

THE FINANCIAL VIABILITY OF THE TRAINING AND DEVELOPMENT OF PHARMACIST'S ASSISTANTS

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*"You, Lord, are all I have,
and you give me all I need;
my future is in your hand."
(Psalm 16:5)*

to my family and my parents

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ABSTRACT

Skills Development through education and training has always formed an integral part of the development of individuals and the productivity and competitiveness of institutions. Education in South Africa, especially in the Apartheid Era, was a hotly contested area. Since the African National Congress (ANC) came into power in 1994, a new skills strategy was introduced and three important pieces of legislation were passed into law, namely the South African Qualifications Authority (SAQA) Act, the Skills Development Act and the Skills Development Levies Act. The Skills Development Levies Act in effect forces organisations to provide their employees with training and provides for the reimbursement of their skills levies in the form of grants only if certain training criteria are met.

The financial implications of the training and development of employees in South Africa comprise of costs and benefits. Human resource managers are under increased pressure to validate the, often substantial, expenses and the effect they have on the bottom line of the company. In an environment where competition is ever increasing and in the light of the financial impact of the new legislation, the financial viability of an investment in training and development is being questioned.

A corporate pharmacy group raised a similar question. The general objective of this research was to determine the financial viability of the training and development of pharmacist's assistants in this corporate pharmacy group. The study consisted of a literature study and an empirical survey by means of a survey questionnaire to measure the impact of training as perceived by pharmacist's assistants and their supervising pharmacists and a questionnaire used during structured interviews with the key personnel of the corporate pharmacy group. The results of the interviews and an examination of the financial records of the pharmacy group were used to calculate the financial viability of the training programme for pharmacist's assistants.

The results showed that the training programme for pharmacist's assistants in the corporate pharmacy group is financially viable for the group. Furthermore, a performance evaluation on the training programme indicated that the programme adds value to the group by yielding a return in excess of the required rate of return. Based on the results of this study, it is recommended that the pharmacy group should continue providing the pharmacist's assistants with in-house training because it is not only financially viable, but provides other intangible benefits. It is further recommended that the personnel of the pharmacy group have to be informed about the benefits of determining the return on investment of a training programme and trained in the implementation thereof. More effort should be put into the measuring of improvement as a result of the training

programme at different stages of implementation of the programme. Further attention should also be given to the allocation of training costs within the pharmacy group.

OPSOMMING

Vaardigheidsontwikkeling deur middel van onderwys en opleiding het nog altyd 'n integrale deel van die ontwikkeling van individue en die produktiwiteit en mededingendheid van instellings uitgemaak. Onderwys in Suid-Afrika, veral gedurende die Apartheidsjare, was dikwels 'n kwessie wat baie twispunte ontlok het. Sedert die African National Congress (ANC) in 1994 aan bewind gekom het, is 'n nuwe vaardigheidstrategie geïmplementeer en drie belangrike stukke wetgewing is aanvaar, naamlik die Wet op die Suid-Afrikaanse Kwalifikasie-owerheid (SAKO), die Wet op Vaardigheidsontwikkeling en die Wet op Vaardigheidsontwikkeling-heffing. Die Wet op Vaardigheidsontwikkeling-heffing dwing organisasies in werklikheid om opleiding aan hul werknemers te verskaf en maak voorsiening daarvoor dat die werknemer die vaardigheidsheffings weer as toekennings kan terugeis, op voorwaarde dat daar aan sekere opleidingskriteria voldoen is.

Wanneer daar na die finansiële implikasies van die opleiding en ontwikkeling van werknemers in Suid-Afrika gekyk word, kom bepaalde kostes en voordele ter sprake. Menslike Hulpbronbestuurders verkeer onder groeiende druk om die uitgawes, wat dikwels 'n aansienlike bedrag beloop, asook die uitwerking wat dit op die wins van die maatskappy het, te regverdig. Gesien in die lig van 'n toenemend mededingende omgewing en die finansiële implikasie van die nuwe wetgewing, word die finansiële geldigheid van 'n belegging in opleiding en ontwikkeling beslis bevraagteken.

'n Korporatiewe aptekersgroep het 'n soortgelyke vraag geopper. Die algemene doelstelling van hierdie navorsing was om die finansiële lewensvatbaarheid van die opleiding en ontwikkeling van aptekersassistente in dié korporatiewe aptekersgroep te bepaal. Die onderhawige studie het die volgende drie aspekte behels: Eerstens 'n literatuurstudie, tweedens 'n empiriese opname deur middel van 'n opnamevraelys wat die uitwerking van opleiding soos dit deur die aptekersassistente en hul toesighouers ervaar is, gemeet het en derdens 'n vraelys wat tydens die gestruktureerde onderhoude deur sleutelpersoneellede van die korporatiewe aptekersgroep voltooi is. Die resultate van die onderhoude en die ondersoek van die finansiële rekords van die aptekersgroep is gebruik om die finansiële lewensvatbaarheid van die opleidingsprogram vir aptekersassistente te bereken.

Die resultate het getoon dat die opleidingsprogram vir aptekersassistente in die korporatiewe aptekersgroep wel vir die groep finansiële lewensvatbaar is. Verder het 'n prestasie-evaluering van die opleidingsprogram aangedui dat die program waarde tot die groep toevoeg deur 'n hoër opbrengs as die vereiste opbrengskoers te lewer. Op grond van die resultate van hierdie studie is die aanbeveling dat die aptekersgroep moet voortgaan om die aptekersassistente deur middel van interne opleiding op te lei. Nie net is dit finansiële lewensvatbaar nie, maar dit lewer ook ander

ontasbare voordele. Dit word verder ook aanbeveel dat die personeel van die aptekersgroep ingelig moet word oor die voordele daarvan om die opbrengs op belegging van 'n opleidingsprogram te bepaal en opgelei moet word om dit te implementeer. Daar moet meer moeite gedoen word om die verbetering wat uit die opleidingsprogram voortspruit, op verskillende stadiums van die program se implementering te meet. Verdere aandag moet ook aan die toewysing van opleidingskoste in die aptekersgroep geskenk word.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
ABSTRACT.....	iii
OPSOMMING.....	v
LIST OF ABBREVIATIONS.....	xvi
LIST OF TABLES.....	xvii
LIST OF FIGURES.....	xviii
LIST OF GRAPHS.....	xix
LIST OF CALCULATIONS.....	xx
CHAPTER 1: INTRODUCTION.....	1
1.1 BACKGROUND	1
1.2 PROBLEM STATEMENT	3
1.3 RESEARCH OBJECTIVES	4
1.3.1 General objective.....	4
1.3.2 Specific objectives.....	5
1.4 HYPOTHESIS.....	5
1.5 RESEARCH METHOD.....	6
1.5.1 Phase 1: Literature study.....	6
1.5.2 Phase 2: Empirical study.....	6
1.5.2.1 Research design.....	6
1.5.2.2 Composition of the study field.....	8
1.5.2.3 Methods and techniques for data analysis.....	8
1.5.2.4 Reliability and validity.....	9
1.5.2.5 Report and discussion of results.....	9
1.5.2.6 Conclusions and recommendations.....	9
1.6 CONTRIBUTION OF THIS RESEARCH TO THE BODY OF KNOWLEDGE....	9
1.7 SUMMARY	10

TABLE OF CONTENTS (CONTINUED)

CHAPTER 2: LEGISLATION AND REGULATORY REQUIREMENTS

	IMPACTING ON TRAINING AND DEVELOPMENT.....	12
2.1	INTRODUCTION.....	12
2.2	TRAINING AND DEVELOPMENT.....	13
2.3	SOUTH AFRICAN LEGISLATION ON TRAINING AND DEVELOPMENT.....	14
2.3.1	Background.....	15
2.3.2	SAQA and the NQF.....	17
2.3.3	Skills Development Act.....	19
2.3.4	Skills Development Levies Act.....	22
2.3.5	Learnerships.....	24
2.4	TRAINING OF PHARMACIST'S ASSISTANTS.....	25
2.5	OUTSOURCING OF TRAINING AND DEVELOPMENT.....	27
2.6	SUMMARY.....	28

CHAPTER 3: METHODS AND TECHNIQUES UTILISED TO MEASURE THE COSTS AND BENEFITS OF TRAINING AND DEVELOPMENT.....

3.1	INTRODUCTION.....	30
3.2	COST TERMINOLOGY.....	31
3.2.1	Cost assignment and cost allocation: direct and indirect costs.....	32
3.2.2	Fixed and variable costs.....	33
3.2.3	Semi-variable costs.....	35
3.2.4	Step costs.....	35
3.2.5	Marginal costs.....	36
3.2.6	Relevant cost.....	36
3.2.7	Total cost and unit cost.....	37
3.3	CONTRIBUTION THEORY.....	38
3.4	MEASURING THE COSTS OF TRAINING.....	39
3.4.1	Cost accumulation and estimation.....	40
3.4.2	Costs of training.....	41
3.4.2.1	Skills Development Levy.....	41
3.4.2.2	Needs assessment.....	42
3.4.2.3	Cost of developing and preparing training materials.....	43

TABLE OF CONTENTS (CONTINUED)

3.4.2.4	Training attendance cost.....	44
3.4.2.5	Instructor cost.....	45
3.4.2.6	Cost of materials.....	45
3.4.2.7	Cost of equipment.....	46
3.4.2.8	Facilities cost.....	46
3.4.2.9	Travelling cost.....	47
3.4.2.10	Promotional cost.....	47
3.4.2.11	Administration cost.....	47
3.4.2.12	Evaluation/Assessment cost.....	48
3.5	THE OUTSOURCING DECISION.....	49
3.6	MEASURING THE BENEFITS OF TRAINING.....	55
3.6.1	Cost accumulation and estimation.....	55
3.6.2	Benefits of training.....	55
3.6.2.1	Skills Development Grant.....	55
3.6.2.2	Tax deduction in respect of learnership agreement.....	57
3.6.2.3	Increased productivity.....	58
3.6.2.4	Increased sales.....	58
3.6.2.5	Labour savings.....	58
3.6.2.6	Improved quality.....	58
3.6.2.7	Other cost savings.....	58
3.6.2.8	Intangible benefits.....	59
3.6.3	Productivity measurement.....	59
3.6.3.1	Partial productivity measurement.....	59
3.6.3.2	Total factor productivity measurement.....	60
3.7	BARRIERS TO THE MEASUREMENT OF THE COSTS AND BENEFITS OF TRAINING.....	60
3.8	SUMMARY.....	61

CHAPTER 4: PERFORMANCE EVALUATION OF TRAINING AND DEVELOPMENT.....

4.1	INTRODUCTION.....	63
4.2	MEASURING HUMAN CAPITAL ADVANTAGE.....	66
4.3	THE EVALUATION OF TRAINING.....	67

TABLE OF CONTENTS (CONTINUED)

4.3.1	The structure of the training evaluation programme.....	67
4.3.2	Return on Investment (ROI) Process Model.....	69
4.3.2.1	Evaluation planning.....	70
4.3.2.2	Collecting data.....	70
4.3.2.3	Isolating the effect of the HR programme.....	70
4.3.2.4	Converting data to monetary values.....	75
4.4	DISCOUNTED CASH FLOW ANALYSIS.....	78
4.4.1	Time value of money.....	79
4.4.2	Discount rate.....	79
4.4.3	Cash flow determination.....	79
4.4.3.1	Cash flow versus accounting profit.....	80
4.4.3.2	Relevant cash flows.....	80
4.4.3.3	Taxation.....	80
4.4.3.4	Inflation.....	80
4.5	TECHNIQUES FOR THE EVALUATION OF TRAINING AND DEVELOPMENT PERFORMANCE.....	81
4.5.1	Return on investment (ROI)	82
4.5.2	Net present value (NPV)	87
4.5.3	Benefit/cost ratio.....	89
4.5.4	Payback period.....	90
4.5.5	Internal rate of return (IRR)	92
4.5.6	Residual income (RI).....	93
4.5.7	Economic value added (EVA).....	94
4.5.8	Bottom line evaluation.....	97
4.5.9	Utility analysis.....	98
4.6	SUMMARY.....	98
CHAPTER 5: RESEARCH METHODOLOGY.....		100
5.1	INTRODUCTION.....	100
5.2	OBJECTIVES OF EMPIRICAL INVESTIGATION.....	100
5.3	STUDY POPULATION.....	100
5.4	MEASURING INSTRUMENTS.....	101
5.5	THE INTERVIEW.....	101

TABLE OF CONTENTS (CONTINUED)

5.5.1	Objective of the interview.....	102
5.5.2	Description of the interview.....	102
5.5.3	Study sample of the interview.....	104
5.5.4	Administration of the interview.....	104
5.5.5	Analysis of the interview.....	105
5.5.6	Reliability and validity of the interview.....	106
5.6	THE SURVEY QUESTIONNAIRE.....	108
5.6.1	Objective of the questionnaire.....	108
5.6.2	Study sample of the questionnaire.....	109
5.6.3	Structure of the questionnaire.....	110
5.6.4	Administration of the questionnaire.....	112
5.6.5	Analysis of the questionnaire.....	113
5.6.6	Reliability and validity of the questionnaire.....	113
5.7	THE EXAMINATION OF THE FINANCIAL RECORDS.....	114
5.7.1	Objective.....	114
5.7.2	Administration.....	114
5.7.3	Analysis.....	114
5.7.4	Reliability and validity.....	115
5.8	RESEARCH METHOD.....	115
5.9	SUMMARY.....	117
 CHAPTER 6: ANALYSIS OF RESULTS.....		118
6.1	INTRODUCTION.....	118
6.2	INTERVIEWS.....	119
6.2.1	The pharmacist's assistants training programme.....	119
6.2.1.1	Structure and process.....	119
6.2.1.2	Number of pharmacist's assistants under learnership agreements.....	122
6.2.1.3	Training of pharmacist's assistants not employed by the company.....	122
6.2.1.4	Workshops.....	122
6.2.2	Needs assessment.....	122
6.2.3	Development and preparation of the material.....	123
6.2.3.1	Hours.....	123
6.2.3.2	Levels of employment.....	123

TABLE OF CONTENTS (CONTINUED)

6.2.3.3	External developers or consultants.....	124
6.2.3.4	Updating of material.....	124
6.2.3.5	Other costs of development.....	124
6.2.4	Training attendance.....	124
6.2.4.1	Attendance cost of internal learners.....	125
6.2.4.2	Attendance cost of external learners.....	125
6.2.5	Instructor cost.....	125
6.2.6	Course material.....	125
6.2.7	Equipment.....	126
6.2.8	Facilities.....	126
6.2.9	Travel.....	126
6.2.10	Promotional cost.....	127
6.2.11	Administration cost.....	127
6.2.12	Evaluations/Assessments.....	127
6.2.13	Cost allocation.....	128
6.2.14	Outsourcing.....	128
6.2.14.1	Rates.....	128
6.2.14.2	Other costs.....	129
6.2.14.3	Motivation for decision to do training in-house.....	129
6.2.15	Benefits.....	129
6.2.15.1	Grants received.....	130
6.2.15.2	Qualitative and quantitative benefits.....	130
6.2.15.3	Income from external users.....	131
6.3	THE EFFECT OF THE TRAINING AS PERCEIVED BY THE PHARMACIST'S ASSISTANTS AND THE PHARMACY MANAGERS AND PHARMACISTS.....	131
6.3.1	The effect of training on the learner's ability to perform tasks.....	131
6.3.2	The effect of training on the work outputs of the learner.....	138
6.4	CALCULATING THE COSTS AND BENEFITS OF TRAINING PHARMACIST'S ASSISTANTS IN A CORPORATE PHARMACY GROUP	145
6.4.1	Case study information.....	145
6.4.1.1	Period under review.....	146
6.4.1.2	Number of learners.....	146
6.4.1.3	Inflation.....	147

TABLE OF CONTENTS (CONTINUED)

6.4.1.4	Salaries.....	147
6.4.1.5	Other information.....	148
6.4.2	Calculation of the costs of training.....	148
6.4.2.1	Skills Development Levy.....	149
6.4.2.2	Needs assessment.....	149
6.4.2.3	Cost of developing and preparing of training materials.....	149
6.4.2.4	Training attendance costs.....	154
6.4.2.5	Registration cost of learners.....	156
6.4.2.6	Instructor cost.....	157
6.4.2.7	Cost of material.....	157
6.4.2.8	Cost of equipment.....	159
6.4.2.9	Cost of facilities.....	159
6.4.2.10	Travelling cost.....	159
6.4.2.11	Administration cost.....	160
6.4.2.12	Cost of evaluations/assessments.....	161
6.4.2.13	Salaries of learners.....	163
6.4.3	Benefits of training.....	164
6.4.3.1	Skills Development Grant.....	164
6.4.3.2	Tax deduction in respect of learnership.....	165
6.4.3.3	Effect of training on company performance.....	166
6.4.3.4	Increased productivity.....	168
6.4.3.5	Increase in sales.....	168
6.4.3.6	Improved customer satisfaction.....	168
6.4.3.7	Labour savings.....	169
6.4.3.8	Staff turnover.....	170
6.4.3.9	Cost savings.....	170
6.4.3.10	Income from other users.....	171
6.4.4	Summary.....	172
6.5	CALCULATING THE COSTS AND BENEFITS OF THE OUTSOURCING OF THE TRAINING OF PHARMACIST'S ASSISTANTS.....	174
6.5.1	Training fees.....	174
6.5.2	Travelling cost.....	175

TABLE OF CONTENTS (CONTINUED)

6.6	DETERMINING HOW IN-HOUSE TRAINING AND THE OUTSOURCING OF TRAINING COMPARE IN TERMS OF COSTS AND BENEFITS FOR A CORPORATE PHARMACY GROUP.....	175
6.6.1	Net present value of in-house training.....	176
6.6.2	Net present value of outsourcing.....	178
6.6.3	Results in terms of the hypothesis statement.....	178
6.7	EVALUATION OF THE PERFORMANCE OF THE TRAINING PROGRAMME FOR PHARMACIST'S ASSISTANTS IN A CORPORATE PHARMACY GROUP.....	179
6.7.1	Return on investment (ROI)	179
6.7.2	Net present value.....	180
6.7.3	Benefit/cost ratio.....	180
6.7.4	Payback period.....	181
6.7.5	Internal rate of return.....	182
6.7.6	Residual income.....	183
6.7.7	Economic value added.....	184
6.7.8	Bottom line evaluation.....	185
6.7.9	Utility analysis.....	185
6.8	SUMMARY.....	186
CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS.....		188
7.1	INTRODUCTION.....	188
7.2	CONCLUSIONS.....	188
7.2.1	Conclusions regarding the specific research objectives.....	188
7.2.1.1	Legislation and pharmaceutical regulatory requirements that influence the training and development of pharmacist's assistants in South Africa.....	188
7.2.1.2	The measurement of the costs and benefits of training and development.....	189
7.2.1.3	Performance evaluation of training and development.....	190
7.2.2	Conclusion regarding the specific empirical objectives.....	190
7.2.2.1	The impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists.....	191

7.2.2.2	Costs and benefits of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group.....	192
7.2.2.3	Costs and benefits of the outsourcing of the training of pharmacist's assistants in a corporate pharmacy group.....	193
7.2.2.4	Comparison of in-house training and outsourcing of training in term of costs and benefits for a corporate pharmacy group.....	193
7.2.2.5	Performance evaluation of the training of pharmacist's assistants in a corporate pharmacy group.....	193
7.3	LIMITATIONS OF THE RESEARCH.....	194
7.4	RECOMMENDATIONS.....	194
7.5	SUMMARY.....	196
	 BIBLIOGRAPHY.....	 197
	APPENDIX 1.....	208
	APPENDIX 2.....	212
	APPENDIX 3.....	223
	APPENDIX 4.....	232

LIST OF ABBREVIATIONS USED

ABE	Adult Basic Education
ANC	African National Congress
CEPD	Centre for Education Policy Development
COSATU	Congress of South African Trade Unions
CPD	Continuous Professional Development
ETD	Education, training and development
HRD	Human Resource Development
HWSETA	Health and Welfare Sector Education and Training Authority
IPET	Implementation Plan for Education and Training
IRR	Internal Rate of Return
NCVER	National Centre for Vocational Education Research
NEPI	National Education Policy Initiative
NPV	Net Present Value
NQF	National Qualifications Framework
NTSI	National Training Strategy Initiative
NUMSA	National Union of Metalworkers of South Africa
PA	Pharmacist's assistant
RDP	Reconstruction and Development Programme
RI	Residual income
ROI	Return on Investment
SAPC	South African Pharmacy Council
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
VAT	Value Added Tax

LIST OF TABLES

Table	Description	Page
3.1	Cost classification matrix	41
3.2	Reasons provided by different companies for outsourcing	49
5.1	Reliability of the interview	107
5.2	Validity of the interview	108
5.3	Descriptive information of sample of pharmacist's assistants	109
5.4	Descriptive information of the sample of raters acting as tutors	110
6.1	Impact of training as rated by a Qualified and Registered Post-Basic level Pharmacist's Assistant	132
6.2	Impact of training as rated by a Trainee Post-Basic level Pharmacist's Assistant	134
6.3	Impact of training as rated by a Trainee Basic level Pharmacist's Assistant	136
6.4	Impact of training as rated by a Qualified and Registered Post-Basic level Pharmacist's Assistant	139
6.5	Impact of training as rated by a Trainee Post-Basic level Pharmacist's Assistant	140
6.6	Impact of training as rated by a Trainee Basic level Pharmacist's Assistant	141
6.7	Number of learners	147
6.8	Salaries	148
6.9	Results of performance evaluation of in-house training programme for pharmacist's assistants in a corporate pharmacy group	187

LIST OF FIGURES

Figure	Description	Page
1.1	Illustration of <i>ex post facto</i> research design	7
2.1	The NQF levels structure	19
2.2	The acts – their structures and roles	23
4.1	The structure of the training evaluation programme	67
4.2	ROI Process Model	69
6.1	Learning process diagram	121

LIST OF GRAPHS

Graph	Description	Page
3.1	Variable cost	34
3.2	Fixed cost	34
3.3	Mixed cost	35
3.4	Step cost	36
4.1	Trendline example	71
6.1	Learning process diagram	122

LIST OF CALCULATIONS

Calc.	Description	Page
1	Cost of personnel time for the development of course material	151
2	Cost of editing the course material	151
3	Cost of personnel time for the updating of material	152
4	Cost of language editing	152
5	Initial investment in the development of the material	153
6	Total annual cost of the development of training material	154
7	Total annual attendance cost per internal learner	155
8	Total annual attendance cost per external learner	155
9	Total annual cost of attendance	156
10	Cost of study material per learner	158
11	Total annual cost of materials	158
12	Annual travelling cost	160
13	Administration cost allocated to training programme	161
14	Initial investment in assessors	161
15	Total annual cost of personnel time	162
16	Total annual cost of assessments	163
17	Salaries of section 18(2) learners	164
18	Discretionary grants received	165
19	Tax saving on learnerships	166
20	Value of reduction of picking mistakes	167
21	Annual saving of pharmacists' time	169
22	Savings on CPD	171
23	Income from external learners	172
24	Income from sale of material	172
25	Net income from training programme	173
26	Total initial investment in training programme	174
27	Total annual training fees of outsourcing	175
28	Total annual cost of outsourcing	175
29	Net income from an in-house training programme	177
30	Net present value of in-house training	178
31	Net present value of the outsourcing of training	178
32	Accounting rate of return	179

LIST OF CALCULATIONS (CONTINUED)

Calc.	Description	Page
33	Net present value	180
34	Benefit/cost ratio	181
35	Payback period	181
36	Discounted payback period	182
37	Internal rate of return	183
38	Residual income	184
39	Economic value added	185

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Skills development through education and training has always formed an integral part of the development of individuals and the productivity and competitiveness of institutions. Government has a critical role to play in creating a skilled and knowledgeable workforce in ensuring international competitiveness (Van Dyk *et al.*, 2001:4).

Since the African National Congress (ANC) came into power in 1994, great emphasis has been placed on education and training and redressing the imbalances of the past. In its discussion document (1994), the ANC blamed the educational system of the past for the lack of skilled and trained labour and the adverse affect thereof on productivity and the international competitiveness of the economy. One of the visions of this document was a national system of education and training that would enable all citizens to become more progressively qualified in a lifelong process. The integration of education and training in one system with a credit based qualifications framework were proposed to enhance all citizens' chances to better their capabilities.

In its Policy Framework for Education and Training, the African National Congress (1994) stated that South Africa ranked bottom amongst the newly industrialising companies in terms of development of our human resources. They addressed the fact that the teaching of Science and Mathematics in black schools were poor, and that the situation in workplace training was little better. Workers were said to be ill-equipped to contribute to innovations in the workplace or to adapt to the changing forms of work organisation required by new technologies.

During 1995 the South African Qualifications Authority Act (SAQA) (58/1995) was passed through parliament. The driving force behind the passing of the SAQA Act was to ensure that the level of training and education in South Africa was uplifted to a level comparable with the rest of the world (Coetzee, 2000:1). This Act encourages the growth of skills and redresses the skills imbalances in South Africa (Grobler *et al.*, 2002:341). The SAQA Act (58/1995) provides for the development of a National Qualifications Framework (NQF). The objective of the NQF is an integrated approach to education and training within a system that facilitates lifelong learning. Furthermore, it also strives to promote the quality of education and training, access thereto and to redress the imbalances of the past.

