrika ans, English and African languages), the vector of factor means differed significantly (Wilks' Lambda = 0,878; p-value = 0,004 < 0,05). ANOVA results showed that it is in terms of the second (F_2) and third (F_3) factors that the groups differed significantly, i.e. in terms of Intra-personal indicators and motivation and Consequential and managerial indicators. The ANOVA results together with the effect sises are shown in Table 9.

Post-hoc comparisons revealed that the Afrikaans home language group (M = 3,74) differed significantly from the African language group (M = 4,01) in terms of F_2, Intrapersonal indicators and motivation while the English language group (M

= 2,34) differed significantly from the Afrikaans language group (M = 2,67) in terms of F_3, Consequential and managerial indicators. The effect sises, however, allude to a limited practical significance of the result.

TABLE 9
ANOVA RESULTS OF HOME LANGUAGE GROUPS

Source	Dependent Variable	Type III SS	DF	MS	F	p-value	Effect size
Corrected Model	F_1	0,839	2	0,419	1,238	0,292	
	F_2	1,666	2	0,833	3,421	0,035	
	F_3	4,048	2	2,024	7,333	0,001	
	F_4	1,097	2	0,549	1,899	0,153	
Intercept	F_1	1355,342	1	1355,342	4002,318	0,000	
	F_2	1961,668	1	1961,668	8054,712	0,000	
	F_3	809,033	1	809,033	2931,248	0,000	
	F_4	1334,188	1	1334,188	4618,766	0,000	
LANG1	F_1	0,839	2	0,419	1,238	0,292	0,118
	F_2	1,666	2	0,833	3,421	0,035	0,195
	F_3	4,048	2	2,024	7,333	0,001	0,279
	F_4	1,097	2	0,549	1,899	0,153	0,146
Error	F_1	58,923	174	0,339			
	F_2	42,376	174	0,244			
	F_3	48,025	174	0,276			
	F_4	50,262	174	0,289			
Total	F_1	1855,712	177				
	F_2	2639,213	177				
	F_3	1185,993	177				
	F_4	1836,847	177				
Corrected Total	F_1	59,762	176				
	F_2	44,043	176				
	F_3	52,072	176				
	F_4	51,359	176				

DISCUSSION

The main objective of this study was to determine which factors impact on the transfer of learning in the work environment. The secondary objective was to determine if there are any statistically differences in the mean transfer variable scores between geographical areas, years of service, age groups, sex, qualifications and language groups.

From the results, it is apparent that the geographical areas of Cape Town and Bloemfontein differ significantly from Durban as far as Factor 1, Situational Indicators, is concerned. This factor is related to learning transfer climate, as claimed by Rouiller and Goldstein (1993), and can be considered as being critical to the learning transfer process. It appears that personnel working in the Durban area experience factors such as support, learning transfer climate and opportunity to apply acquired knowledge, more positively than people working in the Bloemfontein and Cape Town areas. Factor 1 refers to the learner's perception of the work environment and this influences the extent to which a learner will or will not utilise learned skills in the work environment. Transfer climate has an important influence on the learner's motivation to apply acquired knowledge and skills in the workplace. The learning transfer climate can furthermore act as a mediator between the organisational context and the learner's attitude towards work and behaviour at work. It can be speculated that the respondents from the Durban area in terms of Factor 1:

- Believe that the application of skills and knowledge learned in training will lead to the recognition they value. This includes the extent to which the business unit demonstrates the link between development, performance, and recognition, clearly articulate performance expectations, recognise individuals when they do well, reward individuals for effective and improved performance, and create an environment in which individuals feel good about performing well.
- Receive constructive input, assistance, and feedback from people in their work environment (peers, employees, colleagues, managers, etc.) when applying new abilities or attempting to improve work performance. Feedback may be formal or informal cues from the workplace.
- Managers are involved in clarifying performance expectations after training, identifying opportunities to apply new skills and knowledge, setting realistic goals based on training, working with individuals on problems encountered while applying new skills, and providing feedback when individuals successfully apply new abilities.
- Peers mutually identify and implement opportunities to apply skills and knowledge learned in training, encourage the use of or expect the application of new skills, display patience with difficulties associated with applying new skills, or demonstrate appreciation for the use of new skills;
- That skills and knowledge taught are similar to performance expectations as well as what the individual needs to perform more effectively. It also addresses the extent to which instructional methods, aids, and equipment used in training are similar to those used in the individual's work environment.