All of the above culminated into the Skills Development Act (97/1998) and the Skills Development Levies Act (9/1999) being passed into legislation in 1998 and 1999 respectively. The objectives of the Skills Development Act (97/1998) are to develop the skills of the South African workforce, to increase the levels of investment in education and training, to encourage employers to provide opportunities for development, to encourage workers to participate, to improve the employment prospects of the previously disadvantaged, to ensure the quality of education, to assist in the work-seeking process and to provide and regulate employment services.

The Skills Development Levies Act (9/1999) provides the laws and regulations for the funding of the development of the workforce as implicated by the Skills Development Act (97/1998). This Act places a financial burden on organisations in the form of a levy, which is based on the annual payroll of the organisation. The employer can however recover a portion of this levy by means of grants, depending on certain criteria that have to be met. In essence these criteria involve the training and development of the employees as prescribed by the Skills Development Act (97/1998).

The Skills Development Act (97/1998) addresses two types of learning programmes, namely learnerships and skills programmes. The Act requires that learnerships include both structured learning and practical work experience. Furthermore, it must be registered as prescribed by the Skills Development Act (97/1998); lead to a qualification registered by the SAQA Act (58/1995) and must be related to an occupation. Learnerships are entered into between a learner, an employer and a training provider.

Skills programmes are defined by the Skills Development Act (97/1998) as occupational-based and constituting a credit towards a registered qualification upon completion. A skills programme is not based on a full qualification and does not have to be a contractual obligation.

The Skills Development Act (97/1998) provides for the establishment of Sector Education and Training Authorities (SETA) by the Minister of Labour for any national economic sector. The Health and Welfare Sector Education and Training Authority (HWSETA) was listed as one of the SETA's (SA, 1999a). Some of the functions of the SETA are, *inter alia*, the establishment, promotion and registration of learnerships.

The pharmaceutical industry in South Africa falls under the HWSETA. The South African Pharmacy Council (SAPC) cited human resource development as an ethical guideline in their Good Pharmacy Practice in South Africa (1997). The HWSETA (2000) identified the need for increasing the human resource pool of pharmaceutical expertise in order to make pharmaceutical services available to the entire South African population. The objective was that the pharmacist's assistant

should assume responsibility under the supervision of the pharmacist. Pharmacist's assistant learnerships were cited as a means of achieving this objective.

1.2 PROBLEM STATEMENT

The financial implications of the training and development of employees in South Africa entail costs and benefits. The costs include costs such as skills levies and providing an infrastructure for training. Benefits include quantitative benefits such as grants from the SETA, additional grants for entering into learnership contracts, increased sales and avoided expenses and qualitative benefits such as a motivated and productive workforce. The investment in human resources is treated as an expense in the income statement. Human resource managers are under increased pressure to validate these, often substantial, expenses and the effect they have on the bottom line of the company. The benefits of the investment in human capital are not always as clearly evident as the costs. In an environment where competition is ever increasing and in the light of the financial impact of the new legislation, the financial viability of an investment in training and development is being questioned.

A corporate pharmacy group in South Africa, which is committed to human resource development, raised a similar question. The international guideline states that there should be two pharmacist's assistants for every pharmacist. The current ratio in South Africa is 16 pharmacists for every pharmacist's assistant (Rothmann, 2001). Rothmann also commented that there is currently a 40% shortage of pharmacists in South Africa. The training of pharmacist's assistants could, in all probability, greatly relieve the burden on pharmacists. The shortage of pharmacist's assistants became one of the driving forces for the training of pharmacist's assistants by this pharmacy group. The other driving forces were the social responsibility of the group towards developing their human resources, additional possible tax returns and the recovery of the skills development levies.

In 2000 the strategy of the group was to outsource the training and development of pharmacist's assistants to external training providers. The group of companies consisted of the following private companies:

- Retail pharmacies
- Hospital pharmacies
- Purchasing companies

In 2001, a Training and Development Company was added to the group to provide the infrastructure for in-house training of the pharmacist's assistants. According to Mrs S. van

Rensburg (2002), the Chief Executive Officer of the group, and Dr J.C. Rothmann (2002), the Managing Director of the Training and Development Company within the group, the financial viability of this strategy is being questioned.

Based on the description of the problem, the following research questions arise:

- How do legislation and pharmaceutical regulatory requirements influence the training and development of pharmacist's assistants in South Africa?
- How can the costs and benefits of training and development be measured?
- How can the performance of a training programme be evaluated?
- What is the impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists?
- What are the costs and benefits of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group?
- What are the costs and benefits of outsourcing of the training of pharmacist's assistants in a corporate pharmacy group?
- How do these approaches in a corporate pharmacy group compare in terms of costs and benefits?
- What is the performance of the training and development programme for pharmacist's assistants in a corporate pharmacy group?
- Which recommendations can be formulated regarding the financial viability of the establishment of an in-house infrastructure versus the utilisation of external training providers for the training of pharmacist's assistants in a corporate pharmacy group?

1.3 RESEARCH OBJECTIVES

This research embraces general and specific objectives.

1.3.1 General objective

The general research objective of this study is to determine the financial viability of the training and development of pharmacist's assistants in a corporate pharmacy group. Driving forces for such training entail, *inter alia*, adherence to the Skills Development Act (97/1998) and the Skills Development Levies Act (9/1999), requirements set by the South African Pharmacy Council and the social responsibility of organisations towards human resource development. The study

addresses the question of the financial impact of creating an in-house training infrastructure versus the outsourcing of this training to external training providers.

1.3.2 Specific objectives

The specific objectives of this research are as follows:

- 1.3.2.1 To conceptualise legislation and pharmaceutical regulatory requirements that influence the training and development of pharmacist's assistants in South Africa from the literature.
- 1.3.2.2 To conceptualise the measurement of the costs and benefits of training and development from the literature.
- 1.3.2.3 To conceptualise the performance evaluation of training and development from the literature.
- 1.3.2.4 To determine the impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists.
- 1.3.2.5 To determine the implications (costs and benefits) of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group.
- 1.3.2.6 To determine the implications (costs and benefits) of the outsourcing of the training of pharmacist's assistants in a corporate pharmacy group.
- 1.3.2.7 To determine how these approaches compare in terms of costs and benefits for a corporate pharmacy group.
- 1.3.2.8 To evaluate the performance of the training and development of pharmacist's assistants in a corporate pharmacy group.
- 1.3.2.9 To formulate recommendations regarding the financial viability of the establishment of an in-house infrastructure versus the utilisation of external training providers for the training of pharmacist assistants in a corporate pharmacy group.

1.4 HYPOTHESIS

The costs of the establishment of the infrastructure for in-house training will exceed the costs of the utilisation of external training providers. However, the benefits of in-house training will surpass the benefits of outsourcing in the long-term.

1.5 RESEARCH METHOD

The research consists of two phases, viz a literature review and an empirical study.

1.5.1 Phase 1: Literature study

The literature study focuses on relevant legislation regarding training and development in South Africa. This includes a comprehensive literature review on the SAQA Act, the Skills Development Act, the Skills Development Levies Act, the Labour Act and other relevant regulatory requirements such as the requirements of the South African Pharmacy Council (SAPC) and the Health and Welfare Sector Education and Training Authority (HWSETA).

Furthermore, a detailed literature review regarding methods and techniques described for the measurement of training and development in terms of costs and benefits is presented. These methods and techniques are evaluated and tailored to serve as the basis for the measuring criteria to be applied during the empirical investigation.

1.5.2 Phase 2: Empirical study

The proposed methodology for the empirical study is discussed below:

1.5.2.1 Research design

The goal of the research design is to ensure that research is planned in such a manner that the design adequately answers the research questions and that the internal and external validity levels are enhanced (Kerlinger, 1986:298; Mouton & Marais, 1992:35).

This research is classified as exploratory and descriptive with contextual interest (Mouton & Marais, 1992:45-48). Exploratory research is applicable to the literature review where an overview of current relevant literature regarding legislation and the effects thereof on organisations in the pharmaceutical sector will be given. Descriptive research is applicable to the training and development approaches that can be utilised.

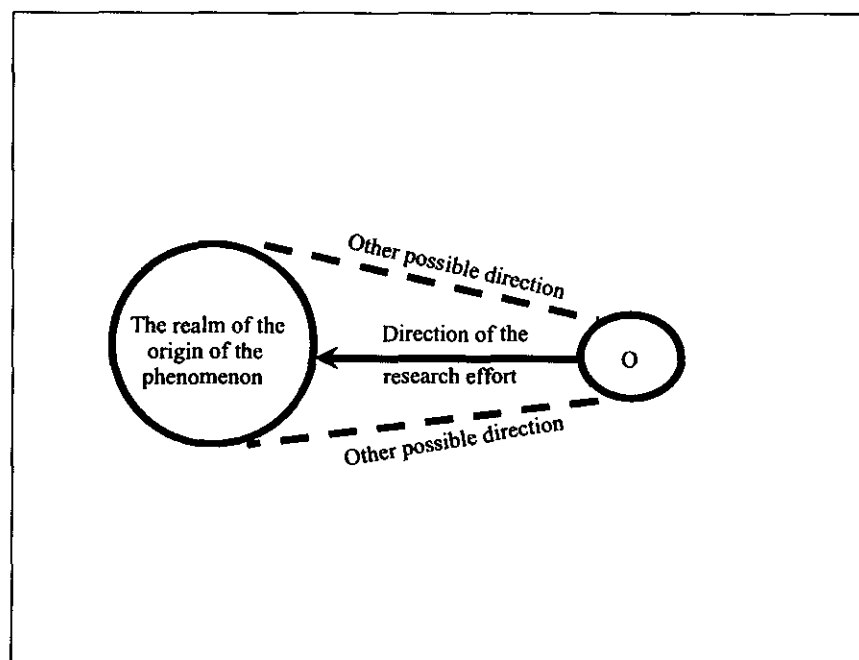
The research can overall be classified as qualitative and non-experimental quantitative research. A semi-structured interview embraces qualitative research. According to Leedy (1997:104) qualitative research involves the understanding or description of a phenomenon from the participant's point of view. Qualitative research refers to the collection of data in the form of words

or pictures (Neuman, 2000:33). Qualitative research is applicable to the interviews that were conducted in a semi-structured manner.

A survey design is implemented to reach the objectives regarding the perceived impact of training. The specific design is the cross-sectional design, whereby a sample is drawn from a population at a particular point in time (Shaughnessy & Zechmeister, 1997:287). Information collected is used to describe the population at that time. This design can be used to assess interrelationships among variables within a given population. According to Shaughnessy and Zechmeister (1997:287) this design is ideally suited to the descriptive and predictive functions associated with correlation research.

Regarding the examination of the financial data, the research can in addition be classified as non-experimental quantitative research embracing an *ex post facto* research design (Leedy, 1997:226). *Ex post facto* research is a description of cause-and-effect relationships and provides the means by which a researcher can examine how specific independent variables (i.e. internal versus external training strategies) affect the dependent variable (i.e. costs) (Leedy, 1997:226). In other words, *ex post facto* research implies that the researcher examines conditions that have already occurred and then collects data to investigate or compare the impact of these varying conditions. *Ex post facto* designs involve no direct manipulation of conditions or data because the presumed cause has already occurred. The *ex post facto* research design is illustrated in Figure 1.1 (Leedy, 1997:233).

Figure 1.1: Illustration of *ex post facto* research design



The entry to the diagram is at the right-hand side. This is where the researcher encounters the observed fact (O). This observed fact originated in a much larger area of events, which is represented by the larger circle at the left, viz the realm of the origin of the phenomenon, of which the observed fact is but a small part. It is from the area of the observed fact that the researcher formulates the hypothesis and aims the research effort. Because of the disparity between the size of the observed instance and expanse of the possibility out of which the observed may have arisen, it is always possible that the direction of the research effort in *ex post facto* studies may lead nowhere (Leedy, 1997:238).

1.5.2.2 Composition of the study field

The study field consists of a corporate pharmacy group that initially utilised external providers for the training of pharmacist's assistants. This strategy was altered towards the implementation of an in-house training division. These two strategies are retrospectively compared in terms of financial viability.

The period under review will be January 2002 to December 2005. Projections are made to extrapolate outsourced training costs and benefits up to the end of the period under review.

1.5.2.3 Methods and techniques for data analysis

The methods utilised in this study include:

- Exploratory semi-structured interviews conducted with the Managing Director of the training company in the group, the Operations Manager of the training company, the Chief Financial Officer of the group and the Financial Officer of the training company within the group in order to obtain relevant data.
- Survey questionnaires to the pharmacist's assistants and pharmacy managers or pharmacists in the pharmacy group.
- Examination of financial statements and other financial records for the period under review. The costs and benefits of each of the two strategies followed by the group are analysed in order to compare the two strategies in terms of financial viability.

The following methods and techniques are, *inter alia*, applied:

- Return on investment;

- Net present value;
- Benefit/cost ratio;
- Payback period;
- Internal rate of return;
- Residual income;
- Economic value added; and
- Accounting rate of return.

1.5.2.4 Reliability and validity

No direct manipulation of financial information by the researcher is possible. The criteria and formulas are used as described in the literature and applied by experts in the field, thereby ensuring construct validity of the criteria.

In terms of the reliability the assumption is made that the financial statements provided were conducted according to sound accepted accounting practice.

The formulas and techniques applied are scrutinised by a panel of experts in the field of Management Accounting, thereby ensuring the reliability of calculations and results.

1.5.2.5 Report and discussion of the results

The results are tabulated, discussed and related to the literature.

1.5.2.6 Conclusions and recommendations

Recommendations regarding the financial viability of the in-house training or outsourced training of pharmacist's assistants, as well as for future studies, are made based on the results of the empirical investigation.

1.6 CONTRIBUTION OF THIS RESEARCH TO THE BODY OF KNOWLEDGE

This research is expected to make contributions in the following areas:

- The quantification of skills development;
- The application of Management Accounting formulas in skills development;

- The establishment and emphasising of Management Accounting in skills development legislation;
- Financial quantification of the implementation of legislation;
- Providing valid information for the implication of strategic decisions in training and development organisations; and
- Effective financial management of training and development in organisations.

1.7 SUMMARY

In this chapter the problem statement and motivation for the study were discussed. This was followed by the research objectives and the research method. The research method included a detailed discussion of the research design applied in the study.

The study is structured as follows:

In chapters two to four the literature is reviewed. Chapter two will deal with the legislation and regulatory requirements impacting on training and development. This chapter will include an overview of the legislation governing training and development in South Africa as well as the regulatory requirements for the training of pharmacist's assistants as set out by the South African Pharmacy Council.

Chapter three reviews the methods and techniques to measure the costs and benefits of training and development. The cost terminology will be discussed, followed by a detailed description of the benefits and costs of training, as well as the methods proposed in the literature to measure it. The chapter will also review the method used to take the decision of whether training should be outsourced.

The literature study is concluded in chapter four with a discussion on the techniques for measuring the performance of the training intervention. The chapter will review the return on investment process model including a discussion on the planning stage, collection of data, isolating the effect of training and converting data to monetary value. The chapter will be concluded with a discussion of the techniques for performance evaluation such as return on investment, net present value, benefit/cost ratio, payback period, internal rate of return, residual income, economic value added, bottom-line evaluation and utility analysis.

Chapter five sets out a detailed explanation of the research methodology that will be used in this study. This chapter will include issues such as a description of the study population and the measuring instruments used. The chapter will also address the interview process, the survey questionnaires and the examination of the financial records. It will be concluded with a discussion on the research method.

Chapter six contains an analysis and discussion of the results of the interviews, survey questionnaires and the examination of the financial data of the pharmacy group. The methods and techniques observed from the literature will be applied to the data obtained from the interviews and examination of the financial records to determine the costs and benefits of providing an in-house training infrastructure, the costs and benefits of outsourcing the training function and how these approaches compare in terms of costs and benefits. Finally, a performance evaluation of the training intervention of a pharmacy group will be conducted using the techniques identified in the literature study.

In Chapter seven the results are discussed and recommendations are provided regarding the financial implications of the training of the pharmacist's assistants. The chapter will be concluded with reference to recommendations for further research.

CHAPTER 2

LEGISLATION AND REGULATORY REQUIREMENTS IMPACTING ON TRAINING AND DEVELOPMENT

2.1 INTRODUCTION

Globalisation has made it increasingly important that the competency of a country's workforce enables the country to compete globally with their products and services (Meyer, 1999:2). The global economy is increasingly demanding a better and more flexible skilled workforce. Workers must be skilled and competent to adapt to a rapid changing technological environment. The potential of the South African workforce, however, is not realised and World Competitiveness Reports have identified this as one of the reasons that South Africa is not able to compete globally (Meyer, 1999:2).

Training and development have developed significantly over the course of the last few decades and much more emphasis is being placed on the development of skills. In 1962 it was predicted that employers would only pay for training from which the employee would benefit as long as he works for the specific company (Bassi *et al.*, 2002:63). This resulted in a situation where employees were unable to increase their level of general skills due to a lack of time and/or funds. According to Garavan *et al.* (2001) research in Europe indicated that individuals place considerable value on the development of their skills by their employers. Top-performing professional employees and employees under the age of 30, place considerable value on training and development opportunities that are provided by their employer (Pfau *et al.*, 2002). According to Phelps (2002) lack of development is one of the main reasons for high-performing executives resigning from companies.

It is however not only the employee that values this investment. Companies also view human resource development as an important investment. Bassi *et al.* (2002:63) commented that there is evidence that firms do bear a great deal of the costs of training, including general skills training. Studies by Spangenburg *et al.* (1999) showed that companies invested in human resource development and workplace training to enhance the competencies of employees in order to enable the company to respond quickly and flexibly to business needs. Other advantages recognised by employers are increased productivity and higher employee retention (Pfau *et al.*, 2002).

Skills development does not only have economic benefits, but also adds social benefits to the community at large. These social benefits include better public health, lower crime, an increase in

environmental awareness, better parenting, increased political and community participation and social cohesion (Healy, 1998).

Government has a critical role to play in creating a skilled and knowledgeable workforce to ensure international competitiveness (Van Dyk *et al.*, 2001:4). The South African education system of the past was well-known for its racial inequalities and the division between education and training for different racial groups (Christie, 1998:111). Theory and practice was seen and treated as separate concepts and the knowledge acquired at schools or tertiary institutions could not be linked to the skills needed in the workplace. Employees could not transfer their acquired skills to other institutions or careers and they could therefore become trapped in a specific work environment (Meyer 1999:24). Practical workplace related skills needs became a driving force for training and development and terms such as “human capital” became general terms in business.

2.2 TRAINING AND DEVELOPMENT

Florides (1995) defines human capital as “the skills and knowledge embodied in an individual” and states that the level of this human capital is influenced by education and training. Although education, training and development are separate concepts, the new education, training and development (ETD) system in South Africa seeks to achieve a better integration between these concepts (Mabaso *et al.*, 2002:13).

Human resource development (HRD) is the processes, systems, methods, procedures and programmes utilised to develop human expertise through organisational development and training, and the development of personnel to improve organisational performance (Swanson, 2001:1; Meyer, 1999:2; Mabaso *et al.*, 2002:2). HRD is usually a continuous and long-term process.

According to Meyer (1999:2) HRD entails both training and non-training activities. HRD has evolved rapidly in the last decade in South Africa as well as internationally. The HRD function has become more than a mere training function but rather a consulting service to the rest of the organisation in ensuring that the business objectives are achieved (Meyer, 1999:2).

Training is the process of instruction whereby the employee acquires skills and knowledge that can be used immediately in the workplace to perform a specific task or job (Mello, 2002:272; Anthony *et al.*, 2002:323; Meyer, 1999:6).

Carnevale and Schulz (1998:232) define training as “a structured program with identified objectives and learning plans to improve the knowledge, skills and attitudes of trainees for use in their current and future job assignments” and according to them the definition encompasses the following:

- Formal training courses offered by either the organisation or external training providers;
- Structured on-the-job training conducted by the employee’s supervisor supplemented by written learning objectives and schedules; and
- Satellite broadcasts, job rotation and assessment centre activities.

Training can be classified as either on-the-job or off-the-job training. Off-the-job training does not take place while the employee is on duty. On-the-job training is where the learner receives training in the actual workplace and is therefore more job-related. It can be said that on-the-job training provides more specific skills than off-the-job training (Schonewille, 2001).

Education on the other hand is not concentrated on the skills to perform a specific task or job, but rather a long-term process, which encompasses a wide range of activities with the aim of preparing an individual for life. The process starts at childhood with the parents educating the child, it then continues at school and then later on in a person’s life in his work situation (Meyer, 1999:6; Mabaso *et al.*, 2002:14).

Learning is a term that is often used instead of training and implies an ongoing process of acquiring knowledge and skills, changing attitudes, becoming better informed about something or becoming aware or discovering something new. This is often more readily accepted by senior management, as it concentrates on the result rather than the process (Mello, 2002:272; Davis & Davis, 1998:53).

It can be concluded from the above definitions that training is narrower in focus than development and education and concentrates on the acquisition of skills for a specific job. Furthermore training is more concerned with the short-run while development and education have a long-term focus. Learning is the result of the training process.

2.3 SOUTH AFRICAN LEGISLATION ON TRAINING AND DEVELOPMENT

Since the African National Congress (ANC) came into power in 1994, great emphasis has been placed on education and training and redressing the imbalances of the past. The South African government introduced a number of initiatives to rectify the shortages of skills in the country.

Government had to take the following into account in formulating the new legislation on education and training (Bellis, 2000:25):

- The injustices of the past had to be addressed;
- The close link between a well-developed nation through education and a skilled, well-performing workforce;
- The increasingly technological society's demands on the foundations laid in the schooling and development processes;
- New types of skills are demanded in changing societies, changing technology and changing relationships;
- The ways curricula were put together had to be rethought because of new ways to learn and to qualify as routed to personal development and to effective performance; and
- Economies and organisations that are thriving are those that are learning fast.

2.3.1 Background

As early as the 1970's, the black trade unions in South Africa demanded better wages, but these demands were rejected on the basis that workers were unskilled. This led the workers to realise that training was a means to increased wages. In 1989 a research group comprising of worker and union officials was established by the National Union of Metalworkers of South Africa (NUMSA) to make recommendations on training. The proposal they came up with was based on basic education for all and the national recognition of training so that skills were not only useful for one employer. The Congress of South African Trade Unions (COSATU) formally adopted the proposal in 1991 (SAQA, 2000).

During the 1970's the non-governmental education sector also protested against the educational system and demanded that some changes should be made. These protests culminated in the formation of the National Education Policy Initiative (NEPI), which set out proposals for the restructuring of the formal education system. The research project, although mainly under supervision of the ANC, included a wide range of knowledgeable and active people. The reports, which were published in 1992, were based on the principles of non-racism, non-sexism, democracy and redress and a non-racial unitary system of education and training and it covered the entire spectrum of education (SAQA, 2000; Bellis, 2000:22).

In the 1980's, the Department of Manpower through the National Training Board, began an attempt to restructure the apprenticeship system into a modular training system based on competencies run

by autonomous industry training boards. The proposals however excluded workers and basic education and were met with resistance by the trade unions (SAQA, 2000).

In 1992 an attempt by the Department of Manpower and the trade unions to renew the process resulted in the formation of a task team. The task team, comprising of eight working groups and represented by trade unions, providers of education and training, the ANC Education Department, the democratic alliance, employers and the State, had the brief to develop a new national training strategy. One of the working groups reached an agreement on a new integrated framework. In 1994 three documents that lay the foundation of the SAQA Act (58/1995) were published: the ANC Policy Framework for Education and Training, the Discussion Document on a National Training Strategy Initiative (NTSI) and the Centre for Education Policy Development (CEPD) Implementation Plan for Education and Training (IPET) (SAQA, 2000).

The NTSI proposed a number of changes (Department of Labour, 2001c:3), viz:

- The integration of education and training;
- Provision of education and training that is in line with national needs;
- A nationally agreed framework of standards and qualifications; and
- A credit system that allows for the transfer of skills between different sectors and for articulation and the ability to build on qualifications to receive further training and education and higher qualifications.

White papers on Education and Training and Reconstruction and Development as well as a number of draft bills followed these developments. Finally the South African Qualifications Authority (SAQA) Act was passed into law in 1995, which in turn led to the formation of the National Qualifications Framework (NQF) and finally the passing of the Skills Development Act into law in 1998 (SAQA, 2000; Bellis, 2000:24).

The National Skills Development Strategy was launched in February 2001 by the Minister of Labour. The aim of this Strategy is to increase the skills of the South African workforce in order to improve productivity and competitiveness and to redress the inequalities in our society.

2.3.2 SAQA and the NQF

The South African Qualifications Authority (SAQA) Act (58/1995) was promulgated on 4 October 1995 with the objective to establish the South African Qualifications Authority for the purpose of developing and implementing a National Qualifications Framework (NQF) (SAQA, 58/1995).

The South African Qualifications Authority, which was established in the SAQA Act (58/1995), is responsible for the registration of qualifications and standards on the NQF and to ensure that education and training that are delivered enable learners to achieve these qualifications and standards (Department of Labour, 2001b:18).

The main purpose of the SAQA Act was to create a framework for education and training for a unified system of education and training qualifications and to establish the institutions to ensure that these qualifications are of a high quality (Department of Labour, 2001b:17).

The functions of the South African Qualifications Authority as listed in the SAQA Act (58/1995) are as follows:

- a) The Authority must:
 - i. oversee the development of the NQF, and
 - ii. formulate and publish policies and criteria for :
 - the registration of bodies responsible for establishing education and training standards or qualifications; and
 - the accreditation of bodies responsible for monitoring and auditing achievements in terms of such standards or qualifications;
- b) The Authority must oversee the implementation of the NQF, including:
 - i. the registration or accreditation of bodies responsible for establishing education and training standards or qualifications and the assignment of functions to them;
 - ii. the registration of national standards and qualifications;
 - iii. steps to ensure compliance with provisions for accreditation, and
 - iv. steps to ensure that standards and registered qualifications are internationally comparable;
- c) The Authority must advise the Minister on matters affecting the registration of standards and qualifications; and
- d) The Authority is responsible for the control of its finances.

The establishment of the NQF was provided for in the SAQA Act to set up ways to ensure that the quality of education and training in South Africa is good and that different entry, exit and re-entry points are provided for (Department of Labour, 2001b:18).

The SAQA Act (58/1995) also lists the objectives of the NQF, namely to:

- Create an integrated national framework for learning achievements;
- Facilitate access to, and mobility and progression within education, training and career paths;
- Enhance the quality of education and training;
- Accelerate the redress of past unfair discrimination in education, training and employment opportunities; and thereby
- Contribute to the full personal development of each learner and the social and economic development of the nation at large.

The NQF is made up of eight levels of learning. The levels concentrate on the outcomes, i.e. what a person knows and is able to do rather than where and for how long the person has studied. The levels also allow for comparison between different courses, education and training received in different ways and at different institutions. A person can therefore use the credits received for one course to qualify at another institution for a different but related course (Department of Labour, 2001b:18-20).

The overall aim is for a person to be able to learn throughout his life and accumulate credits for learning, including work experience.

Bellis (2000:16) illustrates the structure of the NQF as follows:

Figure 2.1 : The NQF levels structure

	8	Doctorates and Further Research Degrees
	7	Higher Degrees and Professional Qualifications
	6	First Degrees and Higher Diplomas
	5	Diplomas and Occupational Certificates
Gr 12	4	Further Education and Training Certificate
	3	
	2	
NQF LEVEL FURTHER EDUCATION AND TRAINING BAND		
Gr 9	1	General Education and Training Certificate
Senior phase <i>Grades 7-9</i>		ABET Level 4
Intermediate phase <i>Grades 4-6</i>		ABET Level 3
Foundation phase <i>Grades 1-3</i>		ABET Level 2
Pre-school phase		ABET Level 1

The NQF provides the means of describing and measuring competencies (Grobler *et al.*, 2002:349). Grobler *et al.* (2002:349) suggest that the SAQA Act could enhance the competency-based efforts of South Africa by expanding education and training opportunities and the provision of human resources to boost the economy.

The above-mentioned structure is currently under review and changes on higher levels 5 to 8 are expected.

2.3.3 Skills Development Act

All of the above culminated into the passing of the Skills Development Act into legislation in 1998. While the SAQA Act deals with the quality of learning, the Skills Development Act deals with how that learning can be applied in existing jobs and to the country's economic growth and social development (Department of Labour, 2001b:25).

The objectives of the Skills Development Act (97/1998) are:

- a) To develop the skills of the South African workforce:
 - to improve the quality of life of workers, their prospects of work and labour mobility;
 - to improve productivity in the workplace and the competitiveness of employers;
 - to promote self-employment; and
 - to improve the delivery of social services;
- b) To increase the levels of investment in education and training in the labour market and to improve the return on that investment;
- c) To encourage employers:
 - to use the workplace as an active learning environment;
 - to provide employees with the opportunities to acquire new skills;
 - to provide opportunities for new entrants to the labour market to gain work experience; and
 - to employ persons who find it difficult to be employed;
- d) To encourage workers to participate in learnerships and other training programmes;
- e) To improve the employment prospects of persons previously disadvantaged by unfair discrimination and to redress those disadvantages through training and education;
- f) To ensure the quality of education and training in and for the workplace;
- g) To assist:
 - work-seekers to find work;
 - retrenched workers to re-enter the labour market;
 - employers to find qualified employees; and
- h) To provide and regulate employment services.

The Skills Development Act (97/1998) provides for the establishment of **Sector Education and Training Authorities (SETA)** by the Minister of Labour for any national economic sector. The SETA consists of organised labour, employers, relevant government organisations and, if appropriate, an interested professional body or bargaining council with jurisdiction in the sector. The Skills Development Act (97/1998) states that the Minister may provide assistance to a SETA to enable it to perform its functions. The functions of the SETA as listed in the Skills Development Act (97/1998) are:

- a) Developing a sector skills plan within the framework of the national skills development strategy;
- b) Implementing the sector skills plan by:
 - establishing learnerships;
 - approving workplace skills plans;

- allocating grants in the prescribed manner to employers, education and training providers and workers; and
- monitoring education and training in the sector;
- c) Promoting learnerships by:
 - identifying workplaces for practical work experience;
 - supporting the development of learning materials;
 - improving the facilitation of learning; and
 - assisting the conclusion of learnership agreements;
- d) Registering learnership agreements;
- e) Submitting an application to the South African Qualifications Authority for accreditation as a body contemplated in section 5 (1) (a) (ii) (bb) of the SAQA Act within a week from its establishment and must, within 18 months from the date of that application, be so accredited;
- f) Collecting and disbursing the skills development levies in its sector;
- g) Liaising with the National Skills Authority on:
 - the national skills development policy;
 - the national skills development strategy; and
 - its sector skills plan;
- h) Reporting to the Director-General on:
 - its income and expenditure; and
 - the implementation of its sector skills plan;
- i) Liaising with the employment services of the Department and any educational body established under any law regulating education in the Republic to improve information:
 - about employment opportunities; and
- j) Appointing staff necessary for the performance of its functions; and
- k) Performing any other duties imposed by this Act or consistent with the purposes of this Act.

A list of the SETA's and the scope of coverage were announced on 7 September 1999 by the Minister of Labour (SA, 1999a). These SETA's represent sectors rather than industries.

The Skills Development Act (97/1998) also provides for the establishment of a **National Skills Authority** with the following functions:

- a) To advise the Minister on:
 - a national skills development policy;
 - a national skills development strategy;
 - guidelines on the implementation of the national skills development strategy;

- the allocation of subsidies from the National Skills Fund; and
 - any regulations to be made;
- b) To liaise with the SETA's on:
- the national skills development policy, and
 - the national skills development strategy;
- c) To report to the Minister in the prescribed manner on the progress made in the implementation of the national skills development strategy;
- d) To conduct investigations on any matter arising out of the application of the Skills Development Act, and
- e) To exercise any other powers and perform any other duties conferred or imposed on the Authority.

2.3.4 Skills Development Levies Act

The Skills Development Levies Act (9/1999) was passed into legislation in 1999 to provide the regulations for the funding of the development of skills in line with the Skills Development Act. The Act imposes a skills development levy that has to be paid to the South African Revenue Service who acts as collection agency. The levy has been payable since 1 April 2000 and amounted to 0.5% of a company's payroll. This levy was increased to 1% from 1 April 2001 (Department of Labour, 2001e).

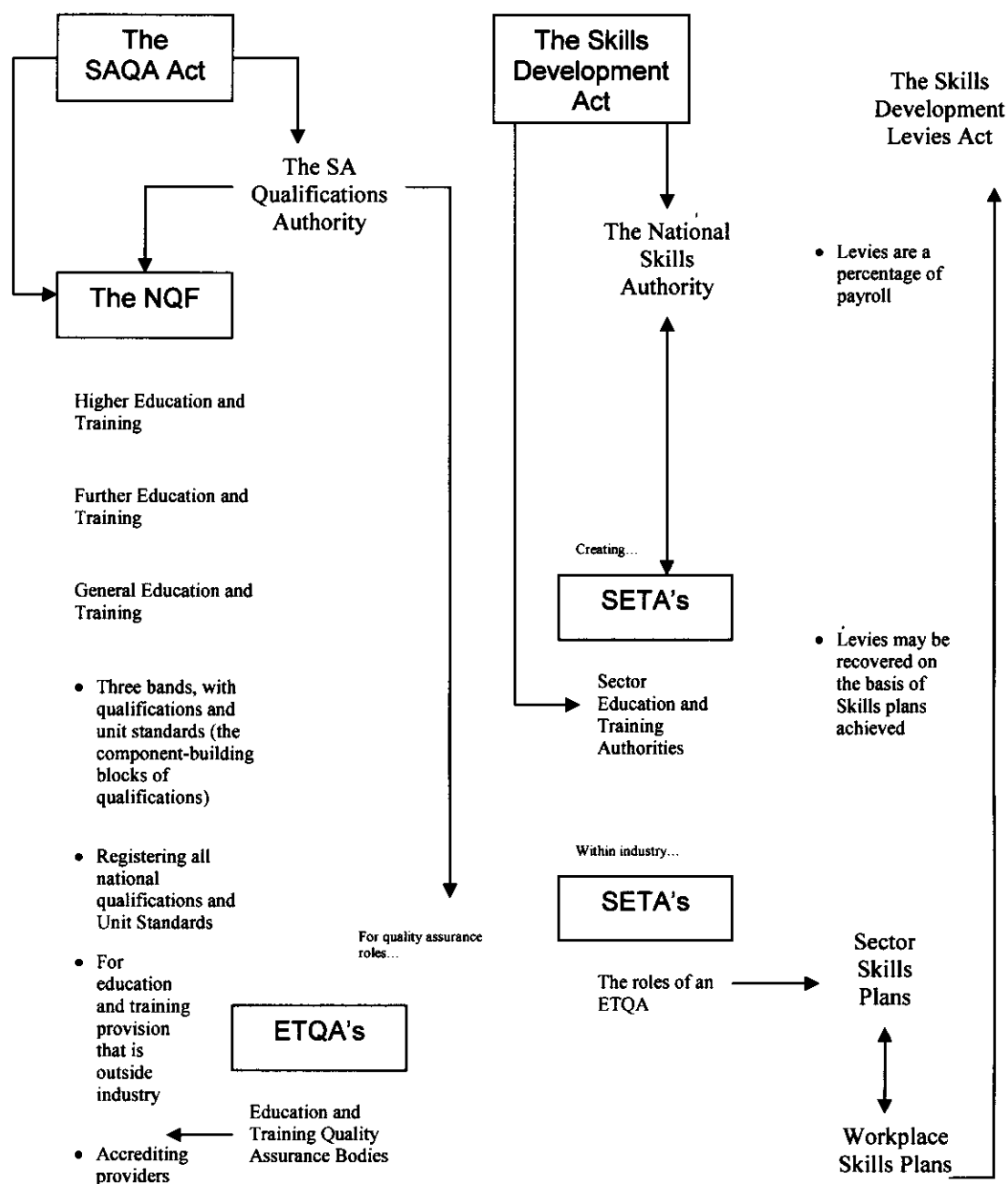
The South African Revenue Service pays the levies collected to the Department of Labour, which in return puts 20% of the funds into the National Skills Fund and the other 80% are divided between the SETA's on the basis of money collected from the organisations within the SETA. The SETA can use up to 10% for administration cost and the rest is used to pay grants to the employers who paid the levies (Department of Labour, 2001b:36).

Through the grants employers are able to reclaim a portion of the amount paid in levies for implementing skills development initiatives. There are two types of grants, namely levy grants and discretionary grants. The **levy grants** are paid by means of fixed percentages of the levy paid for certain conditions that are met, such as producing a Workplace Skills Plan and reporting progress towards the targets set in the Workplace Skills Plan. The **discretionary grants** are at the discretion of the SETA and are not based on the amount of the levy paid. These discretionary grants are for learnerships, for skills programmes and to meet the priorities set by the SETA for the sector. The

latter imply that an employer could even receive more from the SETA than the levies paid (Department of Labour, 2001b:37).

The following diagram will illustrate how the Acts and the various bodies interrelate (Bellis, 2000:13):

Figure 2.2 : The acts – their structures and roles



2.3.5 Learnerships

Before the introduction of the new training legislation and policies, workplace training in South Africa was done under **apprenticeships**. Apprenticeships in South Africa were controlled by 33 industry training boards. Apprenticeships were practical training courses that entailed about 100 weeks of working under the guidance of a skilled, qualified artisan, a period of about two weeks of learning the theory for the National Technical Certificates at a technical college and finally a trade test at the Central Organisation of Trade Testing. The problem with these apprenticeships was that not enough people were being trained. Some people enrolled for the courses at the technical colleges, but could not find an organisation to gain work experience. The reason for this was that there were not enough incentives for the employers to provide the apprenticeships (Department of Labour, 2001f:1).

The learnership, one of the government's responses to the skills shortage in South Africa, endeavours to address the problems mentioned. The Skills Development Act (97/1998) introduced the concept of learnerships in 1998. *Vhutsila*, a handout provided by the Department of Labour, defines learnerships as paraprofessional and vocational education. It is a training programme that combines theory and practice and will ultimately lead to a qualification that is registered at the NQF and recognised nationally as a qualification (Department of Labour, 2001f:1).

The emphasis of a learnership is on the outcomes and therefore a person that has completed a learnership will be able to apply the skills acquired in the workplace. The learners will be assessed at various stages and this assessment will have a strong practical element. Learnership programmes provide training for older people as well as younger people and the levels range from introductory to paraprofessional (Department of Labour, 2001f:1).

A learnership is registered by the SETA's on condition that it provides both structured learning and practical work experience, leads to a qualification registered by SAQA (58/1995), is related to an occupation and finally that the learnership is registered with the Director-General in the prescribed manner (Skills Development Act, 97/1998).

Learnerships are entered into for a specified period of time between the SETA, the employer, the learner and an accredited training provider. The learnership agreement will contain the specific duties and obligations of the employer, the employee and the training provider. Usually, the employer will provide the practical work experience while the training provider will provide the structured learning. The employer can however provide both the practical experience and the structured learning of the learnership. The employer has to employ the learner for the specified

period and release the learner to attend the training and education specified in the agreement. The employee has to work for the employer and attend the specified education and training. Employers do not have to be in the private sector. Public entities may also provide learnerships. The SETA oversees the entire process for implementation and quality (Skills Development Act, 97/1998; Department of Labour, 2001f:2).

Employers will be able to claim grants from the SETA every time a learnership agreement is entered into. The learnership must however be registered with the Department of Labour. When a learnership is allocated to an unemployed person, the employer can also claim a grant for the allowance that has to be paid to the learner. The grant has to be approved by the SETA before the learnership is entered into as it will depend on funds being available from the SETA. It is the SETA's discretion whether to pay a grant or not. In addition to this grant a tax incentive can be claimed for registering a learnership (Department of Labour, 2003).

Schmidt (2002:29) listed the benefits of learnerships as follows:

- The development of current employees is fast tracked;
- Multi-skilled employees are trained towards the specific needs and standards of the industry;
- Learners provide relief of the workload for permanent staff;
- Learners will meet the demands dictated by industry;
- Employers get qualified employees who are familiar with the specific needs of the establishment; and
- A percentage of money can be claimed back from the SETA.

Section 18 of the Skills Development Act (97/1998) states that the learner's contract of employment will not be affected by the learnership agreement, if the learner was employed by the employer before the agreement was entered into. This is referred to as a section 18(1) learnership. If the learner was however not employed by the employer before the agreement was entered into, the learner and employer has to sign a contract of employment. This is referred to as a section 18(2) learnership.

2.4 TRAINING OF PHARMACIST'S ASSISTANTS

The Health and Welfare Sector Education and Training Authority (HWSETA) was one of the sectors identified by the Minister of Labour in his announcement of the SETA's on 7 September

1999 in the Government Gazette (SA, 1999a). There are several professional councils represented in the HWSETA, one of which is the South African Pharmacy Council (SAPC).

One of the learnerships identified by the HWSETA in 2001 was the training of pharmacist's assistants (South African Pharmacy Council, 2001:16). The HWSETA formally approved the implementation of two pharmacist's assistants learnerships – basic level (NQF level 3) and post-basic level (NQF level 4).

The responsibility of the pharmacist's assistant is to dispense medicine under the supervision of a qualified pharmacist. Although at first there seemed to be some antagonism, pharmacists have come to realise that pharmacist's assistants would not cause their jobs to become obsolete, but rather relieve them from duties such as stock control, ordering of stock and the practicalities of manufacturing and packaging (Carroll, 2002). There is a shortage of pharmacists in South Africa and especially in the public sector they bear extreme workloads. Although the pharmacist's assistants will help to release the pharmacists, they are still in training and this tutoring could actually increase the pharmacist's workload (Carroll, 2002).

In its annual report, the South African Pharmacy Council (2001:16) stated that it would continue to discuss the issue of learnerships for pharmacist's assistants with the HWSETA to develop a memorandum of understanding based on the following principles:

- The training of the pharmacist's assistant has to be under supervision of a tutor, which has to be a registered pharmacist practising in a pharmacy approved by the Council;
- The pharmacist's assistant has to be registered with the Council, and
- Training providers and courses for the training of pharmacist's assistants have to be approved by the Council.

This memorandum of understanding between the HWSETA and the SAPC was signed on 31 July 2002 and set out the responsibilities of the HWSETA and the SAPC regarding the promotion and registration of learnerships, the maintenance of a database, registration, accreditation of training providers, assessors, moderators and verifiers, the monitoring of education and training and certification.

The above-mentioned legislation made it possible for companies to empower their employees by means of training. Most companies do not have a training infrastructure and therefore have to rely on outsourced training.

2.5 OUTSOURCING OF TRAINING AND DEVELOPMENT

Outsourcing is the transfer of a company's recurring non-core activities or functions to an external provider (Horngren *et al.*, 2003:375,376; Greaver, 1999:3). According to Greaver (1999:3) an outsourcing agreement is a contractual agreement that usually includes transferring the right of taking decisions on the transferred activities to the external provider.

According to Tennant *et al.* (2002) on-the-job and off-the-job training can either be done in-house or outsourced, but the in-house option is more suited to on-the-job training.

One of the main reasons for outsourcing the training and development of employees is often the cost factor. Hamilton (2000:40) warns however that there are other factors that should also be taken into account and which are just as important as cost.

There are a number of factors that should be considered when deciding on a provider of training and development (Hamilton, 2000:40), viz:

- It has become increasingly important to acquire, process and deliver information and knowledge in order to maintain a competitive advantage. The training provider must be able to deliver the latest best practice thinking available on a global scale. The provider also has to have partnerships with global learning content providers (Hamilton, 2000:40).
- The provider must have an understanding of the legislation governing the development of learning and skills acquisition in South Africa and demonstrate the ability to link training and development to equity and the NQF (Hamilton, 2000:40).
- When external training providers are hired or employees are sent on external training programmes, the learning content is usually generic and not focused on the operations of the company. Hamilton (2000:41) suggests that the content of learning requirements is usually 80% generic and 20% company specific. It is important to have the generic skills in place before attempting the specific skills. It is important that the external trainers are facilitators rather than subject specialists (Hamilton, 2000:41).

- Although technology based learning is cheaper than the classroom situation, the learning styles and preferences of the trainees have to be taken into account. It is therefore important to consider the range of products offered by the provider (Hamilton, 2000:41).
- The business needs of a company constantly changes and the learning and development needs are also subject to constant revision. It is advisable that only one provider is used in order to make the flexibility possible and that a long-term relationship is built with the provider (Hamilton, 2000:41).
- The issue of quality encompasses not only the quality of the learning content, but also the accountability and relevance in terms of return on investment. Some type of external quality control should be in place (Hamilton, 2000:41).
- The expertise in a training relationship with an external provider is seen to lie with the provider. It is therefore important that the provider understands the operation and culture of the company and in the process becomes a business partner more than an external consultant (Hamilton, 2000:42).
- Training and development should be integrated into the performance framework. The strategy of the provider should include making training and development part of the business with measurable increased performance (Hamilton, 2000:42).

In conclusion, Hamilton (2000:42) states “performance should be the focus of interest, not training”.

2.6 SUMMARY

The new skills development strategy of the South African Government charts the way in which South Africa can build its skills to be able to compete globally. With the passing of the Skills Development Act into legislation, government is in effect forcing any organisation with a payroll in excess of R250 000 per annum to take the development of its employees seriously.

The implementation of learning programmes within companies may not only have an economic benefit to the company, but learnerships could also contribute to the economic growth and

development of our country. Without this the current skills shortages are likely to get worse. Employers can now employ people with high quality and relevant qualifications and employees' morale is lifted as a result of a qualification that is recognised and that can be further developed.

This chapter dealt with the concepts of education, training and development and the relevant legislation that governs education, training and development in South Africa. The effect of this legislation and pharmaceutical regulatory requirements on the training and development of pharmacist's assistants were discussed.

With this the first research question has been answered, and the first specific objective achieved, namely to conceptualise legislation and pharmaceutical regulatory requirements that influence the training and development of pharmacist's assistants in South Africa from the literature.

In Chapter 3, the focus will be on the methods and techniques utilised to measure the costs and benefits of training and development.

CHAPTER 3

METHODS AND TECHNIQUES UTILISED TO MEASURE THE COSTS AND BENEFITS OF TRAINING AND DEVELOPMENT

3.1 INTRODUCTION

The primary goal of most organisations is the maximisation of shareholder's wealth. This goal can be achieved by maximising the price of the company's shares. One of the most important determinants of the share price is the firm's ability to generate cash flows at present and in the future (Brigham & Ehrhardt, 2005:8-11; Moyer *et al.*, 2005:4). The three primary determinants of cash flows are unit sales, after-tax operating profits and capital investments. One way to increase operating profit could be to reduce costs, but this could lead to lower productivity. For example, buying cheaper, low quality materials can actually lead to costly production problems. By increasing costs one could in turn obtain higher productivity. An increase in employee training, for example, could lead to higher costs, but add to the bottom-line by increasing productivity and reducing employee turnover (Brigham & Ehrhardt, 2005:8-11).

Human Resource Development (HRD) is however seen by many managers as a financial burden and not as an investment in performance improvement or future earnings (Swanson, 2001:73). Managers are under increased pressure to increase the wealth of the shareholders by, *inter alia*, increasing operating profit. Therefore it is little wonder that managers will try to avoid any additional expenses. Managers often fail to recognise the strategic contributions of HRD and training to the organisation and only concentrate on the costs. These managers have no way of assessing the connection between training and the realisation of business goals or objectives (Davidove & Schroeder, 1998:205). When managers only concentrate on the costs of HRD, they will fail to recognise the potential for obtaining higher levels of performance (Swanson, 2001:8).

Parry (1998:201) listed a few reasons why costs and benefits should be calculated for major training programmes:

- HRD managers will be able to justify or even expand training budgets if it can be proven that training contributes to profit;
- With the focus on the monetary results, the objectives and content of the course will be more relevant;
- With such an evaluation of training, trainees and trainers will become more committed;

- Training will be taken more seriously and the relationship between manager and trainee could become stronger;
- HRD personnel will try to reduce costs and increase benefits when performance is measured;
- Information will be available to determine where training is effective and where it needs adjustment;
- Curriculum of courses can be developed to be cost-effective;
- Enrolment will be taken seriously because trainees will know what is expected after training; and
- The results of courses for which the results cannot be calculated will be trusted if return on investment (ROI) is calculated for other courses.

From the above literature it is evident that the costs and benefits of training are crucially important to an organisation. One of the objectives of this study is to quantify the costs and benefits of training and HRD in a corporate environment. The training manager of the company indicated that proving the benefit of the training intervention to the board of directors is very difficult.

3.2 COST TERMINOLOGY

The Oxford English Dictionary (1978, 2:1034) states the following definition of a **cost**: “that which must be given or surrendered in order to acquire, produce, accomplish, or maintain something; the price paid for a thing”. Hansen and Mowen (2003:32) define cost as: “the cash or cash equivalent value sacrificed for goods and services that are expected to bring a current or future benefit to the organization”. Horngren *et al.* (2003:30) define a cost as a resource that is sacrificed in order to achieve an objective.

It can be concluded from the above that a cost is incurred when an organisation sacrifices cash or cash equivalents for something that is expected to bring benefits to the organisation.

Costs are incurred when resources are used for a certain purpose (Blocher *et al.*, 2002:66). These costs become **expenses** once they are used in the production of benefits (Hansen & Mowen, 2003:32).

3.2.1 Cost assignment and cost allocation: direct and indirect costs

According to Blocher *et al.* (2002:66) costs can be grouped to form **cost pools**. Blocher *et al.* (2002:66) group these cost pools by type of cost, by source or by responsibility.

A **cost object** is any item for which costs can be measured, traced or assigned to for some management purpose and includes items such as products, activities or organisational units (Blocher *et al.*, 2002:66; Hansen & Mowen, 2003:33). Horngren *et al.* (2003:30) simplified the definition as “anything for which a measurement of costs is desired”. A training programme for which the measurement of costs is desired can thus be regarded as a cost object.