With regard to Factor 2, Intra-personal Indicators, it is apparent that workers in the Durban area have a more positive experience of this factor than the workers in the Cape Town area. This factor refers to characteristics that can be considered as being unique to the individual, and they reflect the individual's intrinsic perceptions. It is apparent that aspects such as self-efficacy, "... a judgement about task-specific capability..." (Gist, Stevens and Bavetta 1991; Warr and Bunce 1995 and Tannenbaum, Mathieu, Salas and Cannon-Bouwers 1991) and learning motivation can be considered as important Intra-personal Indicators. As indicated, Factor 2 refers mainly to the intra-personal processes as applicable to the learner and on closer scrutiny of the items in question indicate that the Durban respondents:

- Feel confident and self-assured about applying new abilities in their jobs, and can overcome obstacles that hinder the use of new knowledge and skills.
- They are motivated to utilise newly acquired learning in their work. This includes the degree to which individuals feel better able to perform, plan to use new skills and knowledge, and believe new skills will help them to perform more effectively on-the-job.
- Believe that applying skills and knowledge learned in training will improve their performance.
- The work group accepts change, is willing to invest energy in changing, and supports individuals who use techniques learned in training.

However, based on effect size, the geographic area only has a small effect on each of the factor means. Hence, although the result is of statistical significance, the practical significance is limited.

It could be argued that the relatively youthful age of the respondents holds certain advantages for the study in question. Given the changed world of work, the employees would be expected to be more amenable to acquiring new knowledge and applying skills in the workplace. The aforementioned makes the respondents an ideal target group for reporting on learning transfer and on the variables it influences. On the other hand, one could speculate that persons in the 50-59 years old age group (4,2%) and the 60-69 years old category (,9%) are at the end of their careers and, therefore, are less enthusiastic about learning and utilising new skills.

It is also evident that persons with less than 5 years' service differ significantly in respect of Factor 1 (Situational Indicators) from persons with more than 5 years' service. Respondents who have less than 5 years' service, experience variables such as learning transfer climate, support and opportunities to apply newly acquired knowledge more positively than respondents who have more than 5 years' service. One could speculate that persons who have less than five years' service still experience their organisation as being relatively new and that they are still in the process of acquiring work-related skills, consequently experiencing a steep learning curve. It could also be maintained that positive experience could be considered a function of the length of service. This carries the implication that persons with less than 5 years' service still have certain expectations of the organisation, as opposed to persons with more than five years' service who have already experienced different kinds of job limitations. These findings correspond with findings from Warr and Bunce (1995) who determined that significant independent contributions to learning scores are made by low age, general attitude to training and tenure. However, based on the effect size, the identified difference has limited practical significance.

Furthermore, there are ostensibly no significant differences (regarding the four factors) between the sexes. On the other hand, it is evident that the various qualification groups differ significantly in respect of Factor 3 (Consequential and Managerial Indicators). This is regarded by Holton et. al (1997) as on-the-job outcomes that affect the extent to which training is transferred. This factor thus emphasises the role of the supervisor/manager. One could speculate that the extent to which the supervisor creates a climate in which the learner experiences low levels of stress, has a reasonable workload and is empowered, would exercise an important influence on learning transfer. However, based on the effect size, the identified difference has limited practical significance

Evidently, Afrikaans-speaking respondents have a predominantly more negative experience of Factor 2 than Black respondents have. Insofar that the previous factor refers to intrapersonal factors and motivation, one could speculate that the Afrikaans-speaking group have probably experienced affirmative action/ employment equity and therefore feel a lack of job security. On the other hand the black respondents enjoy more opportunities for promotion and have a high level of job security. The foregoing is also corroborated by the organisational policy of appointing and promoting only people from previously disadvantaged communities.

The four factors, namely Situational Indicators, Intra-Personal indicators, Consequential and Managerial Indicators and Learner Orientation Indicators denote those factors that inhibit or facilitate learning transfer. It is anticipated that organisations achieving high scores for these factors will be capable of facilitating effective learning transfer from the classroom to the workplace.

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