Costs can be classified as either direct or indirect. **Direct costs** are costs for which there are a convenient or economically feasible way to trace the cost to the cost pool or cost object using a causal relationship (Blocher *et al.*, 2002:66,67; Hansen & Mowen, 2003:34).

Direct training costs are costs that are directly attributable to a training programme and will include cost items such as wages and benefits paid to or on behalf of employees involved in training, fees paid for external training services, training development and instructional materials preparation, materials and supplies, handouts to learners, equipment and facilities. Such costs would not exist if the programme did not exist (Campbell, 1994:33; Swanson, 2001:79).

Indirect costs cannot be economically or conveniently traced to any one cost pool or cost object (Blocher *et al.*, 2002:67; Hansen & Mowen, 2003:34). Horngren *et al.* (2003:31) also distinguish between direct and indirect costs on the principle of being able to trace the cost to a cost object in a cost-effective way. Horngren *et al.* (2003:32) state that a specific cost can be either a direct cost or an indirect cost depending on the cost object.

Indirect training costs are not directly associated with any training programme and are usually the cost of keeping the training or HRD department running. Indirect training costs will include cost items such as interest on organisational debt, renting a copier, building repairs, organisational supplies and equipment, administrative and support staff salaries and legal expenses (Campbell, 1994:35; Swanson, 2001:79).

Training expenses can either be charged to the central administration of the organisation or to a cost object such as a training programme (Swanson, 2001:80). The process of assignment of the costs to cost objects is **cost assignment**. The term covers tracing costs that are directly attributable

to a cost object as well as the allocation of costs that have an indirect relationship to a cost object (Horngren *et al.*, 2003:30).

Hansen and Mowen (2003:34) also propose two ways of tracing costs to cost objects, namely **direct tracing** for costs which are specifically associated with the cost object or **driver tracing** when it is not possible to observe the exact amount of resources consumed by a cost object. Driver tracing is a process in which cost drivers are used to assign costs to cost objects (Hansen & Mowen, 2003:34). A **cost driver** is any factor that causes a change in the total cost over a given time span (Blocher *et al.*, 2002:66; Horngren *et al.*, 2003:34). Hansen and Mowen (2003:34) elaborated on this definition by not only including the changes in total costs, but also changes in resource usage, activity usage and revenues.

The process of tracing costs by means of drivers is accurate when the cause and effect relationship is sound. However, the cost of the resources used has to be measured and assigned as accurately as possible (Hansen & Mowen, 2003:33, 34).

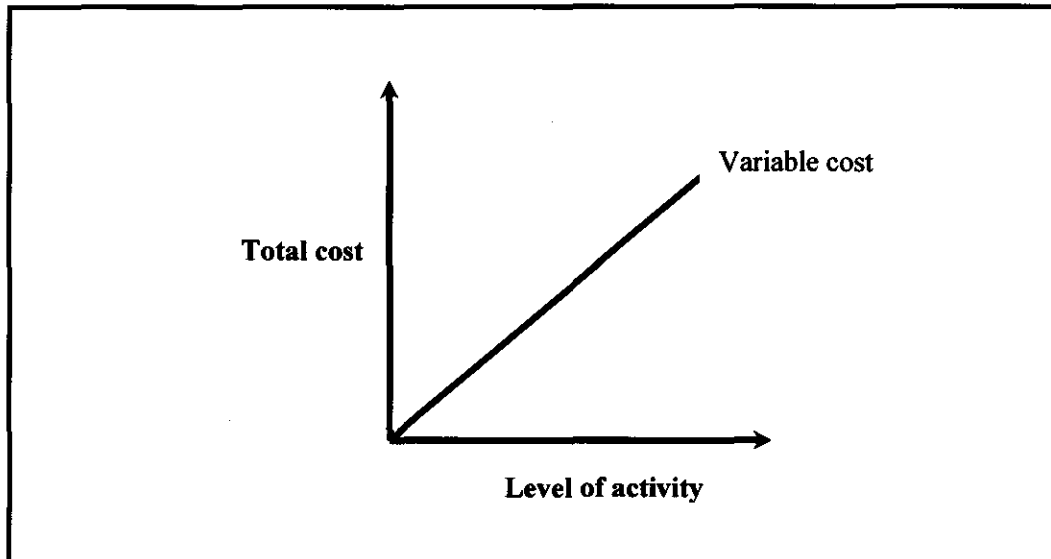
Hansen and Mowen (2003:34) argue that indirect costs cannot be traced to cost objects because there is no causal relationship between indirect costs and cost objects and that the assignment should be based on an assumed linkage or convenience. According to Blocher *et al.* (2002:67) indirect costs have to be assigned to the cost objects by using cost drivers. This process of cost assignment is called **cost allocation** and although there is no direct or economical relationship between the cost and the cost object, it is fairly representative of the way the cost is incurred (Blocher *et al.*, 2002:67). Hansen and Mowen (2003:35) however argue that arbitrarily allocating indirect costs to cost objects can reduce the overall accuracy of the cost assignments and suggest that only direct costs should be traced to cost objects. Horngren *et al.* (2003:31) also voice concern about the allocation of indirect costs and the basis on which it is done.

3.2.2 Fixed and variable costs

Costs can also be classified according to the way in which it behaves in relation to the level of activity. **Variable costs** are those costs for which a change in the quantity of the cost driver will cause a direct proportional change in the level of cost (Blocher *et al.*, 2002:72; Hansen & Mowen, 2003:64; Horngren *et al.*, 2003:32; Drury 2004:34). Variable training costs will typically increase with an increase in either the number of training programmes presented or the number of learners attending the programmes. Variable costs can include both direct and indirect costs. There are certain costs that will be incurred for every learner that attends the training programme, such as costs of handouts, manuals, refreshments and lodging. The more learners attending, the greater the

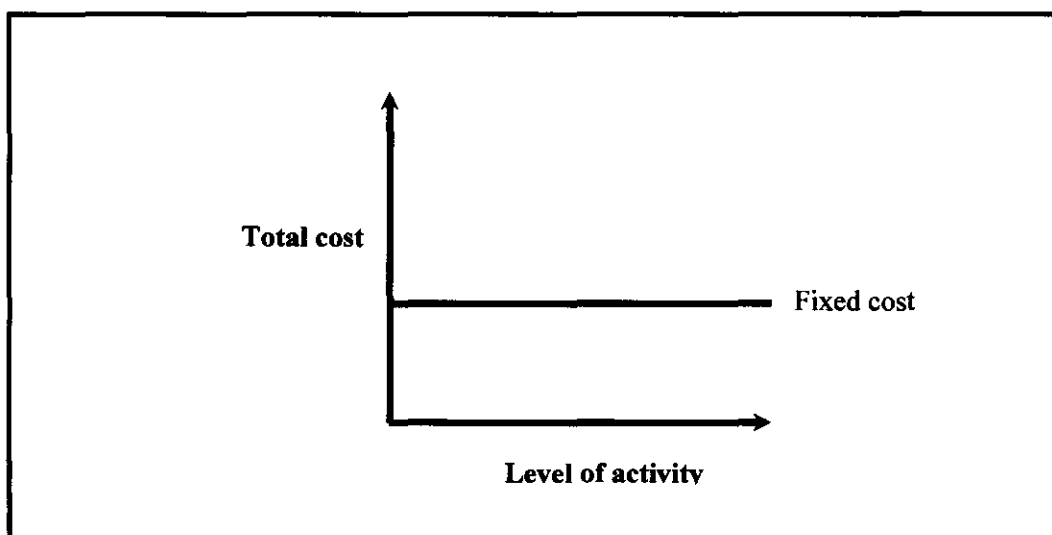
total variable costs will be (Swanson, 2001:79). An illustration of this concept is shown in the following graph as explained by Horngren *et al.* (2003:325).

Graph 3.1: Variable cost



Fixed costs, however, do not change with changes in the quantity of the cost driver in the short-term (Blocher *et al.*, 2002:72; Hansen & Mowen, 2003:62; Horngren *et al.*, 2003:32; Drury, 2004:34). Horngren *et al.* (2003:33) warn that fixed cost should be considered in total and one should not be misled by the changes in fixed cost per unit when changes in activity or volume occur. Fixed training costs will be incurred no matter how many training programmes are presented or how many learners attend (Swanson, 2001:78). An illustration of this concept will follow in graph 3.2 as explained by Horngren *et al.* (2003:325):

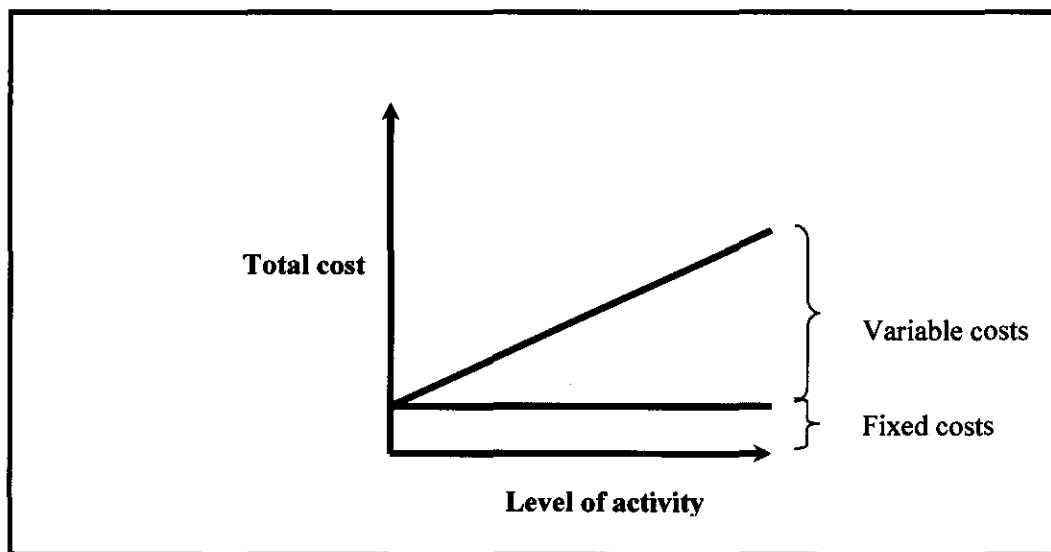
Graph 3.2: Fixed cost



3.2.3 Semi-variable costs

Semi-variable costs or mixed costs are made up of fixed and variable elements (Horngren *et al.*, 2003:325; Hansen & Mowen, 2003:66; Blocher *et al.*, 2002:73; Drury, 2004:37). An example will be the telephone account where the monthly rental will be charged whether or not any calls have been made. The cost of the calls will be added to the bill according to the number of calls actually made. A cellular phone contract could also be classified as semi-variable as it has a fixed monthly subscription and an incremental charge for additional calls. The following graph illustrates semi-variable costs (Horngren *et al.*, 2003:325; Hansen & Mowen, 2003:67):

Graph 3.3: Mixed cost

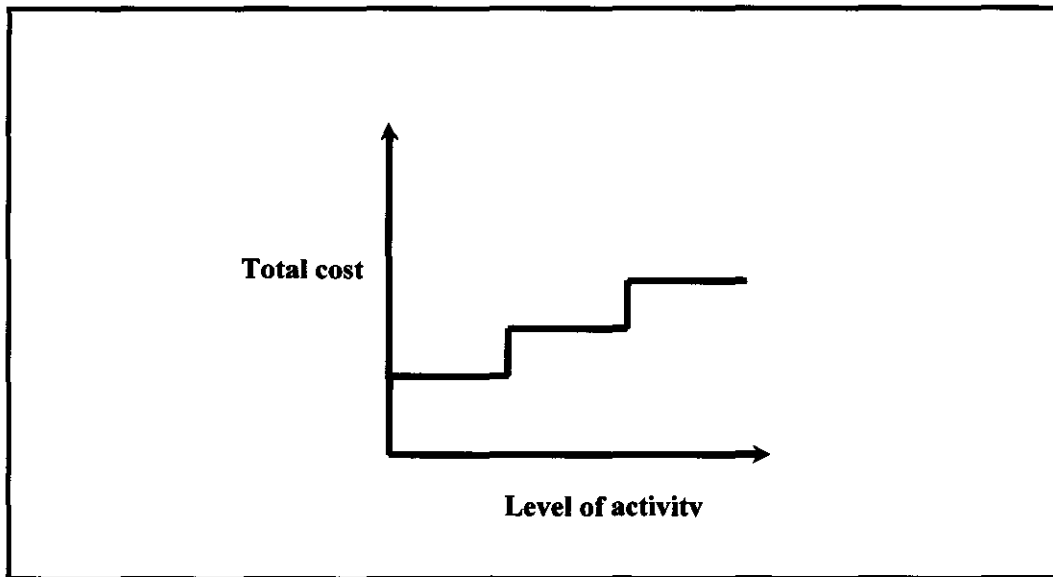


3.2.4 Step costs

Step cost remains constant at a certain level for a range of activity output and then jumps to a higher level and once again remains constant at that level for a range of activity output (Blocher *et al.*, 2002:73; Hansen & Mowen, 2003:70; Drury, 2004:36). Step costs rise incrementally. In some cases a speaker will charge an amount for a certain number of attendees, such as ten to twenty. There will be no additional charge for two extra people as long as they do not exceed twenty. When the number of attendees does however exceed twenty, there will be an increase in the total cost (Swanson, 2001:81).

The behaviour of step cost is illustrated in graph 3.4 below (Hansen & Mowen, 2003:71):

Graph 3.4: Step cost



3.2.5 Marginal costs

Blocher *et al.* (2002:74) define **marginal costs** as the increase in cost when one additional unit of the cost driver is added. According to Garrison *et al.* (2003:38) marginal cost is the cost of producing one additional unit of output. Marginal training cost will be the increase in outlay when an additional learner is added to the training programme (Swanson, 2001:80).

In a training company the marginal cost of entering one additional learner into the training programme could include the cost of printing another set of learning materials, refreshments for one more person, etc.

3.2.6 Relevant Cost

Managers are often faced with crucial decisions that involve two or more alternatives. In making such decisions it is imperative that the information that is used in support of the decision is appropriate and correct. This cost information is referred to as **relevant cost**.

Blocher *et al.* (2002:82), Horngren *et al.* (2003:370), Drury (2004:314) and Hansen and Mowen (2003:821) describe relevant cost as having the following characteristics:

- It differs for each option; and
- It will be incurred in the future.

Horngren *et al.* (2003:370) summarise the above in a question: “What difference will an action make?” Training will entail costs and benefits. Certain costs and benefits will change or differ depending on whether the in-house training option or the option of outsourcing the training function is decided on. One will only take into account the costs and benefits that will differ between the options and that will have an effect on the decision (Garrison *et al.*, 2003:375).

When one decision is chosen above another, a manager forfeits the opportunity to use the resources in an alternative way and this leads to opportunity cost. **Opportunity cost** occurs when choosing one option or alternative above another results in the loss of income or the forfeit of an economical benefit (Blocher *et al.*, 2002:82; Garrison *et al.*, 2003:39; Brigham & Ehrhardt, 2005:383; Drury, 2004:39). Horngren *et al.* (2003:379) define opportunity cost as the loss of income when a limited resource is not used in its next best alternative.

When training is done in-house by using the company's own training facilities and these facilities could have been rented to another company, the rental income that is forfeited represents an opportunity cost. The opportunity cost influences the decision and has to be taken into account.

Sunk costs are costs that have already been incurred and for which the decision-maker has no discretion over (Blocher *et al.*, 2002:82; Brigham & Ehrhardt, 2005:381; Drury, 2004:38). According to Horngren *et al.* (2003:371) a sunk cost cannot be changed no matter what action is taken. A sunk cost is a cost that was incurred in the past and will not be avoidable regardless of which alternative is chosen. Sunk costs should not be taken into account when a decision has to be made between alternatives. An amount already spent on research to determine the training needs is an expense that has been incurred and cannot be changed. The cost of the research can therefore not influence any future decisions.

Incremental cost is the additional cost that will be incurred when one course of action is taken instead of another (Horngren *et al.*, 2003:377; Brigham & Ehrhardt, 2005:383; Drury, 2004:39). Horngren *et al.* (2003:377) and Garrison *et al.* (2003:38) define **differential cost** as the difference in total cost between two alternative courses of action.

3.2.7 Total cost and unit cost

Horngren *et al.* (2003:36) suggest that costs should rather be viewed in total, but recognise the need to use unit costs in certain decision contexts. The **unit cost**, also called an average cost, can be calculated by dividing the total cost by a related number of units (Horngren *et al.*, 2003:37). In a training context, the related number of units could be the number of training days, people attending

the training programme or even the number of programmes presented. The unit cost or daily cost of employee attendance, for example, will be calculated by dividing the total employee cost by the number of working days in the year.

3.3 CONTRIBUTION THEORY

The only things that change with a change in output volume are the turnover and variable cost. Fixed cost will remain constant for any level of output within a certain range. **Contribution margin** is the difference between total sales and total variable costs. The contribution margin is the amount that contributes towards the recovery of the fixed costs. The amount of contribution margin in excess of the fixed costs will increase the operating income and the way to increase profits is therefore to increase the total contribution margin (Horngren *et al.*, 2003:63,64; Blocher *et al.*, 2002:299; Hansen & Mowen, 2003:769; Garrison *et al.*, 2003:227).

In a training programme, the fixed cost could include renting the venue, hiring a presenter or developing the training material. These costs will remain constant for any number of attendees within a certain range. The costs of providing an attendee with the training material, refreshments or lodging will however increase with every attendee that is added to the programme.

The **contribution margin percentage** is the ratio of contribution to sales or the contribution divided by the sales (Horngren *et al.*, 2003:64; Blocher *et al.*, 2002:299; Hansen & Mowen, 2003:773). The size of this ratio is important in the decisions that a company makes in order to increase its profits (Garrison *et al.*, 2003:228).

The contribution margin plays an important role in deciding on the most optimum combination of variable costs, fixed costs, income per unit and volume to increase profits. This decision process is called cost-volume-profit analysis (Garrison *et al.*, 2003:227; Blocher *et al.*, 2002:298; Hansen & Mowen, 2003:768). The contribution can be used to calculate the level of output that has to be achieved in order to break even. The **breakeven point** is the level of output where total revenue will be equal to total costs. The operating profit will be zero at the breakeven point (Horngren *et al.*, 2003:64; Blocher *et al.*, 2002:301; Hansen & Mowen, 2003:768).

The breakeven point in units is calculated as follows (Garrison *et al.*, 2003:229; Horngren *et al.*, 2003:64; Blocher *et al.*, 2002:302; Hansen & Mowen, 2003:769):

$$\text{Breakeven point (in units)} = \frac{\text{Fixed cost}}{\text{Contribution margin per unit}}$$

The breakeven point could be calculated for a training programme to determine what the minimum number of attendees should be in order to make the implementation of the programme cost-effective. If the income per trainee is calculated at R100 per person, the variable costs amount to R75 per person and the fixed costs are R2 000 for a programme that can accommodate up to 100 trainees, the contribution margin will be R25 per person. For every additional person entered into the programme an additional income of R25 will be generated. Every R25 generated will contribute towards the recovery of the R2 000 fixed costs. The fixed costs will remain at R2 000 regardless of the number of people attending and therefore the company will seek to maximise the number of trainees up to a maximum of 100 people. The number of trainees that will be needed in order to break even would be 80 (R2 000 / R25).

3.4 MEASURING THE COSTS OF TRAINING

There are three types of training costs, namely once-off expenses such as development costs, costs per offering of a course or programme, e.g. instructor's salary, or costs per participant, such as course materials. These costs have to be accumulated over the life of the programme or training course (Parry, 1998:202).

The measuring of costs is a challenging process because the figures have to be reliable and accurate. There are often hidden costs associated with training and it can be difficult to determine the specific costs of a training programme. Both direct and indirect costs have to be taken into account when determining the cost of training (Phillips *et al.*, 2001:217).

Swanson (2001:76) identifies the following guidelines when determining the cost of human resource development (HRD):

- Major cost items should not be left out; and
- Unnecessary or exaggerated items should not be included in the calculation.

Phillips *et al.* (2001:219) simplified the rule as “if it is questionable whether a cost should be included, it is recommended that it be included, even if the cost guidelines for the organisation do not require it”.

Swanson (2001:78) states that it is not necessary to include costs that a company does not normally associate with training, i.e. facilities cost or overhead, even if these costs could be charged to the training programme.

3.4.1 Cost accumulation and estimation

Training costs can be classified in two basic ways (Phillips *et al.*, 2001:226):

- *Expense account classification*: grouped by cost category or type of expenditure, such as material, attendance, supplies, travel, etc.; or
- *Process/functional categories*: grouped per function within the training process, such as programme development, delivery and evaluation.

Phillips *et al.* (2001:226) state that an effective system should monitor the costs according to the cost category, but also make provision for accumulating the costs by the HRD process or functional category. This will allow not only for the total cost of the programme to be calculated, but will make comparison with other programmes possible.

Phillips *et al.* (2001:222) list the functional categories in the training process as analysis costs, development/acquisition costs, implementation costs, operating costs, evaluation costs and overheads. Table 3.1 indicates the relationship between the cost category and the function within the training process. The cost categories are listed and for each category the function to which it applies is marked with an “X”.

Table 3.1: Cost classification matrix

Expense account classification	Process/Functional categories			
	<i>Analysis</i>	<i>Development</i>	<i>Delivery</i>	<i>Evaluation</i>
Salaries and benefits – HRD personnel	X	X	X	X
Salaries and benefits – other company personnel		X	X	
Salaries and benefits – participants			X	X
Meals, travel and incidental expenses – HRD personnel	X	X	X	X
Meals, travel and accommodation – participants			X	
Office supplies and expenses	X	X		X
Programme materials and supplies		X	X	
Printing and reproduction	X	X	X	X
Outside services	X	X	X	X
Equipment expense allocation	X	X	X	X
Equipment – rental		X	X	
Equipment – maintenance			X	
Registration fees	X			
Facilities expense allocation			X	
Facilities rental			X	
General overhead allocation	X	X	X	X
Other miscellaneous expenses	X	X	X	X

Source: (Phillips *et al.*, 2001:227 adapted)

3.4.2 Costs of training

The following are costs associated with training and development:

3.4.2.1 Skills Development Levy

In South Africa companies are obliged to pay a levy for the development of their workforce. According to Section 3(1) of the Skills Development Levies Act (9/1999) employers must pay a Skills Development Levy on a monthly basis. An employer will be exempt from paying the levy if:

- The total remuneration to employees does not exceed R250 000 for the year; and
- If the employer is not required to register their employees for pay-as-you-earn (PAYE).

The Skills Development Levy amounts to 1% of the leviable amount of a company. Before 1 April 2001 employers had to pay 0.5% of the leviable amount (Department of Labour, 2001a:6). Section 3(1) of the Skills Development Levies Act (9/1999) defines the leviable amount as any remuneration paid or payable or deemed to be paid to employees during the month. This amount

includes salaries, bonuses, overtime payments, leave payments, commissions and lump sum payments as included in the definition of remuneration in Paragraph 1 of the Fourth Schedule to the Income Tax Act (58/1962). This amount does however not include any payments to directors of a company or members of a closed corporation.

Although the Skills Development Levy is a cost associated with training, it will not be included as a relevant cost in this study to determine the financial viability of training since it has to be paid regardless of whether training is done or not.

3.4.2.2 Needs assessment

Davidove and Schroeder (1998:205) point out the importance of a needs analysis to identify business problems as a result of employees' lack of knowledge or skills. Differences between what employees should be able to do and what they are currently able to do must be identified and expressed as learning objectives. Surveys can also be used to identify learning objectives. The findings of these surveys should be discussed with the key decision-makers to ensure that the information gained is important and helpful. The needs analysis can be useful after the training to determine if the trainees have mastered the learning objectives, whether skills have been transferred to the job and if business objectives have been reached (Davidove & Schroeder, 1998:205).

Phillips *et al.* (2001:222) warn that the cost of conducting a needs assessment should not be overlooked. They further state that all costs associated with needs assessment should be included to the fullest extent. The following cost items should be included (Phillips *et al.*, 2001:222):

- Staff time spent conducting the assessment;
- Cost of external consultants; and
- Internal supplies and services used.

The costs of the needs assessment should be assigned in full to the programme and the total cost should be prorated over the life of the programme (Phillips *et al.*, 2001:222). Phillips *et al.* (2001:222) however warn that the lifetime of the programme should not exceed one to three years unless the programme is extremely expensive and is not expected to change significantly for several years.

There was no need for a needs assessment by the training company in this study. The needs analysis was done by the Department of Labour before introducing the concepts of learnerships.

3.4.2.3 Cost of developing and preparing training materials

The cost of developing and preparing training materials are usually included in the charge of the external training provider, but have to be calculated when training is done internally (Campbell, 1994:34).

The following costs should be included:

- Cost of the time spent by internal developers and materials production personnel. Once again the total compensation including benefits should be taken into account;
- Cost of external designers and developers;
- Costs of materials and supplies required in the preparation of instructional material;
- Outright purchase of off-the-shelf materials;
- Cost of pilot sessions including time, travel and transportation;
- Cost of minor updates to keep material current;
- Purchase of copyright;
- Licensing agreements, and
- Travelling expenses.

(Phillips *et al.*, 2001:223; Campbell, 1994:34; Fisher & Ruffino, 1996:71; Shepherd, 1999)

Campbell (1994:34) suggests that there are two methods of treating training development and instructional materials preparation costs. They can either be assigned to a course by taking the total cost of development and preparation and dividing it by the number of course offerings, or another way is to amortise them over the number of trainees. Development and production costs will be assigned in full to a programme that is only presented once, but allocated to the number of times presented where a programme is repeated (Campbell, 1994:34). Phillips *et al.* (2001:223) state that the development costs or acquisition costs for purchased programmes should be prorated over the life of the course. As with the cost of the needs analysis, the life of the course should not exceed one to three years.

The conclusion that can be made is that the more times the programme is offered and the more trainees entered into the programme, the more economical the investment in training and development and instructional materials will become (Campbell, 1994:34).

3.4.2.4 Training attendance cost

When employees attend a training programme they are not available to attend to their regular duties. Often employees have to be replaced while attending a training programme. If they have to be replaced, the cost of replacing them has to be taken into account.

There could be lost productivity due to their absence and any lost productivity as a result of the employee attending a training programme should also be taken into account. The only time that should be charged against training is the time that would otherwise have been productive and paid for (Shepherd, 1999).

When there is no loss of productivity and thus no opportunity cost, the cost of an employee attending a training course would only be the payroll cost of that employee. Campbell (1994:33) suggests that wages and benefits have to be taken as a whole compensation package and all benefits have to be included. Phillips *et al.* (2001:224) agree that the salary as well as all benefits should be included in the calculation. The benefits can usually be calculated by multiplying the salaries of employees by the fringe benefit rate of the organisation (Carnevale & Schulz, 1998:234).

The average daily cost of compensation per employee can be calculated by dividing the total annual compensation package of the employee by the average number of working days in the year. Carnevale and Schulz (1998:234) calculate the number of working days by subtracting the number of paid vacation days, holidays and leave days from 260, which is the number of weekdays in a year. Fisher and Ruffino (1996:58) also base the number of working days on the number of weekdays in the year, but they do not subtract the paid vacation days, holidays and leave days from the 260 weekdays.

Fisher and Ruffino (1996:58) include the following in the average daily compensation to calculate the average daily cost of attendance:

- The reimbursable daily expenses for lodging, meals and tips;
- The average daily participant transportation costs;
- The daily lost opportunity costs. This is the cost of reduced productivity or time lost due to the participant attending the training course, and
- The average daily cost of replacing the employee.

The average daily cost of attendance is then multiplied by the number of days spent in training. The annual compensation package can be calculated as an average of the salaries and benefits of trainees attending the programme. The type of jobs represented can be obtained from the training

programme roster and an average salary can be determined (Carnevale & Schulz, 1998:234; Phillips *et al.*, 2001:224).

The cost of substituting an employee while attending a training course will be the difference between the daily cost of substitution less the daily cost of the employee being replaced. Only the difference is included, because the daily cost of the employee is already taken into account (Phillips *et al.*, 2001:224).

3.4.2.5 Instructor cost

Fisher and Ruffino (1996:56) and Phillips *et al.* (2001:223) include the following expenditures in calculating the cost of the instructor:

- Instructor's time spent in training;
- Travel to the training site and accommodation;
- Costs of lodging, meals, refreshments, etc; and
- Lost productivity or cost of replacing the individual while in training.

The following could be added to the list:

- Instructor's time spent on preparation and reviewing and evaluation of submitted work; and
- Instructor's time spent in correspondence with the attendees.

The average daily instructor's cost can be calculated in exactly the same way as the average daily cost of attendance. This is multiplied by the number of instructors and the number of training days. Not only the actual time of attending the course, but also the preparation time should be taken into account. The average instructor cost per participant is calculated by dividing the total ? by the number of participants (Campbell, 1994:33).

When external consultants are used, the full cost will be allocated to the programme. If a person is involved with more than one programme, the appropriate portion of time should be allocated to each programme.

3.4.2.6 Cost of materials

This item refers to the actual cost of providing the attendants with the material, e.g.:

- Cost of duplicating or printing material;
- Cost of binding;
- Copyright;

- Royalties;
- Guidelines, software, notebooks, textbooks, and
- Pens, paper and certificates.

(Phillips *et al.*, 2001:223)

This is a purely variable cost and could be calculated per person attending the training programme.

3.4.2.7 Cost of equipment

Training can either utilise equipment available in the organisation or it might be necessary to buy or rent new or used equipment (Campbell, 1994:34). The cost for training purposes of using a machine available in the organisation will depend on whether the training is conducted when the equipment lay idle, or whether it could have been used to generate income. If revenue is forfeited because of utilising the equipment for training purposes, the opportunity cost should be taken into account (Campbell, 1994:34).

If equipment is bought, it will be depreciated in compliance with the depreciation policies of the organisation. This annual depreciation charge as well as maintenance of the equipment will be the annual cost of the machine. The annual cost is then allocated to the programmes in which the equipment is used (Campbell, 1994:35).

Carnevale and Schulz (1998:235) advise that the annual cost of the equipment should be distributed evenly to all the training programmes that make use of the equipment.

3.4.2.8 Facilities cost

Facilities cost will be incurred when a special training facility has to be built or rented. In the case of building a facility, the cost of the building can be amortised over the useful life of the facility. Maintenance costs will also be included to calculate the total annual facilities cost (Campbell, 1994:35).

When the facilities are not only used for training, but for other business purposes as well, only the appropriate fraction of that facility's cost should be billed to training. A daily rate can be used when facilities are only used for training occasionally. The daily rate is calculated by dividing the total annual facilities cost by the number of working days in the year (Campbell, 1994:35).

When a building is leased, the daily rate can be calculated by multiplying the rate per square foot by the square footage used for training and then dividing it by the number of working days in the year (Carnevale & Schulz, 1998:235). The daily rate is then multiplied by the number of training days.

Phillips *et al.* (2001:224) suggest that the cost of the hotel or conference room should be included when it is an external programme.

When facilities used for a training programme could have been utilised for another purpose that would have added value, this value that is forfeited represents an opportunity cost. Garrison *et al.* (2003:325) state that the opportunity costs of facilities that have no alternative use will be zero.

3.4.2.9 Travelling cost

Travelling costs include any travelling costs by the employees or instructors to the training site or in preparation of the training programme. Any other travelling costs such as costs incurred in the development of the materials should also be included. The travelling costs could be included in the calculation of development costs, attendance costs, instructor cost, etc.

The average cost of travelling per person multiplied by the total amount of travellers will give the total travelling cost. The average travelling cost per person, including daily expense allowances, transportation, etc., can be obtained from an analysis of the records of the company. If the records are not available, the training manager can estimate the travelling costs (Carnevale and Schulz, 1998:235).

3.4.2.10 Promotional cost

Promotional costs include:

- Internal days of promotional activity;
- Cost of external agencies; and
- Other direct costs of promotion (brochures, posters, etc.).

(Shepherd, 1999)

3.4.2.11 Administration cost

The training programme will have to be administered by the training department of the company and certain costs, although not directly related to the training programme, will be incurred:

- Cost of clerical support;
- Departmental office expenses;
- Salaries and benefits of training managers;
- Technology support; and
- Other fixed costs.

(Phillips *et al.*, 2001:225,226)

Shepherd (1999) suggests that administration costs should be a factor of the number of trainees and that the following should be calculated:

- Hours of administration per attendee; and
- Direct administration cost per attendee.

Some organisations use a standard value that is calculated by dividing the total annual overhead costs by the number of days that training will be conducted during the year (Phillips *et al.*, 2001:226). Campbell (1994:36) suggests that overhead and general and administrative expenses should be obtained from the organisation's accounting office because they are often arrived at through allocation and sometimes on a judgmental basis.

3.4.2.12 Evaluation/Assessment cost

There are often costs involved when a training programme is evaluated. The assessment of the programme includes the perceptions of the participants, the knowledge or expertise gained by the programme and the expected changes in individual, group or organisational performance.

Phillips *et al.* (2001:225) include the following costs:

- Cost of developing the evaluation strategy;
- Designing instruments;
- Collecting data;
- Analysing data; and
- Preparing and distributing reports.

Cost categories include the cost of the staff involved, materials, purchased instruments and surveys (Swanson, 2001:88; Phillips *et al.*, 2001:225).

Cost of assessment of the learner is a major expense in South Africa. It is compulsory that every learnership that is entered into should be assessed in order to ensure that the outcomes are achieved. Any costs associated with these assessments should be included.

3.5 THE OUTSOURCING DECISION

David McLelland, an organisational psychologist, made the following statement: “They say you can teach a squirrel to fly. But it’s easier to hire the eagle.” (Pfau *et al.*, 2002).

Outsourcing is the purchasing of goods or services from an outside vendor rather than producing or providing the goods or services within the organisation. This is referred to as a **make-or-buy decision** for which the difference in relevant cost for the alternatives has to be identified (Horngren *et al.*, 2003:375; Garrison *et al.*, 2003:324). The time value of money has to be taken into account and it is useful to do a net present value analysis of the make-or-buy decision by comparing the present value of the net cash flows of keeping the function in-house with the present value of the net cash flows of outsourcing the function or activity (Greaver, 1999:158).

Chorafas (2003:44) listed the following reasons for companies for outsourcing:

Table 3.2: Reasons provided by different companies for outsourcing

	%
Reduce costs	35
Focus on core business	30
Improve functional performance or quality	16
Faster time to market	10
Faster innovation	3
Reduce non-productive assets on balance sheets	2
Conserve capital	1
Other	3

As can be seen from the above table, one of the most common reasons for outsourcing a function or some of the activities within a function is the reduction of costs through the performance of the provider and the provider’s lower cost structure.

It is therefore important to understand the costs involved in the function or activities and the outsourcing thereof (Greaver, 1999:129). In order to be able to make a sensible make-or-buy decision, the costs and benefits of providing the function in-house will have to be compared with the cost and benefits of outsourcing.

It is important to understand the role of the function in the organisation as a whole and to identify to which processes the function contributes. Existing costs have to be measured in order to be able

to understand the nature of the costs and what the effect of outsourcing might be (Greaver, 1999:129).

Jennings (2002) states that outside providers have to have access to superior cost drivers such as economies of scale, learning and low cost locations in order to achieve lower costs while maintaining standards. Jennings (2002) also warns that transaction costs, the costs of search, negotiation and contract enforcement have to be kept in mind and finally, it is important that the overheads associated with the outsourced activity are reduced by the outsourcing decision.

Greaver (1999:130) suggests that the following should be taken into account when faced with an outsourcing decision:

Unused capacity costs

As a result of the decision to outsource training, the facilities for the training of personnel might not be used for any other activity (Greaver, 1999:130; Jennings, 2002). Unused capacity costs will only represent an opportunity cost if the facilities could be used to generate an alternative income stream when not used for training purposes.

Unused executive management costs

When a group of companies decide to outsource some of the activities within the training function, the head of the training company might be left with not much left to manage (Greaver, 1999:130).

Assets

The assets and equipment related to each activity that could be outsourced should be identified. The following questions should then be answered (Greaver, 1999:156):

- Are these assets shared or are they utilised by certain activities only?
- Will the assets operate at existing capacity once the activities are outsourced, or will they operate under existing capacity?
- Should the assets be sold?
- What are the market values of the assets?

With the outsourcing of the theoretical part of learnerships there could be additional costs involved in assessing the learners, learners might spend even more time away from work, etc.

Greaver (1999:161) also suggests that certain adjustments be made to the buy alternative before making the final decision:

Costs that do not disappear with outsourcing (unavoidable cost)

Certain costs will not disappear as a result of the outsourcing decision. The cost of the buy option should therefore be adjusted with these costs. Examples of costs that do not disappear with outsourcing are (Greaver, 1999:162):

- Unused portion of facility capacity;
- Unused portion of equipment capacity;
- Unused portion of manager's capacity; and
- Other overheads absorbed by the product or service.

It is usually the direct costs that will disappear while overheads will not. If a training facility will not be utilised for any other value adding activity, the overhead cost of this resource will not disappear with the buy decision (Greaver, 1999:162).

Additional costs with outsourcing

There are often additional costs that can be incurred with a decision to outsource an activity or function. These costs are often hidden costs. It is important to identify these hidden costs and adjust the price of the buy decision.

Examples of the additional costs are (Greaver, 1999:163):

- Severance and other benefits that have to be paid to employees whose services will not be needed any more;
- Moving of equipment, transferring maintenance contracts and technology licenses, etc.;
- Training costs for the provider's staff regarding outcomes or expectations;
- Additional inspection and rework;
- Additional paperwork;
- Travelling and long-distance telephone calls; and
- Managing the provider relationship.

Any costs that would not have been incurred without the decision to outsource should therefore be included in the calculations.

Other financial implications

Any other financial costs or benefits resulting from the decision to outsource have to be taken into account. Benefits could include cost savings due to the fact that the provider is more technologically advanced or willing to share the knowledge without charge (Greaver, 1999:164).

Hornngren *et al.* (2003:376) point out the following important concepts in evaluating the outsourcing decision:

- Past costs are irrelevant and play no role in the make-or-buy decision;
- Any cost that will differ between the two alternatives is relevant and has to be taken into account; and
- Costs that will not differ between the two alternatives, such as the time of personnel spent in training, are irrelevant and are not taken into account.

The financial elements of the make-or-buy decision are as follows (Greaver, 1999:158):

- ***Make option***

Cost of manufacturing or performing a service for a specified volume

Adjusted with:

Cost of invested capital

+ Estimated impact to overall costs and revenue of poor performance

+ Other

= Total make, to be present valued for comparison to the buy option.

- ***Buy option***

The provider's proposed cost for a specified projected volume (same as above)

Adjusted with:

Costs that don't disappear if outsourcing occurs

+ Additional once-off costs that occur with outsourcing

+ Additional ongoing costs that occur with outsourcing

+/- Other financial implications of outsourcing

= Total buy, to be present valued for comparison to the make option

Greaver (1999:159) suggests that these calculations should be performed for every year in the contract period.

To illustrate the cost analysis for a make-or-buy decision, consider the following example: A training company has to decide whether to outsource one of their training programmes. The average cost of delivering the training programme to the personnel is as follows:

Cost per trainee per programme	R
Average personnel attendance cost	75.00
Training materials	173.00
Instructor and facilitators	45.00
Travelling cost	0.00
Evaluation cost	25.00
Allocated general overhead	58.00
Allocated facilities and equipment cost	231.00
Total cost per trainee attending	<u>607.00</u>

The programme is presented over two days and 10 trainees normally attend. The allocated costs were allocated based on this number. The company uses its own training facilities for the programme, but the instructors and facilitators are external. If the programme is not presented in-house these facilities could be rented out at R600 for the period that it would have been utilised for the programme. There is an amount of R33 included in the materials costs that represents allocated development costs.

An outside supplier has offered to deliver this service at R500 per trainee. The outside provider will make use of external facilities and the trainees will have to travel at a cost of R65 per person. All other expenses are covered. The duration of the programme will not differ between the alternatives. If the external provider is contracted, the company will still have an evaluation cost of R13 per person. Choosing the external provider alternative will save no facilities or equipment costs.

By simply comparing the cost of R607 per person with the R500 of the external provider, it seems that choosing the external provider will be the best decision. The following should however be kept in mind:

- *Opportunity costs should be included.*

The rental income of R600 represents an opportunity cost that will have to be included in the calculations.

- *Irrelevant costs must be ignored.*

If there were any sunk costs included in the cost analysis of the training programme it should be ignored. The allocated development cost of R33 is a past cost and has no bearing on the current decision. Any costs that do not differ between the alternatives, such as the remaining R13 evaluation costs, have to be ignored as well.

Allocated costs that will be incurred regardless of whether the programme is presented or not, such as the allocated overhead, will not influence the current decision.

Total cost for 10 trainees:

	In-house	External	Incremental
	R	provider	revenue/
		R	(cost)
			R
Rental income		(600.00)	600.00
Included – opportunity cost			
Attendance cost	750.00	750.00	-
No effect – does not differ between alternatives			
Training materials	1 400.00	-	1 400.00
R33 per person excluded – sunk cost			
Instructor and facilitators	450.00	-	450.00
Included – will be avoided if external alternative is chosen			
Travelling cost	-	650.00	(650.00)
Included – will be avoided if in-house alternative is chosen			
Evaluation cost	250.00	130.00	120.00
Allocated general overhead	-	-	-
Not included – will not be avoided			
Allocated facilities and equipment cost	-	-	-
Not included – will not be avoided			
Cost of external provider		5 000.00	(5 000.00)
Difference in favour of in-house training	2 850	5 930	(3 080.00)

(Source: Researcher)

This example illustrates the importance of taking only the relevant costs into account when making the outsourcing decision.

3.6 MEASURING THE BENEFITS OF TRAINING

Measuring the costs of training without taking the benefits of training into account is a senseless exercise. The benefits of training are often not so easy to quantify as the costs and therefore more difficult to measure. According to Parry (1998:202) these benefits can accrue long after the training programme and should be calculated by the trainee and the manager. The trainee should have enough experience to be able to project the benefits over the payback period. Davidove and Schroeder (1998:205) agree that performance of trainees should be tracked long after the training was completed. Benefits of training include money made as well as money saved (Conner, 2002).

3.6.1 Cost accumulation and estimation

It is essential to determine the portion of changes in performance that is directly related to the training programme. Several factors can cause changes in productivity after a training programme. Although it is difficult to prove the cause and effect relationship between training and performance, it is possible to calculate the benefits of implementation relatively accurately (Phillips *et al.*, 2001:168).

Methods to isolate the effect of training will be dealt with in Chapter 4.

3.6.2 Benefits of training

The benefits of training are as follows:

3.6.2.1 Skills Development Grant

In South Africa employers can claim back a portion of the Skills Development Levy from the Sector Education and Training Authority (SETA) by meeting certain requirements as set out by the Minister of Labour. In order to be taken into account for these grants, the employer has to be registered with SARS, levy payments have to be made timely to SARS or the SETA and the levy payments to SARS or the SETA have to be up to date.

In the first year, employers were able to recover up to 50% of their levies by claiming the following grants (Department of Labour, 2001e):

Grant A

This grant allowed the employer to claim back 15% of the total levy payment, provided that a skills development facilitator was appointed in accordance with certain guidelines.

Grant B

Providing the employer qualified for grant A, a further 10% could be claimed by developing and submitting a Workplace Skills Plan for the financial year.

Grant C

By qualifying for grant A and B and providing proof that the Workplace Skills Plan was implemented, the employer could claim back another 20% of the total levy payment.

Grant D

Grant D was made available by the SETA for specific skills initiatives in its sector. The SETA had to recommend a list of skills initiatives and grants would be paid out on the basis of outcomes received.

In the periods after the 2000/2001 financial year, the employer can recover more than 50% of their levies. The recovery of grants for the 2001/2002 financial year was published by the Minister of Labour as regulations in June 2001 (Department of Labour, 2001e). There are now six types of grants that might be claimed:

- Workplace skills grant;
- Workplace skills implementation grant;
- Grant towards the costs of learnerships and learner allowances;
- Grant towards the cost of skills programmes;
- Grant towards the cost of providing apprenticeship training; and
- Grant towards a programme, project or research activity that helps the relevant SETA to implement its sector skills plan.

The first two grants are mandatory grants that the SETA has to pay provided that the employer submits the application properly and on time and qualifies to receive the grant. The workplace skills grant is fixed at 15% of the total levies paid by the employer. The workplace skills implementation grant can be claimed if a Workplace Skills Implementation Report was submitted and it amounts to 50% of the levies for the 2001/2002 financial year and 45% of the levies for the 2002/2003 financial year (Department of Labour, 2001e).

The other grants listed above are discretionary grants that can be paid out by the SETA. The SETA decides to what degree the proposed skill activities will contribute to their sector skills plan and payments are then made on the basis of priorities set out in the sector skills plan. These grants are not a percentage of the levies paid by the employer (Department of Labour, 2001e).

There are two possible types of grants to support learnerships (Department of Labour, 2001e):

- A grant to offset the costs of implementing a learnership, e.g. the fees of the training provider; and
- A grant to subsidise the learner's allowance if the learner was unemployed immediately before entering into the learnership (a Section 18(2) learner).

3.6.2.2 Tax deduction in respect of learnership agreement

South African companies are allowed a tax deduction in respect of learnerships. The legislation was promulgated in August 2002 by way of an insertion of section 12H into the Income Tax Act No. 58 of 1962 (SA, 1962). The legislation relates to registered learnerships entered into on or after 1 October 2001 and registered learnership agreements completed on or after 1 October 2001.

A deduction is allowed **when a learnership agreement is entered into** between an employer and a learner. If the learner was employed by the organisation at the time of entering into the learnership agreement, a deduction will be allowed to the amount of the lesser of:

- 70% of the annual equivalent of the remuneration of that learner stipulated in the agreement of employment; or
- R17 500.

If the learner was not employed by the employer prior to the learnership, the deduction will be equal to the lesser of:

- the annual equivalent of the remuneration of that learner stipulated in the agreement of employment; or
- R25 000.

A further deduction is allowed **on completion of the learnership agreement** to the amount of the lesser of:

- the annual equivalent of the remuneration of the learner; or
- R25 000.

If the learnership consists of more than one level, the deduction is allowed for every phase of the learnership that is successfully completed (Department of Labour, 2003:5). The learnership for

pharmacist's assistants consists of two levels, the basic and the post-basic levels. The tax incentive can be claimed at the successful completion of both these levels.

3.6.2.3 Increased productivity

Shepherd (1999) describes this benefit as the ability to achieve additional output with the same level of effort. A four year study by the American Society of Training and Development showed that firms who invest \$1 500 per employee on training as opposed to firms investing \$125 per employee, achieved 24% higher gross profit margins on average and \$218 higher income per employee (Conner, 2002).

3.6.2.4 Increased sales

A benefit will be derived from training if sales are increased as a result of the training. Sales and productivity, however, can be influenced by a variety of factors and it could be difficult to isolate the effect of training.

3.6.2.5 Labour savings

According to Shepherd (1999) this saving is incurred when less labour is required to achieve the same output. Shepherd (1999) however warns that these savings in time should be put to use for it to be a saving in cost, otherwise it will simply result in more slack.

3.6.2.6 Improved quality

A monetary value could be added to improved quality by calculating the value of less scrap, less waste, less rework of product, fewer defects, etc. (Setaro, 2001).

3.6.2.7 Other cost savings

The following are examples of cost savings other than labour savings (Shepherd, 1999):

- Fewer machine breakdowns;
- Lower staff turnover resulting in lower recruitment and training costs. Training can reduce employee turnover. According to a Louis Harris and Associate Poll, 41% of employees who indicated that their employers offered poor or no training planned on leaving the company within a year, while only 12% of the employees who were satisfied with their employers training efforts planned to leave the company (Conner, 2002); and

- Reduction in bad debts.

3.6.2.8 Intangible benefits

Some of the benefits of a training programme cannot be converted to a monetary value. These intangible benefits are often viewed as not so important because they carry no monetary value, but in fact they are crucial to the overall evaluation process. These benefits include employee satisfaction, reduced employee withdrawal, improved customer service and increased team effectiveness (Phillips *et al.*, 2001:250).

DISCUSSION

The South African Pharmacy Council requires that registered pharmacists undergo regular continuous professional development. Being an assessor in a learnership for pharmacist's assistants qualifies as continuous professional development and therefore has the added benefit of saving on additional courses for pharmacists.

3.6.3 Productivity measurement

Blocher *et al.* (2002:821) define productivity as the ratio of outputs produced to the inputs required in producing it. The aim of productivity measurement is to establish the relationship between actual inputs used and outputs achieved and to determine whether productive efficiency has increased (Horngren *et al.*, 2003:468; Hansen & Mowen, 2003:696). These inputs include both quantities and costs. Productivity increases when higher levels of output can be achieved with the same level of input or lower levels of input are required for the same level of output (Horngren *et al.*, 2003:468; Blocher *et al.*, 2002:821). Two measures can be used to measure productivity:

3.6.3.1 Partial productivity measurement

Partial productivity compares the quantity of output produced for a single unit of input used and is usually expressed as a ratio (Horngren *et al.*, 2003:468; Hansen & Mowen, 2003:696; Blocher *et al.*, 2002:822):

$$\text{Partial productivity} = \frac{\text{Quantity of output produced}}{\text{Quantity of input used}}$$

Horngren *et al.* (2003:468) state that the higher the ratio, the higher the productivity. They also suggest that this measure is meaningful when productivity is measured over time against a benchmark or across different facilities. Hansen and Mowen (2003:698) also state that the productivity measures should be compared with that of a previous period. Blocher *et al.* (2002:821) state that changes in productivity can be measured against firms in the same industry.

The partial productivity measure differs for fixed and variable cost elements. Variable cost elements are automatically reduced when performance is increased, but increased productivity does not automatically lead to lower fixed costs. In order to lower fixed costs when productivity increases, the capacity will have to be reduced or personnel must be released (Horngren *et al.*, 2003:469).

3.6.3.2 Total factor productivity measurement

The total factor productivity measure considers all inputs simultaneously. It expresses the relationship between the quantity of output produced to the costs of all inputs used based on the current period prices in the following ratio (Horngren *et al.*, 2003:470; Hansen & Mowen; 2003:703; Blocher *et al.*, 2002:826):

$$\text{Total factor productivity} = \frac{\text{Quantity of output produced}}{\text{Costs of all inputs used}}$$

As is the case with the partial productivity measure, the total factor productivity has to be compared with something. Because it is often difficult to find similar companies with comparable data, companies usually opt to compare their own measures over time (Horngren *et al.*, 2003:470).

3.7 BARRIERS TO THE MEASUREMENT OF THE COSTS AND BENEFITS OF TRAINING

There are numerous barriers to the measurement of the costs and benefits of training. Some of the barriers when calculating the costs and benefits are (Phillips, 1997a:137):

- It might be difficult to identify indirect costs of training in the cost or accounting system, such as administration, support, etc.;
- Costs are usually monitored at divisional level rather than at the level of individual programmes; and
- Cost information required by activity base cost systems is not being generated.

Campbell (1994:33) adds to this list of reasons for managers' reluctance to report on costs and benefits:

- Lack of reliable cost figures;
- Difficulty in identifying, monitoring and quantifying training benefits;
- Subjective and questionable nature of the assumptions made;
- Inability to isolate training's influence on performance improvements from other factors;
- Time and effort involved in calculating the costs and benefits of training; and
- Potential for unfavourable returns on the investment.

3.8 SUMMARY

Although most organisations realise that training and development are crucially important to equip their workforce to enable the company to stay competitive, training managers are still finding it difficult to justify the expenses of their training programmes. It is imperative that not only the costs, but also the benefits be measured in order to prove the impact of the training intervention on the performance of the company.

In this chapter the necessary cost terminology was explained. It is important to understand the terminology in order to be able to measure the costs pertaining to the training programmes. The costs and benefits and the measurement thereof, as well as the factors to be considered with the outsourcing decision, were also explained.

Costs are important and the direct and the indirect costs of training should be taken into account in calculating the cost of a training programme. The costs of training include the Skills Development Levy and the costs of needs assessment, developing and preparing training materials, training attendance, instructors, materials, equipment, facilities, travelling, promotions administration and evaluation. The Skills Development Levy was introduced by the Skills Development Levy Act and is applicable to the South African situation. Although the Skills Development Levy is not a direct result of training and has to be paid, irrespective of whether training was conducted or not, it does have bearing on training and development. Various techniques are proposed for measuring the other costs mentioned above, such as the measurement of employee time spent on the training programme and the preparation thereof and the costs of facilities and equipment.

The benefits of training are not as easy to quantify as the costs of training but it is imperative that it should be included in the financial evaluation of a training programme. Training has qualitative

benefits that can be converted to monetary value and qualitative benefits that are not as easy to convert to monetary value. Quantitative benefits include the Skills Development Grant that can be claimed from the SETA if a training programme is implemented, a tax deduction in respect of learnership agreements, increases in productivity and sales, labour savings and improved quality. The qualitative benefits include benefits such as employee satisfaction, reduced employee withdrawal, increased customer service and increased team effectiveness.

With this the second objective has been achieved, namely to conceptualise the measurement of the costs and benefits of training and development from the literature.

Chapter 4 will address the evaluation of performance of training and development interventions.

CHAPTER 4

PERFORMANCE EVALUATION OF TRAINING AND DEVELOPMENT

4.1 INTRODUCTION

Alfred Marshall made the following statement more than a century ago in 1890: “The most valuable of all capital is that invested in human beings” (Nerdrum & Erikson, 2001). We find ourselves in the human capital era of economic history in which human capital serves as the foundation of wealth creation. The previous eras were the agrarian era and the industrial era with land and machinery as the primary sources of wealth respectively (Bassi, 2001). Bassi (2001) defines human capital as people’s skills, knowledge, attributes, motivation and fortitude that can be rented to others on a temporary basis. According to PricewaterhouseCoopers (2002) human capital can be defined as “individual value in an economic sense, and the way in which it is transformed into the company’s collective competence”. If an organisation shares this view, training and development is an ongoing investment in these assets (Mello, 2002:272).

Most executives will agree that training and development is important, not only because new legislation demands it, but to provide employees with the necessary skills to improve their productivity and equip them to meet competitive challenges. These executives also intuitively feel that training adds value and adds to the bottom-line of the business, but they lack the evidence to support this intuition (Phillips, 1997b:2). While training can add to the bottom-line of a company, non-profit organisations utilise training programmes to deliver a better service with their limited resources (Swanson, 2001:19). Human resource managers that are not able to prove the financial worth of their training efforts are at a disadvantage due to the fact that finances seem to take precedence over intuition (Becker *et al.*, 2001:83).

Training managers do evaluate their courses in terms of customer satisfaction or the achievement of learning outcomes, but higher management wants to see the economic worth or benefit of these training interventions (Campbell, 1994:32). Even though training and development is increasingly being recognised as an investment in the human capital of a business, this “investment” is still being expensed in the income statement whilst investments in other assets are amortised over the useful life of the asset. Generally accepted accounting practice does not provide for the accounting of the value of human capital (Davidove & Schroeder, 1998:205).

Bassi (2001) identified another problem with investing in human capital: unlike investments in other assets, the employee does not become the property of the company and can leave at any time. The company has no control over the asset and the asset does therefore not meet the accounting concept of an investment.

HRD programmes involve major outlays of organisational resources and therefore the impact on the finances of the organisation has to be analysed (Swanson, 2001:4). An investment in training is an expense, but also an investment in the human capital of the company and therefore the benefits must be measured. Investment in assets have costs and benefits that can be measured and evaluated by methods such as net present value, payback period, internal rate of return, etc. If investments in other organisational assets are thoroughly analysed, investments in human assets also deserve analysis (Swanson, 2001:4).

A thorough performance analysis is essential in determining whether a HRD programme will lead to a financial benefit for the company. The performance variables should be conditions that the organisation has to meet in order to achieve its goals and mission. A programme has to contribute towards the achievement of an organisational performance requirement in order for it to add value (Swanson, 2001:18).

Lord Kelvin once said (Liebowitz & Suen, 2000): “When you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure, when you cannot express in numbers, your knowledge is of a meagre and unsatisfactory kind. It may be the beginnings of knowledge, but you have scarcely, in your thoughts, advanced to the stage of a science”.

Although most managers realise the importance of investing in skills through training, they are unable to adequately measure and evaluate these investments. They are therefore not able to make decisions that could be critically important to the well-being of their company (Bassi *et al.*, 2002:62). Bassi *et al.* (2002:62) list some of the problems that management faces in measuring the investment in training:

- Systems that track the expenditures are not able to track which employees have received training and the type and intensity of the training; and
- In a decentralised environment, line-items for training expenditures could be absent from a firm's books.

In the measurement of performance of parts, segments or subunits within an organisation, one or a mix of four responsibility centres can be used. A **cost centre** is a department where the manager is

accountable for the costs incurred. In a **revenue centre**, the manager is accountable only for the revenue, whilst in a **profit centre** the manager will be accountable for both revenue and expenses. In an **investment centre** the manager has control over the costs, revenues and investment in operating assets (Horngren *et al.*, 2003:191; Garrison *et al.*, 2003:594). The basic principle is that the manager can only be held accountable for that over which he has control. According to Swanson (2001:73) some organisations treat the HRD department as a cost centre; others treat it as a profit centre. In some organisations it forms part of the personnel department and in others no costs are assigned to HRD programmes. The manager of the HRD department will tend to keep the costs associated with HRD programmes as low as possible if the HRD department is a cost centre. In a profit centre, the training programmes will usually tend to address the needs of the parent organisation and the training department will be expected to sell their programmes to outside organisations (Swanson, 2001:74).

Phillips (1997a:2) points out the mistaken assumptions that have kept human resource managers from measuring the contribution of their efforts:

- *The results of the training effort cannot be measured.* However, there are methods and technology available to measure the impact of training programmes.
- *Uncertainty about what data should be collected.* This should not be a problem if the programme was properly designed and developed with clear objectives.
- *It is useless to evaluate the programme if the return on investment cannot be calculated.* When the cost of evaluation outweighs the programme's cost, a brief subjective programme appraisal might be appropriate.
- *Measurement is only useful in the production and financial areas.* Every area of business should be measured for performance.
- *Evaluation should not be done if top management does not require it.* Top management might suddenly demand justification or a change in top management might require it.
- *Impact of training cannot be measured due to the number of variables affecting the behaviour change.* It is possible to isolate the variables that impact on training and for which the training department has control over.
- *Evaluation will lead to criticism.* Organisations should be ready for criticism. Criticism will not always be positive.
- *No justification is necessary if the HR manager has a good reputation.* It is necessary to show the value of a department and the contribution of that department towards the objectives.
- *It is adequate to measure progress towards learning objectives.* The impact of programmes has to be measured in terms of organisational change, ultimate outcomes and business results.
- *Evaluation costs too much.* Evaluation is an integral part of training and the expense is only a small part of training costs.

Swanson (2001:15) also identifies four myths about HRD:

- Social pressure is the basis of HRD;
- Managers don't care about HRD;
- HRD costs too much; and
- You can't quantify the benefits of training.

Phelps (2002) suggests that evaluation of training is important to determine whether it adds value to the company, but this measurement should not be undertaken at the cost of innovation and experimentation.

4.2 MEASURING HUMAN CAPITAL ADVANTAGE

Most of the advantages associated with human capital are highly intangible and difficult to identify and measure. Bassi (2001) describes the human capital value chain as follows:

- Employee satisfaction is mainly based on fair compensation as well as being in an environment that encourages growth and advancement, the managerial skills of their immediate supervisor, being treated fairly, appreciated and acknowledged and doing work that makes a contribution;
- The above guidelines for employee satisfaction has a major impact on employee retention;
- Employee retention in turn drives customer satisfaction;
- Customer satisfaction drives customer retention; and
- Customer retention drives profitability and other measures of financial performance.

Bassi (2001) proposes that the following metrics should be used to measure the human capital advantage of a company:

- Employees' satisfaction with the quality of their learning;
- Employees' satisfaction with the management skills/abilities of their immediate supervisor;
- Employees' satisfaction with the extent to which they are treated fairly, feel appreciated and acknowledged for their work;
- Employees' sense that the work they do makes a difference; and
- Retention rate of key employees.

Bassi (2001) suggests that these measures should be linked to other measures such as customer retention, sales per employee and customer satisfaction. Bassi (2001) also suggests that the measurement must be taken further to measure the effectiveness of the company's interventions to improve the human capital advantage such as training interventions. The categories of the learning intervention that should be measured are (Bassi, 2001):

- *Inputs* – measures of the intensity of learning resources available to employees;
- *Outcomes* – Intermediate measures of the effectiveness of learning; and
- *Organisational learning capacity* – an overall assessment of an organisation's commitment to and capacity for learning.

4.3 THE EVALUATION OF TRAINING

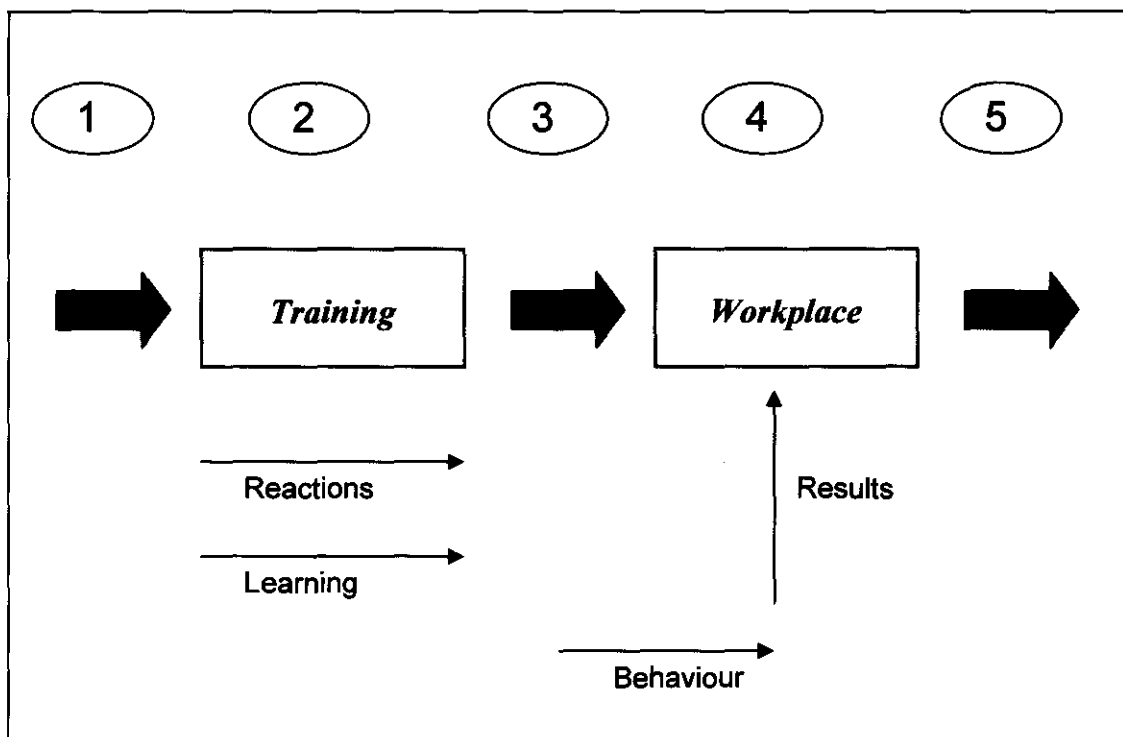
4.3.1 The structure of the training evaluation programme

Nickols (2000) identified five basic points at which evaluations or measurements might be done:

1. Before training
2. During training
3. After training or before entry (re-entry)
4. In the workplace
5. Upon exiting the workplace

The relationship between training and the workplace and the five basic measurement points are presented in the following figure (Nickols, 2000):

Figure 4.1: The structure of the training evaluation programme



Donald Kirkpatrick developed the following four-level model in 1959 for the evaluation of training (Nickols, 2000):

Level 1: Reaction

This level focuses on the participants' perceptions. The trainees' reaction to the programme is measured as well as what they are planning to do with the training (Nickols, 2000; Phillips *et al.*, 2001:23). Reactions are usually measured at the end of training (point 3 in the diagram), but also during training, even if it is done informally by the instructor (Nickols, 2000).

Level 2: Learning

This level focuses on what the participants learned during the training (Nickols, 2000; Phillips *et al.*, 2001:23). The tests should be performed before and after training to be able to assess what was learned. It is important that the skills levels before training must be measured to be able to establish what knowledge or skills resulted from the training itself. Measurements should be done at point 1, 2 and 3 (Nickols, 2000).

Level 3: Behaviour

Level 3 assesses how the participants applied in their jobs what they have learned during the training (Nickols, 2000; Phillips *et al.*, 2001:23). Quite often this is the true assessment of the programme's effectiveness (Winfrey, 2000). Nickols (2000) proposes that this evaluation should be done at the end of training as well as in the workplace.

Level 4: Results

Level 4 focuses on the business results that are achieved when the training outcomes are reached (Nickols, 2000; Phillips *et al.*, 2001:23). It measures the success in terms of increased productivity, improved quality, reduced costs, reduction in personnel turnover and absenteeism, higher operating profit or increased sales. This level measures the success of the organisation to meet the goal of most organisations, namely to maximise shareholder wealth (Nickols, 2000; Winfrey, 2000). These factors are measured in the workplace at point 4 (Nickols, 2000).

Tennant *et al.* (2002) stated that the disadvantage of Kirkpatrick's model is that it does not take into account the measurement of critical areas such as objectives, contents and equipment needed for training. The model can also not be used to determine the cost-benefit ratio of training or for diagnostic purposes, i.e. to determine why a training programme does not deliver the expected results (Stone & Watson, 1999).

Stone and Watson (1999) pointed out that the following have to be kept in mind when determining the ROI of training:

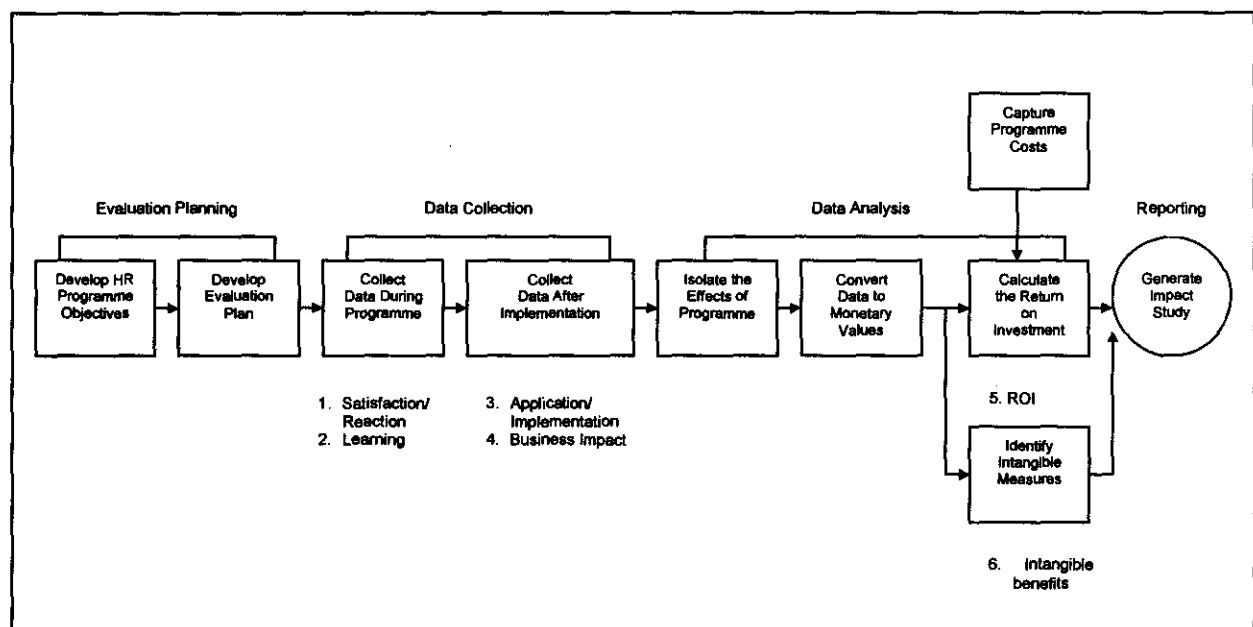
- The same results have to be achieved with lower costs in order to improve efficiency;
- Better results have to be achieved with the same level of costs in order to improve effectiveness; and
- Improved productivity occurs when you achieve better results with a lower level of costs.

4.3.2 Return on Investment (ROI) Process Model

Phillips *et al.* (2001:22) added a fifth level to Kirkpatrick's four-level evaluation model. The fifth level is the calculation of the return on investment (ROI) in training. According to Phillips *et al.* (2001:24) it provides insight to compare the results of the training programme with the cost.

Most organisations evaluate training to measure satisfaction, but few measure the benefits as opposed to the costs of the training programme (Phillips *et al.*, 2001:24). Phillips *et al.* (2001:25) present the following model for the evaluation of training:

Figure 4.2: ROI Process Model



Phillips *et al.* (2001:25-30) explain the steps in the ROI Process Model as follows:

4.3.2.1 Evaluation planning

The first two phases of the ROI Process Model involves the development of the objectives that the training programme is aimed at as well as the preparation of evaluation plans. These plans include the plan for the collection of the data and a plan for the ROI analysis.

4.3.2.2 Collecting data

The data that is collected during the training programme measures level 1 and 2 of Kirkpatrick's four level model of evaluation, reaction and satisfaction at level 1 and learning at level 2. This data is important to be able to make the changes as they become necessary. The data collected after completion of the programme is compared to pre-programme data, expectations and control group differences.

4.3.2.3 Isolating the effect of the HR programme

A number of factors could cause a difference in performance after the completion of the training programme. The changes as a direct result of the training programme thus have to be identified. This step is critical to ensure the credibility and accuracy of the ROI calculation. It is important that data is collected at all levels and not only at level 4 for business results. If data from the other levels are not included, it cannot be determined how much of the improvement occurred as a result of the training programme (Phillips *et al.*, 2001:168-170).

The first step should be to identify all the other possible sources that could have impacted on the results. All the interested parties, such as those who implement HR programmes, HR analysts, developers and programme administrators, management and participants' supervisors should be involved in this step (Phillips *et al.*, 2001:170).

Phillips *et al.* (2001:171) propose the following ten strategies to isolate the effect of a HR programme:

Use of control groups

This strategy involves the use of a group that take part in the training programme and another group that does not take part in the training, which acts as a control group. Measurement is taken after the programme and the difference in the performance of the two groups can be attributed to

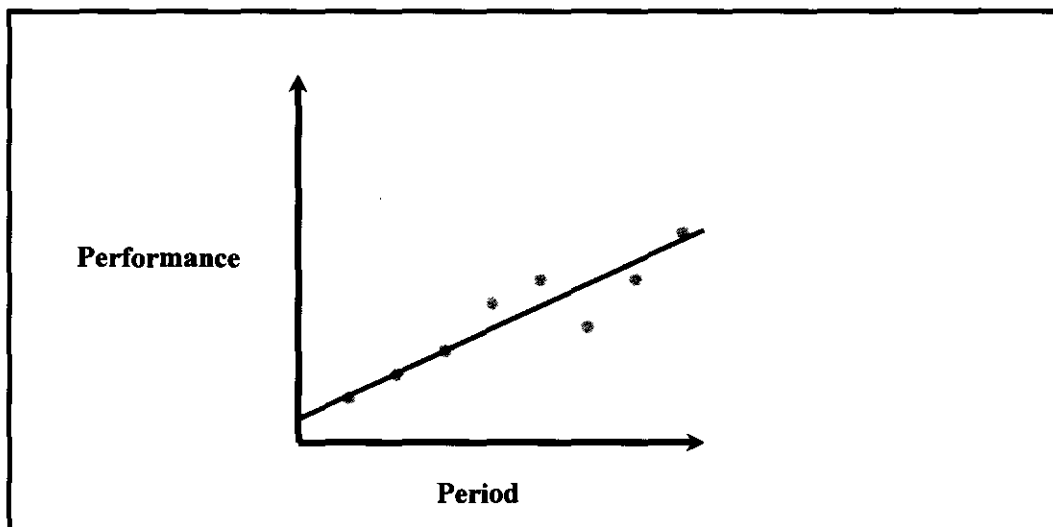
the training programme. The composition of the two groups has to be similar and the selection should preferably be on a random basis (Phillips *et al.*, 2001:171-172).

This strategy has the advantage of accuracy, but there are some possible problems. It could be difficult to select two groups that are the same. Another problem could arise when members of one group inform the members of the other group or when the groups operate under different environmental circumstances. This type of strategy could also appear to be too research-orientated for some businesses that do not want to take the time to experiment before implementing the training programme (Phillips *et al.*, 2001:174).

Trendline analysis

Historical data can be used to draw a trendline and by extending this line into the future, future performance can be predicted. After the implementation of a training programme, actual data can be compared to the trendline to determine the portion of improvement attributable to the training programme (Phillips *et al.*, 2001:175). The following graph illustrates the concept of the trendline analysis:

Graph 4.1: Trendline example



Source: (Phillips *et al.*, 2001:175 Adapted)

This method is simple and inexpensive, but has the disadvantage that it is not always accurate. It assumes that all factors influencing performance before the implementation of the training programme will be present in the future and that no other factors, other than the training programme, were added after implementation (Phillips *et al.*, 2001:176).

Forecasting methods

The use of forecasting methods is a mathematical interpretation of the trendline analysis method in which a linear equation is developed, which calculates the value of the anticipated performance improvement of a single activity (Phillips *et al.*, 2001:176; Horngren *et al.*, 2003:326).

The linear cost equation is (Phillips *et al.*, 2001:176; Horngren *et al.*, 2003:326):

$$y = a + bX$$

where: y = total effect
 a = fixed element
 b = variable element per unit of cost driver
 X = cost driver

The equation can be solved by using a quantitative analysis of a past cost relationship (Horngren *et al.*, 2003:330).

Phillips *et al.* (2001:177) uses the following example to illustrate the linear cost function:

A training programme was implemented by an organisation in an effort to increase the productivity of the sales personnel. The outcome was expected to be an increase in sales per employee. The weekly sales per employee were R2 200 per person before the training intervention and increased to R3 000 per person two months after the programme was completed. An extensive advertising campaign was launched within this period and the total increase in sales can therefore not be linked to the training programme alone. By analysing the previous sales data per employee and the level of advertising management established that a direct relationship existed between sales per employee and the level of advertising. Management applied quantitative techniques to solve the relationship and expressed the linear equation as $y = 280 + 80X$, where X is the level of weekly advertising expenditure (divided by 1 000) and y is the weekly sales per employee.

The weekly advertising two months after the completion of the training programme were R30 000. By substituting X in the equation with 30 (30 000/1 000) it was estimated that the new sales caused by the advertising campaign should have been R2 680. The actual sales figure per employee is R3 000. The difference of R320 per employee can be attributed to the training intervention.

This technique can only be applied when only one other variable influences the output performance (Phillips *et al.*, 2001:176).

Participant estimates

Information can be obtained directly from the participants, but the accuracy will depend on the capability of the participants to determine or estimate how much performance improvement can be obtained from the training programme. Because it is the participants' actions that caused the improvement, they should know what the impact of the programme was on the performance (Phillips *et al.*, 2001:179).

Participants' estimates are obtained by asking them a series of questions. A confidence percentage can be applied to be even more conservative (Phillips *et al.*, 2001:180; Campbell, 1995:19). The participant allocates a percentage of confidence to the expected improvement. The improvement figure is then adjusted with this percentage. For example, if the participant felt that the improvement in a specific area was 20% due to the training programme and applied a 70% confidence percentage, the adjusted improvement would be calculated by multiplying the two figures to obtain the adjusted improvement percentage of 14%. This adjusted percentage is then multiplied by the amount of improvement to obtain the isolated improvement attributable to the programme (Phillips *et al.*, 2001:180).

Phillips *et al.* (2001:182) propose the following adjustments to be conservative:

- The individuals that do not respond to the questionnaire are assumed to have experienced no improvements;
- Any data that is extreme or unrealistic is omitted from the analysis;
- Although benefits usually do accrue after the first year, only the data from the first year after the implementation of the programme is used;
- Potential error is provided for by multiplying the improvement by the confidence percentage; and
- The improvement percentage directly attributable to the programme is then multiplied by the amount of improvement.

This approach has the advantage of being simple and inexpensive, but is only an estimate and some of the data may be unreliable because the participants may be unable to provide the estimates. The data, however, is collected from a reliable source (Phillips *et al.*, 2001:185).

Supervisor estimates

In some cases the participants' supervisors might be in a better position to provide the estimates. The supervisors' estimates might be used on their own, or be obtained in addition to the estimates of the participants (Phillips *et al.*, 2001:186).

These estimates of the supervisors should be analysed in the same way as that of the participants. The data from the two sources, the participants and the supervisors, can be integrated using a more conservative approach whereby the lower of the two values is used, or an average of the two can be calculated (Phillips *et al.*, 2001:188).

Management estimates

Upper management might estimate the percentage of improvement in the performance. Although it provides management with a level of comfort because they are usually the ones providing the funding, it is a subjective approach (Phillips *et al.*, 2001:190).

Customer input

This approach involves asking the customers about their change in reaction to a product or service as a result of a training programme (Phillips *et al.*, 2001:190).

Expert estimation

In certain circumstances experts might be able to provide information on the performance improvement achieved as a result of a training programme. They should be chosen carefully based on their knowledge of the programme, process or situation. This approach might be inaccurate or might lose credibility because the information comes from an external source. The information however is from an expert and management might put more confidence in the opinion of an external source than that of internal staff (Phillips *et al.*, 2001:191).

Subordinate input of HR programme impact

Subordinates of managers or supervisors might provide information on what other factors could have contributed to the improvement after the completion of the training programme. Their input might however be bias and subjective. The advantage of this approach is that it does isolate the

impact of the programme from other factors causing change. It is advisable that this method is combined with other methods (Phillips *et al.*, 2001:192).

Calculating the effect of other factors

In this approach the impact of other forces causing changes in performance is calculated. The impact of the training course is then calculated as the remaining portion that could not be attributed to the other factors. This method could be used when the other factors are easy to identify and their impact can be calculated (Phillips *et al.*, 2001:193).

DISCUSSION

Legislation in South Africa makes it impossible for an assistant to work in a dispensary without being under a training contract (SA, 1974). It will therefore not be possible to use control groups in this study.

In a recent study the National Centre for Vocational Education Research (NCVER) (2000a) found that there was a correlation between training expenditure on non-management personnel and productivity. The increase in productivity was in the value added and not in units produced. The NCVER warns however that the correlation could also be because the expenditure on training was increased due to an increase in productivity and that the increase in productivity was due to other factors apart from training. It was also found that on-the-job training had the greatest effect on productivity and that most organisations admitted that they would not be able to survive without it. This form of training is hard to cost because it cannot be separated from the work itself (NCVER, 2000a).

Another study by the NCVER (2000b) showed strong links between a training investment and improvements in performance. In some cases the return on investment in training exceeds one thousand percent per training programme. The NCVER (2000b) states that these returns may even be understated due to the fact that all the benefits of training cannot be quantified.

4.3.2.4 Converting data to monetary values

There are several strategies available to place a value on the data collected.

Phillips *et al.* (2001:199) and Swanson (2001:44) propose that the following steps, although not in the same order, should be followed for each data conversion:

Step 1: Focus on a unit of measure

The first step is to identify the unit of improvement, such as units produced; time measures such as cycle time or time taken to complete a project; or quality measures such as errors or defects (Phillips *et al.*, 2001:199). According to Swanson (2001:44) these units have to be related to the needs assessment of the programme and the performance that will result from the programme.

Step 2: Determine a value for each unit

A value has to be placed on a unit of measure in terms of what it is worth to the organisation (Phillips *et al.*, 2001:199; Swanson, 2001:46).

Step 3: Calculate the change in performance data

Calculate the effect of the training programme on the performance after all other factors that could have had an influence have been excluded. This calculation can be done for individuals or groups (Phillips *et al.*, 2001:199).

The change in the level of performance can be assessed by comparing the level of performance before the HRD programme with the level of performance after the implementation of the programme (Swanson, 2001:45).

Step 4: Calculate the total value of the improvement

The total value of improvement can be calculated by multiplying the change in annual performance by the unit value calculated in step 2. This value is then compared to the cost of the programme (Phillips *et al.*, 2001:199; Swanson, 2001:47). Swanson (2001:47) refers to the value of the improvement in performance as the *performance value*.

Phillips *et al.* (2001:199) added an additional step to determine the annual amount for the change. According to them the value of the change in performance has to be calculated as a value for one year.

Phillips *et al.* (2001:200) describe the following strategies that can be used to convert data to monetary values:

- **Converting output data to contribution**

When the improvement in performance involves a change in output, the value of the increased output will be the marginal contribution of an additional unit of output. If the organisation is

performance driven and not profit driven, the value will be reflected in the additional output that can be realised with the same input. The data for the measuring and calculations will probably be available from the organisation's accounting records (Phillips *et al.*, 2001:200).

- **Calculating the cost of quality**

Many training programmes have the improvement of quality as an objective. It is therefore important that a value can be placed on quality. Some quality measures can be calculated more easily than others, like rework or defects. The cost of the defect product will be the total cost of the unit less the salvage value. Customer dissatisfaction however, is much more difficult to measure. The input of sales and marketing managers will have to be sourced (Phillips *et al.*, 2001:203).

- **Converting employee time**

The value of time saved is an important measure of the success of a training programme. A training programme often has as the objective or could result in employees or groups completing tasks in a shorter time frame. One of the benefits would be the reduction in labour hours, which is calculated by multiplying the time saved with the labour cost per hour. Other benefits include improved service or avoidance of penalties. Savings in time will only result in a monetary benefit if the time saved is used in a productive way (Phillips *et al.*, 2001:204).

- **Historical costs**

Historical costs can be used to calculate the value of a unit of improvement. The historical records can be examined and used to calculate the cost of the item in question (Phillips *et al.*, 2001:205).

- **Strategies to convert 'soft data' to monetary value**

Soft data is usually behaviourally orientated, difficult to measure and subjective, such as client satisfaction, etc. (Phillips *et al.*, 2001:198). The following methods or strategies might be employed to convert the soft data to monetary value:

Internal and external experts' input

Some areas of improvement are not so easy to convert into monetary value and historical data might not be available. In these situations internal as well as external experts can be used to

calculate the value of the improvement. When consulting these experts, the situation should be explained to them in the fullest detail. They should also be requested to provide the assumptions used in arriving at their estimates (Phillips *et al.*, 2001:205).

Values from external databases

Data from external databases, containing unit cost information derived from studies and research projects done by others, could be used to place a value on an improvement. It is important that, where possible, the information is collected from an organisation in a similar situation operating in the same industry (Phillips *et al.*, 2001:206).

Participant estimates

Participants can provide information on the cost of the units of performance improvement. Because they are involved in the process, they could be able to provide reliable information, but they should receive clear instructions on the type of information required (Phillips *et al.*, 2001:207).

Supervisor estimates

Where the participants are too far removed from the process to be able to provide a reasonable estimate of the value of the improvement, their supervisors or managers might be able to provide the information (Phillips *et al.*, 2001:208).

Senior manager estimates

Senior management involved with or interested in the programme can provide estimates of the value of improvements. Their estimates are usually used when calculating values are difficult or when other sources of information are not available or reliable (Phillips *et al.*, 2001:209).

HR staff estimates

HR staff estimates can be used because they are most familiar with the situation. This strategy should only be used if other approaches are not available, because the information might be perceived as bias (Phillips *et al.*, 2001:210).

4.4 DISCOUNTED CASH FLOW ANALYSIS

In order to compare capital investments a technique called **discounted cash flow analysis** is used. This technique involves converting all the cash flows over the life of the project into a value at the present time by making use of an interest rate (Drury, 2004:496).

4.4.1 Time value of money

Money received today is worth more than money received some time into the future. There are two reasons for this (Correia *et al.*, 2003:2-3; Brigham & Ehrhardt, 2005:48; Garrison *et al.*, 2003:363; Moyer *et al.*, 2005:135):

- Money can be invested to earn money. If money is received today, it can be invested to earn interest and therefore, in the future, you would have the principal amount as well as the return on the amount invested.
- There is a certain risk involved in receiving money at a future date. This is the typical “bird in the hand” theory. A person will expect a premium to compensate for the risk of possibly not receiving the money at all.

Because of the above, it is important to take the time value of money into account when monetary values in different periods are examined or compared. Drury (2004:497) agrees that all cash flows over the life of the project should be converted to a common value at the same point in time. He further states that this point in time could be any date, but that it would be best to use the date at which the decision is made.

4.4.2 Discount rate

Drury (2004:496) states that the rate used to discount the cash flows to present value must be the opportunity cost of an investment. If cash is invested in the capital project, it can not be used for other purposes and therefore the rates of return available from other investments become an opportunity cost. Organisations should therefore only invest in projects that yield a return in excess of the opportunity cost of investments, which is the minimum required rate of return or cost of capital (Drury, 2004:496; Firer *et al.*, 2004:414). The cost of capital of a company is the return that the providers of financing, such as the shareholders and the loan providers, require for the use of their funds (Garrison *et al.*, 2003:367; Firer *et al.*, 2004:465; Moyer *et al.*, 2005:287).

According to an asset manager (Lefebvre, 2004), the average minimum rate of return required by investors is the inflation rate plus four percent.

4.4.3 Cash flow determination

Brigham and Ehrhardt (2005:381) state that the two rules that should be followed in capital budgeting decisions are:

- Capital investment decisions are based on cash flows and not accounting profit, and

- Only incremental cash flows should be taken into account.

4.4.3.1 Cash flow versus accounting profit

Cash flows are based on the timing of the transaction, i.e. when the income is received, and differs from the accounting profit in the sense that is based on the accrual concept (Correia *et al.*, 2003:8-16; Brigham & Ehrhardt, 2005:381; Garrison *et al.*, 2003:365). Firer *et al.* (2004:32) identify three cash flows from assets. **Operating cash flows** are the cash flows that result from the organisation's normal business activities such as buying and selling. **Capital spending** is the money that is received from the sale of non-current assets items and money spent on purchasing non-current assets and **changes in net working capital** involve any additions to net working capital or the recovery of net working capital.

4.4.3.2 Relevant cash flows

Relevant cash flows are those cash flows that occur only when a project is accepted and are therefore directly attributable to the project. Only incremental cash inflows or outflows that will occur in the future, following the decision, must be included. Therefore, cash flows included in the capital budgeting decision must be the result of the decision to accept the project (Drury, 2004:504; Firer *et al.*, 2004:285; Brigham & Ehrhardt, 2005:383; Moyer *et al.*, 2005:265).

4.4.3.3 Taxation

According to Brigham and Ehrhardt (2005:385) it is extremely important that taxes are dealt with correctly when evaluating projects since tax implications can often make or break a project.

Businesses have to pay tax and the amount of tax is based on the taxable income of the business. Taxation on taxable income is an expense and will lead to a cash outflow, whilst tax allowances causes the tax expense to decrease and therefore results in a cash inflow. The effect of taxation has to be taken into account when evaluating projects (Drury, 2004:546; Garrison *et al.*, 2003:400; Correia *et al.*, 2003:8-18; Moyer *et al.*, 2005:265).

4.4.3.4 Inflation

Inflation has an effect on the future cash flows of a project and on the minimum rate of return that the investor requires. Therefore, an adjustment must be made to take into account the effect of inflation. Investors' expectations of future inflation are included in the required rate of return. A

rate that includes inflation is called a nominal rate and a rate that does not take into account the rate of inflation is called a real rate (Firer *et al.*, 2004:288; Garrison *et al.*, 2003:396; Brigham & Ehrhardt, 2005:395; Correia *et al.*, 2003:9-6; Moyer *et al.*, 2005:308).

Inflation can be provided for in one of two ways. Real cash flows (without the effect of inflation) can be adjusted for inflation and discounted at the nominal rate of return or real cash flows at today's prices can be discounted at the real rate of return (Firer *et al.*, 2004:288; Drury, 2004:552; Garrison *et al.*, 2003:398; Brigham & Ehrhardt, 2005:396; Moyer *et al.*, 2005:309). Garrison *et al.* (2003:398) warn that one should be consistent in the method that is chosen.

4.5 TECHNIQUES FOR THE EVALUATION OF TRAINING AND DEVELOPMENT PERFORMANCE

Phillips *et al.* (2001:234) use annualised values in all the techniques and formulas presented by them. This could vary, depending on the expected life of the programme and the period for which benefits are expected.

The simple example below will be used to illustrate the methods and techniques for the evaluation of training and development performance. A comprehensive case study will be presented in chapter six.

Illustration: ABC Limited

ABC Limited implemented a new training programme in 2000. Not only did they expect to derive financial benefits from the programme but also quantitative benefits such as a motivated and committed workforce and improved customer satisfaction.

The initial programme costs amounted to R100 000 with a four year useful life. The after-tax cash income and expenses of the training programme were as follows:

	Income R	Expenses R	Net income R
2000	80 000	20 000	60 000
2001	110 000	35 000	75 000
2002	100 000	30 000	70 000
2003	85 000	20 000	65 000

The training programme will have no salvage value at the end of the useful life. Assume that the income and expenses are equal to the cash flows. Net income equals net cash inflow because of no depreciation regarding the initial programme costs that are treated as expenses. The company's cost of capital is 20%.

(Source: Researcher)

4.5.1 Return on investment (ROI)

Return on investment (ROI) is the ratio of operating income to the investment and is used to measure the effectiveness with which management utilises assets to create income (Correia *et al.*, 2003:8-11; Hansen & Mowen, 2003:360; Horngren *et al.*, 2003:788). Drury (2004:845) describes ROI as a useful tool to determine the success of an investment policy, as it provides a measure of the after-the-event return on capital invested.

Hansen and Mowen (2003:359) and Garrison *et al.* (2003:608) calculate the return on investment by dividing the net operating income by the average operating assets. They define operating income as the operating profit before interest and tax. Operating assets are defined as all the assets acquired to generate income and it includes cash, debtors, inventory, plant and equipment and other assets held for productive use. The average assets are calculated by adding the opening and closing balances and dividing it by two.

Drury (2004:845) states that return on investment is the net profit expressed as a percentage of the total assets controlled by the divisional manager. He defines assets as the total assets or net assets.

Moyer *et al.* (2005:103) expresses the formula as the earnings after tax divided by the total assets. Firer *et al.* (2004:64) agree, but prefer the term **return on assets**. They argue that the term 'investment' is ambiguous and may be interpreted as net assets, total assets or even equity. They calculate the return on assets as net profit after tax as a percentage of total assets. Brigham and Ehrhardt (2005:454) also calculate the return on total assets by dividing the net income available to ordinary shareholders by the total assets.

According to Horngren *et al.* (2003:788) some companies use operating income before tax whilst others prefer net income after tax. Some companies use total assets and others use assets financed by long-term debt or total assets less liabilities.

Moyer *et al.* (2005:103) suggest that profit before interest and tax should be used in the calculation of return on investment when comparing the performance of organisations that are financed differently.

When capital investment decisions are being evaluated, the term used for the calculation of return on investment is the **accounting rate of return** or the **average accounting return**. It is the average annual profits of a project expressed as a percentage of the average investment in that project or as a percentage of the original investment. It is calculated by using the net profit and not the annual cash flows. The average annual profit is calculated by dividing the total profit by the economical life of the investment in years (Drury, 2004:513; Firer *et al.*, 2004:259; Correia *et al.*, 2003:8-11; Hansen & Mowen, 2003:907). The average annual profit is calculated by dividing the total profit by the economical life of the investment in years and the average investment is the initial investment plus the salvage value divided by two (Drury, 2004:513; Firer *et al.*, 2004:259; Correia *et al.*, 2003:8-11; Hansen & Mowen, 2003:907).

Example 4.1: Accounting rate of return

Refer to the illustration on page 82. The accounting rate of return on the training investment of ABC Limited is calculated as follows:

$$\begin{aligned}\text{Average net profit} &= (60\,000 + 75\,000 + 70\,000 + 65\,000) / 4 \\ &= 67\,500\end{aligned}$$

$$\begin{aligned}\text{Average investment} &= (100\,000 + 0) / 2 \\ &= 50\,000\end{aligned}$$

$$\begin{aligned}\text{Accounting rate of return} &= 67\,500 / 50\,000 \\ &= 135\%\end{aligned}$$

The training project will be acceptable if its accounting rate of return exceeds the company's required average accounting rate of return (Firer *et al.*, 2004:260; Correia *et al.*, 2003:8-11).

The benefit that the accounting rate of return has above the payback period is that it allows for projects with different economical lives to be compared. The major disadvantage is that it does not take into account the time value of money (Drury, 2004:513; Firer *et al.*, 2004:260; Correia *et al.*, 2003:8-12). Based on this reason, Drury (2004:513) does not recommend the use of the accounting rate of return.

The benefits of using return on investment as a measurement of performance are:

- People tend to prefer the use of a percentage;
- Managers are encouraged to pay attention to the relationship between operating income and investment;
- It encourages cost efficiency;
- It discourages excessive investment in operating assets; and
- It is a single percentage that can be compared with other opportunities even if they are not similar.

(Drury, 2004:845; Hansen & Mowen, 2003:360; Horngren *et al.*, 2003:788)

The return on investment method of performance measurement also has certain disadvantages (Drury, 2004:845; Hansen & Mowen, 2003:362; Correia *et al.*, 2003:8-12):

- Managers might not invest in a project that would decrease the return on investment of the division, but would increase the return on investment of the company in total;
- Managers could be motivated to make incorrect asset disposal decisions; and
- Managers tend to focus on the short-term instead of long-term results when evaluated on the basis of return on investment.

There has been much debate in recent literature about the effectiveness of measuring return on investment on training investments. Return on investment in training is the expected return or net benefits from a training programme in relation to the investment or costs associated with that training programme (Institute of Management and Administration, 2002:202; Shepherd, 1999;

Phillips *et al.*, 2001:236). According to Campbell (1995:18) the return on investment method of establishing the cost effectiveness of training is the most widely used method, because managers are accustomed to thinking in terms of return on investment. Managers use return on investment to make investment decisions and to determine whether the desired return on investment was achieved (Shepherd, 1999).

Phillips *et al.* (2001:236) expresses the formula for ROI in a training programme as:

$$\text{ROI} = \frac{\text{Net programme benefits}}{\text{Programme costs}} \times 100$$

The net benefits in this formula are the programme benefits less the programme costs, while the programme costs represent the investment in the programme. Conner (2002) agrees and adds that the total benefits include money saved, money made and anything that adds directly or indirectly to the bottom line. The programme costs include development costs, learner's time away from the workplace, material, etc. (Conner, 2002). A return on investment of 50% for an investment in a training programme means that the costs were recovered and a further 50% earnings were reported (Phillips *et al.*, 2001:236).

Example 4.2: Return on investment

Refer to the illustration on page 82. The return on the training investment of ABC Limited is calculated as follows:

Total programme costs	= 100 000 + 20 000 + 35 000 + 30 000 + 20 000 = 205 000
Programme benefits	= 80 000 + 110 000 + 100 000 + 85 000 = 375 000
Net programme benefits	= 375 000 – 205 000 = 170 000
ROI	= (170 000 / 205 000) x 100 = 82.9%

Therefore, all of the costs were recovered and a further 82.9% of the costs were reported as earnings.

This method of calculating the return on investment is probably based on training programmes for which the benefits do not exceed one year. The researcher is of the opinion that where the training programme has an extended economical life, the accounting rate of return as calculated by Drury, Firer *et al.* and Correia *et al.* should rather be used to calculate the return on the investment in the programme.

Although no general standard of return on investment exists, a higher return on investment will usually be expected from a training investment than other investments due to the fact that the calculation of return on investment on training investments are often based on subjective information or estimates (Phillips *et al.*, 2001:237).

It is not necessary to calculate return on investment for every training programme, but it is important to calculate it for the major programmes that will create a significant change (Barron, 1998:192).

The benefits of calculating the return on investment of a training investment are:

- It provides an indication of the training's value, worth and merit;
- It is easily understood by top management;
- Management will be impressed with a favourable return on investment report and will view training as a value-added service;
- Return on investment ensures needs-driven training. HRD managers have to focus on the proper skills;
- Return on investment causes a greater commitment among trainees, due to the fact that the effect of training on workplace performance will be measured;
- Return on investment forces HRD managers to plan the training expenses carefully and forces them to work in close contact with other line managers;
- Return on investment causes training decisions to become more objective;
- Investments in training can be compared to other investments; and
- Key management and financial executives can easily understand the return on investment calculation.

(Campbell, 1995:19; Phillips *et al.*, 2001:237; Barron, 1998:192)

There are however several limitations to the calculation of return on investment (Campbell, 1995:19; Phillips *et al.*, 2001:168; Conner, 2002):

- There is no guideline for determining the benefits and costs of training;
- It can be difficult to isolate the effect of training on the business objectives;

- Return on investment is often used for self-justification rather than continuous improvement; and
- Return on investment is based on historic information and does not provide a method to improve future results.

Phillips *et al.* (2001:246) warn that the following issues should be addressed when calculating the return on investment on a training investment:

- A needs assessment has to be done before undertaking the return on investment analysis in order to minimise the evaluation problems;
- One or two of the strategies for isolating the effect of training should be included in the analysis;
- Reliable and credible sources should be used in obtaining data;
- Benefits and costs should be determined conservatively;
- Caution should be exercised when comparing return on investment on training with other financial returns;
- Management should be involved in the process because they are the ones that will ultimately decide whether a return on investment value is acceptable;
- Sensitive and controversial issues such as those regarding measurability should be handled with caution;
- Other managers and personnel should be taught how to measure the return on investment; and
- Return on investment cannot be calculated for every programme. Do not attempt to do it.

4.5.2 Net present value (NPV)

Net present value (NPV) measures whether an investment will result in an increase in the value of the organisation. Net present value is the sum of the present value of the discounted future cash flows of the project less the cost of the initial investment. It can also be calculated by adding the present values of all the cash flows. The cash flows are discounted at the required rate of return of the company, which is the minimum acceptable rate of return (Correia *et al.*, 2003:8-6; Brigham & Ehrhardt, 2005:349; Hansen & Mowen, 2003:909; Firer *et al.*, 2004:249; Drury, 2004:498; Garrison *et al.*, 2003:363).

Example 4.3: Net present value

Consider the illustration of ABC Limited on page 82. The net present value is calculated as follows:

	Cash flow	Present value	Present value
	R	factor	R
Cost	-100 000	1.000	-100 000
2000	60 000	0.833	49 980
2001	75 000	0.694	52 050
2002	70 000	0.579	40 530
2003	65 000	0.482	31 330
Net present value			<u>73 890</u>

A positive net present value indicates that the project will earn more than the required rate of return and will lead to an increase in the value of the company. Projects yielding a positive net present value should therefore be accepted (Correia *et al.*, 2003:8-6; Brigham & Ehrhardt, 2005:349; Hansen & Mowen, 2003:909; Firer *et al.*, 2004:252). The training programme in the example of ABC Limited would therefore be accepted, as it would add value to the company.

The advantages of the net present value method are:

- It is a simple method to use;
- It takes into account the time value of money, and
- Investments can be ranked.

(Correia *et al.*, 2003:8-8; Phillips *et al.*, 2001:242; Garrison *et al.*, 2003:372).

It is possible that net present value and internal rate of return can provide different rankings if the projects are mutually exclusive, i.e. the acceptance of one project excludes the acceptance of another project. The difference in rankings is due to the different reinvestment assumptions of the two methods. The net present value method assumes that cash flows generated from an investment are reinvested at the cost of capital while the internal rate of return method assumes that cash flows are reinvested at the internal rate of return. Reinvestment at the cost of capital is preferred because it is a more conservative estimate, it remains constant and if the firm does not have capital rationing, the firm would already have accepted projects with an internal rate of return higher than the cost of capital. Therefore, when projects are mutually exclusive and the rankings of the net present value and internal return methods differ, the net present value should be used (Drury, 2004:507; Firer *et al.*, 2004:269; Correia *et al.*, 2003:8-33; Brigham & Ehrhardt, 2005:353).

Due to the fact that training programmes will usually have a duration of more than one year, it is important to take into account the time value of money. The NPV method technique could be applied successfully in evaluating training programmes or in comparing alternatives when making the outsourcing decision.

4.5.3 Benefit/cost ratio

Phillips *et al.* (2001:235) describe the benefit/cost ratio as the comparison of the annual benefits with the cost of the programme. Campbell (1995:19) however expresses it as the cost/benefits ratio which is the ratio of the costs of the training programme to the benefits expected from it. According to Campbell (1995:19) this method is especially suitable for training programmes for which it is difficult to quantify the benefits in monetary terms.

Campbell (1995:19) expresses the formula as follows:

$$\text{Cost-benefit ratio} = \frac{\text{Projected full cost of training}}{\text{Predicted training benefits}}$$

Campbell (1995:19) suggests that the results of the cost/benefit formula should be interpreted as follows:

- When the ratio is less than one, the benefits exceed the costs and the training will be worthwhile; and
- If the ratio is greater than one, the costs exceed the benefits and thus the training will not be worthwhile.

According to Phillips *et al.* (2001:235) the formula for the calculation of the benefit/cost ratio is:

$$\text{Benefit-cost ratio} = \frac{\text{Programme benefits}}{\text{Programme costs}}$$

Both these ratios will provide the same answer, but the interpretation will differ. The investment in training will be worthwhile if the ratio suggested by Phillips *et al.* (2001:235) is greater than one, as the benefits will exceed the costs.

There is no standard for the benefit-cost ratio. A ratio of 1:1 will however usually be unacceptable. Most organisations require a ratio of 1.25:1. The organisation will have to develop a standard of its own (Phillips *et al.*, 2001:236).

The benefit/cost ratio is also referred to as the **profitability index (PI)**. The profitability index is the present value of future cash flows divided by the initial investment. The profitability index will be bigger than one for an investment with a positive net present value and projects with a profitability index of more than one should therefore be accepted (Drury, 2004:508; Firer *et al.*, 2004:273; Brigham & Ehrhardt, 2005:359; Correia, 2003:8-13).

Example 4.4: Profitability index (Benefit/cost ratio)

Refer to the illustration on ABC Limited on page 82. The profitability index is calculated as follows:

$$\begin{aligned}\text{Present value of future cash inflows} &= (60\,000 \times 0.833) + (75\,000 \times 0.694) + (70\,000 \times \\ &0.579) + (65\,000 \times 0.482) \\ &= 173\,890\end{aligned}$$

$$\begin{aligned}\text{Profitability index} &= 173\,890 / 100\,000 \\ &= 1.74\end{aligned}$$

The training programme of ABC Limited has a profitability index of 1.74 and will therefore be accepted.

There are several reasons why the benefit/cost ratio is used in practice for the evaluation of a training programme. Some of the advantages of this method are:

- It can be used where the benefits of training are difficult to quantify in monetary terms;
- It usually provides the same ranking as the net present value method;
- It is easy to understand and communicate;
- It provides a method for quantifying benefits that are usually difficult to express in monetary terms;
- It indicates whether training will be worthwhile before the training is developed and delivered; and
- It avoids traditional financial measures so that there is no confusion when comparing HR investments with other investments.

(Campbell, 1995:20; Phillips *et al.*, 2001:236; Firer *et al.*, 2004:273)

Campbell (1995:20) however points out that the prediction of monetary benefits is subjective.

4.5.4 Payback period

The payback period measures the time that it takes to recover the initial investment from the cash flows generated by the project. When the cash flows are incurred even, the payback period can simply be calculated as the initial investment divided by the annual cash flow (Drury, 2004:509; Correia *et al.*, 2003:8-10; Brigham & Ehrhardt, 2005:347; Hansen & Mowen, 2003:906; Firer *et al.*, 2004:253).

The payback period for training is the period that it will take to recover the investment in the training programme from the expected benefits.

The formula for the payback period for an investment in training would be (Phillips *et al.*, 2001:242):

$$\text{Payback period} = \text{investment in training} / \text{benefits from training}$$

The investment will include all development costs, external programme purchases, etc. The benefits are the benefits less the programme costs (Phillips *et al.*, 2001:242).

When the cash flows are not even, the following formula can be used (Brigham & Ehrhardt, 2005:347):

$$\text{Payback period} = \text{Year before full recovery} + \frac{\text{Unrecovered cost at start of year}}{\text{Cash flow during year}}$$

Example 4.5: Payback period

Refer to the illustration of ABC Limited on page 82. The payback period is calculated as follows:

$$\begin{aligned}\text{Payback period} &= 1 + (40\,000 / 75\,000) \\ &= 1.53 \text{ years}\end{aligned}$$

The acceptability of the payback period of 1.53 would depend on what is acceptable for ABC Limited.

The shorter the payback period, the better it would be for the company. According to Hansen and Mowen (2003:906), the payback period can be used as a **measure of risk**. The longer a project takes to pay for itself, the more risk is involved. Hansen and Mowen (2003:906) also point out that the payback period can be beneficial when there is a risk of obsolescence. Training programmes might be offered for a limited time and the payback period can be used to measure if the benefits will exceed the cost within that time span. Drury (2004:510), Brigham & Ehrhardt (2005:349) and Firer *et al.* (2004:255) agree that the payback period can be used as a risk indicator because cash flows expected in the distant future are usually riskier than near-term cash flows.

The payback period is the only method that gives an indication of the breakeven point of the project. The project will break even at the payback point (Brigham & Ehrhardt, 2005:349).

Although the payback period is relatively easy to calculate, it has the disadvantages of not taking into account the time value of money and ignoring any cash flows after the payback period (Drury, 2004:510; Correia *et al.*, 2003:8-10; Brigham & Ehrhardt, 2005:349; Hansen & Mowen, 2003:907; Firer *et al.*, 2004:254).

According to Drury (2004:510) the payback period can only be a valid indicator if the annual cash flows are discounted to their present values. This is referred to as the **discounted payback period** method. It is calculated in the same way as the payback period (example 4.5, page 91), but the cash flows are discounted at the project's cost of capital (Brigham & Ehrhardt, 2005:348; Drury, 2005:510; Firer *et al.*, 2004:256; Correia *et al.*, 2003:8-13).

Example 4.6: Discounted payback period

Refer to the illustration on page 82. The discounted payback period of ABC Limited is calculated as follows:

$$\begin{aligned}\text{Discounted payback period} &= 1 + (50\,020 / 52\,050) \\ &= 1.96 \text{ years}\end{aligned}$$

4.5.5 Internal rate of return (IRR)

The internal rate of return is the rate of return where the present value of the net future cash flows will equal the cost of the investment; or the present value of the inflows will equal the present value of the outflows. It is also the rate that will make the net present value of a project equal to zero. A project with an IRR that exceeds the cost of capital will add value to the company (Correia *et al.*, 2003:8-7; Brigham & Ehrhardt, 2005:351; Phillips *et al.*, 2001:243; Garrison *et al.*, 2003:368; Firer *et al.*, 2004:261).

The IRR can be calculated by a process of trial and error or by using a financial calculator (Brigham & Ehrhardt, 2005:352).

Example 4.7: Internal rate of return

Refer to the illustration on page 82.

The internal rate of return of ABC Limited is calculated as follows:

Enter the following into the financial calculator:

-100 000	CFi
60 000	CFi
75 000	CFi
70 000	CFi
65 000	CFi
COMP	IRR

= 54.99%

The benefits of the IRR are (Brigham & Ehrhardt, 2005:352; Correia *et al.*, 2001:8-8; Phillips *et al.*, 2001:243; Firer *et al.*, 2004:272; Drury, 2004:507):

- It is easy to understand, as it is a percentage;
- It takes into account the time-value of money;
- It is unaffected by the scale of the project;
- It can be used to rank projects; and
- The IRR of a project is its expected rate of return.

The disadvantages of using the IRR are (Correia *et al.*, 2003 8-8; Brigham & Ehrhardt, 2005:352; Drury, 2004:507; Firer *et al.*, 2004:267):

- It is difficult to calculate using the trial and error method;
- Comparison of percentage returns can be misleading;
- NPV and IRR can give conflicting results; and
- It assumes that all returns are invested at the same internal rate of return.

According to Phillips *et al.* (2001:243) the IRR method is rarely used in practice to evaluate HR investments.

4.5.6 Residual income (RI)

Residual income (RI) is the operating income of the company less a minimum required return on the investment. This required return is calculated by multiplying the operating assets with the minimum rate of return required by the company (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364; Drury, 2004:846).

The formula for the calculation of RI is (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364):

$$\text{Residual income} = \text{Income} - (\text{Required rate of return} \times \text{Investment})$$

Example 4.8: Residual income

Refer tot the illustration on page 82. The residual income of ABC Limited is calculated as follows:

$$\begin{aligned}\text{RI (2000)} &= 60\,000 - (100\,000 \times 20\%) \\ &= 40\,000\end{aligned}$$

$$\begin{aligned}\text{RI (2001)} &= 75\,000 - (100\,000 \times 20\%) \\ &= 55\,000\end{aligned}$$

$$\begin{aligned}\text{RI (2002)} &= 70\,000 - (100\,000 \times 20\%) \\ &= 50\,000\end{aligned}$$

$$\begin{aligned}\text{RI (2003)} &= 65\,000 - (100\,000 \times 20\%) \\ &= 45\,000\end{aligned}$$

The major advantage of residual income is that managers are motivated to act in the best interest of the company (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364; Drury, 2004:846).

The disadvantages of residual income are (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364; Drury, 2004:847):

- It is difficult to compare investments because RI is an absolute measure of return; and
- It can cause managers to focus on short-term results rather than the long-term.

Hansen and Mowen (2003:365) propose the calculation of residual income on operating assets to correct the disadvantage of not being able to compare investments.

4.5.7 Economic value added (EVA)

Economic value added (EVA) is a financial performance measure that aims to measure the true economic profit of a company and is linked to the creation of shareholder wealth over time. In order to create value, a company has to earn a profit in excess of its cost of capital. EVA recognises that managers have to pay for the capital that they employ. EVA is calculated by subtracting an amount for the opportunity cost of all capital invested in the company from the after-tax operating profit. EVA can therefore be defined as the earnings of a project once the cost of capital is

deducted (Correia *et al.*, 2003:5-23, 8-14). The EVA is the business's true economic profit for a given year and focuses on managerial effectiveness within that given year (Brigham & Ehrhardt, 2005:110).

The formula for calculating EVA is (Correia *et al.*, 2003:5-23; Horngren *et al.*, 2003:790; Hansen & Mowen, 2003:365; Brigham & Ehrhardt, 2005:110; Drury, 2004:848):

$$\text{EVA} = \text{after-tax operating profit} - (\text{cost of capital} \times \text{total capital employed})$$

Drury (2004:848) expresses the formula for the calculation of EVA as:

$$\text{EVA} = \text{Conventional divisional profit plus/minus accounting adjustments} - \text{cost of capital charge on divisional assets}$$

Brigham and Ehrhardt (2005:110) specify that the capital employed is the capital used to support operations. Total capital employed can be calculated by subtracting the current liabilities from the total assets. Drury (2004:850) argues that if the purpose is to evaluate a divisional manager, the assets that are controlled by and can be traced directly to that division should be included, and any liabilities controlled by the divisional manager should be deducted. He goes further as to say that the assets managed by the head quarters should be included when it is the division itself that is being evaluated, as the division would not be able to operate without this support. This is especially true when companies within the same industry are being compared (Drury, 2004:851).

Some adjustments are made to the operating income as reported under generally accepted accounting principles. Expenses that have long-term benefits such as research and development, leases, restructuring costs and employee training are treated as assets rather than expenses when calculating EVA to ensure that income is more closely aligned with economic income. These expenses are investments used to earn income and can be treated as such in the EVA calculation because it is an internal management accounting measure. The adjustments will depend on the circumstances of the company (Drury, 2004:848; Correia *et al.*, 2003:8-15; Horngren *et al.*, 2003:790; Hansen & Mowen, 2003:366).

Value will only be added if EVA is positive and the after-tax operating income exceeds the cost of the investment in capital. EVA can be increased by (Horngren *et al.*, 2003:791):

- Increasing after-tax operating income by using the same capital; or
- Earning the same operating income, but decreasing the capital; or
- Investing in high return projects.

The benefit of using EVA rather than ROI is that companies will be less inclined to refuse projects that will lower the ROI percentage but offer a greater return than the cost of capital. EVA could however still cause management to focus on the short-term and avoid projects that would have a negative effect on EVA in the short-term (Correia *et al.*, 2003:8-14). Brigham and Ehrhardt (2005:351) point out that there is a direct relationship between economic value added and net present value and states that the net present value of a project is equal to the future EVA's of that project.

Example 4.9: Economic value added

Refer to the illustration on page 82. The economic value added of ABC Limited is calculated as follows:

$$\begin{aligned}\text{EVA (2000)} &= 60\,000 - (100\,000 \times 20\%) \\ &= 40\,000\end{aligned}$$

$$\begin{aligned}\text{EVA (2001)} &= 75\,000 - (100\,000 \times 20\%) \\ &= 55\,000\end{aligned}$$

$$\begin{aligned}\text{EVA (2002)} &= 70\,000 - (100\,000 \times 20\%) \\ &= 50\,000\end{aligned}$$

$$\begin{aligned}\text{EVA (2003)} &= 65\,000 - (100\,000 \times 20\%) \\ &= 45\,000\end{aligned}$$

The residual income and economic value added are the same for company ABC Limited. Another example of the calculation of the economic value added is provided:

Example 4.10: Economic value added

The calculation of economic value added can be illustrated by using the following company as an example:

Company A with a cost of capital of 20% earned an after-tax operating profit of R15 000 for the past year.

The following is an extract from the balance sheet:

	R
Assets	
Fixed assets	58 000
Current assets	13 000
Shareholders' equity	
Ordinary share capital	45 000
Long-term loan	18 000
Current liabilities	8 000

The total capital employed is currently R63 000 (total assets of R71 000 less current liabilities of R8 000).

The economic value added of Company A is:

$$\begin{aligned}\text{EVA} &= \text{R15 000} - (\text{R63 000} \times 20\%) \\ &= \text{R2 400}\end{aligned}$$

(Source: Researcher)

4.5.8 Bottom line evaluation

Campbell (1995:20) explains the bottom line evaluation method as determining the total value that is added to the organisation by the training programme and then comparing it to the total cost of training to determine whether the training programme was worthwhile.

The value added by training can be expressed as the following formula (Campbell, 1995:21):

$$\text{Value added by training} = (S \times T) (P2 - P1)$$

- Where: S = Total annual compensation package of the trainee
T = percentage of job-time spent performing the task trained
P2 = Post-training productivity percentages
P1 = Pre-training productivity percentages

4.5.9 Utility analysis

Phillips *et al.* (2001:243) define utility analysis as “a function of the duration of a HR programme’s effect on employees’ performance, the number of employees affected, the validity of the HR programme, the value of the job for which the HR initiative was provided, and the total programme cost”.

The formula for assessing the economic value of a training programme is (Phillips *et al.*, 2001:243):

$$\Delta U = T \times N \times dt \times Sdy - N \times C$$

Where	$\Delta U =$	Monetary value of the training programme
	$T =$	Duration in number of years of a training programme’s effect on performance
	$N =$	Number of employees trained
	$dt =$	True difference in job performance between the average trained and the average untrained employee in units of standard deviation
	$Sdy =$	Standard deviation of job performance of the untrained group in rand value
	$C =$	Cost of training per employee

It measures the economic benefit of a programme in terms of the benefit in the future service of the employees that attend the programme. It is based on estimates and is therefore not widely used (Phillips *et al.*, 2001:243).

4.6 SUMMARY

The purpose of measuring the performance of training is the justifying of the expenses with proof of the benefits. If the training manager can prove the cost effectiveness of the training programmes, the organisation might even invest more resources in the training department, thereby increasing the organisation’s ability to compete in South Africa and internationally. In the past, managers turned towards the traditional measures of evaluating learning. This is still being done, but by adding the fifth level of measuring return on investment, organisations are able to measure the impact of learning and not only the learning itself.

Although there are reasons for training managers' reluctance to report on the costs and benefits of their training efforts, most of them would welcome the ability to prove the cost-effectiveness of training to higher management. If training is seen as an investment in human capital this investment must be evaluated.

The methods that can be used to evaluate the investment in training and which were presented in this chapter are, *inter alia*, return on investment, net present value, benefit/cost ratio, payback period, internal rate of return, residual income, economic value added, bottom line evaluation and utility analysis. Most writers on the evaluation of training investments suggest that the return on investment should be used to evaluate all substantial training courses. In order to calculate the return on investment, all the financial benefits of the training programme have to be identified. The total costs of developing and delivering the programme is then deducted from the benefits and divided by the total costs.

This chapter aimed to explain the methods and techniques that could assist management in calculating the return on their training investment. The two most common methods for the evaluation of a training programme are the return on investment and the benefit/cost ratio methods. A few other techniques were illustrated, but they are not as widely used to determine the return on human resource investments.

Thereby the third research question has been answered and the third specific objective achieved, namely to conceptualise the performance evaluation of training and development from the literature.

Chapter 5 will address the methods used to conduct the empirical study.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 INTRODUCTION

Research should always embrace the principles of science in order to contribute to the body of knowledge (Neuman, 2000:5). In this chapter the method of investigation will be discussed; describing the scientific procedures followed according to the specification of the research designs proposed for this project (paragraph 1.5, page 6).

5.2 OBJECTIVES OF EMPIRICAL INVESTIGATION

The specific empirical objectives of this research (paragraph 1.3.2, page 5) are as follows:

- To determine the impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as by the pharmacy managers and pharmacists.
- To determine what the implications (costs and benefits) of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group entail.
- To determine what the implications (costs and benefits) of the outsourcing of the training of pharmacist's assistants in a corporate pharmacy group entail.
- To determine how these approaches compare in terms of costs and benefits for a corporate pharmacy group.
- To evaluate the performance of the training and development of pharmacist's assistants in a corporate pharmacy group.
- To formulate recommendations regarding the financial viability of the establishment of an in-house infrastructure versus the utilisation of external training providers for the training of pharmacist assistants in a corporate pharmacy group.

5.3 STUDY POPULATION

A corporate pharmacy group consisting of, *inter alia*, a registered training company was selected as the research subject for this research project. The training company within the group was established to assist the group in the adherence to the requirements of the Skills Development Act. The training company is responsible for all the internal training in the group according to the

group's skills development plan, but in addition also serves a large external clientele resulting in the generation of revenue.

For the survey regarding abilities, all [#]newly qualified pharmacist's assistants and trainee pharmacist's assistants employed by the group, were selected for the sample. A group of raters was selected to rate the abilities and performance of the pharmacist's assistants. The group included their tutors, pharmacy managers and other pharmacists in the specific pharmacy within the group. For the semi-structured interviews, four of the group's top management executives related to the training company were selected according to their positions and expertise in the training environment. The financial data was reviewed according to the *ex post facto* design for the period from January 2002 up to December 2003. Comprehensive descriptions of the specific sample used during the administration of the measuring instruments are provided in the descriptions of the measuring instruments following below.

5.4 MEASURING INSTRUMENTS

The research included the following measuring instruments:

- Semi-structured exploratory interviews with senior management of the pharmacy group;
- A survey questionnaire measuring the impact of training on pharmacist's assistants as perceived by the pharmacist's assistants, pharmacy managers, supervisors and co-workers; and
- The examination and analysis of the financial records of the pharmacy group.

Ensuing are detailed descriptions of each of the above-mentioned measuring instruments according to scientific specifications for conduct and analysis.

5.5 THE INTERVIEW

The following section describes the objective, description, sample, administration, analysis and the reliability and validity of the interviews.

[#] Assistants who have qualified on the registered unit standards during the investigation period

5.5.1 Objective of the interview

The goal of an interview is to obtain specific information from another person (Neuman, 2000:274). Interviews were used as a measuring instrument in this study to gain an understanding of the training system and processes within the pharmacy group.

5.5.2 Description of the interview

The interview is a structured conversation in which the interviewer asks questions that were formulated prior to the interview, the respondent answers the questions and the interviewer records the answers (Neuman, 2000:274).

The structured interview entails a series of fixed questions that are asked in a fixed order, similar to those used in a questionnaire (Leedy, 1997:199; Breakwell *et al.*, 2000:240). The semi-structured interview also contains a set of fixed questions, but includes a number of probes in order to obtain further clarification of information (Leedy, 1997:199).

Questions can either be open-ended or closed-ended. With the open-ended question the respondent can give any answer, whilst the closed-ended question asks the question but also gives the respondent fixed responses from which to choose (Neuman, 2000:260). The closed-ended format therefore requires the researcher to have a reasonable idea of all the possible responses. The closed-ended question has the advantage that it reduces the possibility of ambiguous answers as well as the possibility of clerical errors in coding the data. The closed-ended question can however force the respondent to give a certain answer and rules out the possibility of an unexpected response (Breakwell *et al.*, 2000:161).

The interview has a number of stages and starts where the interviewer identifies the respondents, shows authorisation and assures cooperation from the respondent. The main part of the interview is where the interviewer asks the questions and the interviewee responds (Neuman, 2000:277).

The interviewer must record the responses accurately and comprehensively. The response should be recorded exactly as it is given and no information should be left out or summarised as this could lead to information being lost or distorted (Neuman, 2000:277).

The interviewer can use probes when appropriate in order to obtain clarification of an ambiguous answer, to obtain further information or to complete an incomplete answer (Neuman, 2000:277). Neuman (2000:277) suggests that the interviewer can use techniques such as pausing for three or

four seconds or non-verbal communication such as tilting the head or raised eyebrows. The interviewer can also repeat the question or the response and then pause. Neutral questions such as “Any other reasons?” or “Can you tell me more about that?” can be asked.

The last phase of the interview involves thanking the respondent for his or her cooperation and leaving. Neuman (2000:277) suggests that the following should be recorded immediately after the interview:

- Date, time and place of interview;
- Description of the respondent and interview situation;
- The respondent’s attitude; and
- Any unusual circumstances.

The questions intended for the interview should be carefully planned and accurately worded (Leedy, 1997:199). Breakwell *et al.* (2000:241) warn against a number of pitfalls in formulating and asking questions during an interview, and advise that questions should not:

- Be double-barrelled, for example: “Do you think training or the pharmacist’s assistant learnership has a positive effect on company profits?” A ‘no’ answer could mean no to either training or the learnership or both.
- Introduce an assumption, for example: “Do you think management is aware of the positive financial effect that training has?” This question assumes that training has a positive financial effect on the company and this may or may not be true. The assumption makes the interpretation of the response intermediate.
- Contain complex or jargon words that the respondent might not understand.
- Be leading, for example: “I suppose you know what return on investment is?” Some people might not know, but feel pressurised to say that they do.
- Include double negatives, for example: “Do you think that not many people would not understand return on investment?” Could you be sure what a “no” response means?
- Act as “catch-alls”, for example: “Tell me everything about the training intervention and how it has affected your company?” This kind of question will need a couple of prompt questions to get any useful responses.

Leedy (1997:201) suggests the following steps for conducting a successful interview:

- Set up the interview well in advance.
- Send the agenda of questions you will be asking the interviewee.
- Ask for permission to tape the interview.
- Confirm the data immediately in writing.

- Send a reminder, together with another agenda of questions for your interviewee in case he or she has mislaid his or her own copy.
- Following the interview, submit a typescript of the interview and get either a written acknowledgement of its accuracy or a correct copy from the interviewee.
- After you have incorporated the material into your research report, send that section of the report to the interviewee for final approval and written permission to use data in your report.

The questionnaire for the semi-structured interview is presented in appendix 1 (page 208).

5.5.3 Study sample of the interview

Respondents were selected on the basis of their position in the pharmacy group and thus their specific knowledge regarding training processes and outcomes. The respondents included:

- The Managing Director of the training company within the pharmacy group responsible for the strategic direction of the training company;
- The Operations Manager of the training company responsible for the day-to-day operational running of the training and administrative processes;
- The Chief Financial Officer of the pharmacy group responsible for the strategic financial management of the group and the training company; and
- The Financial Officer responsible for the financial operations of the training company.

5.5.4 Administration of the interview

The interviews were conducted in the initial phases of this research project in order to identify areas that required further exploration, as recommended by Breakwell *et al.* (2000:239).

Person to person, semi-structured interviews were conducted with the respondents as indicated in paragraph 5.5.3. The atmosphere during the interviews was informal and relaxed. The interviewer took cognisance of the following guidelines (Neuman, 2000:276-277):

- The survey interviewer must remain neutral and objective.
- The interviewer should be non-judgemental and avoid revealing their opinions, verbally or non-verbally. Even if the respondent asks the interviewer for his or her opinion, the interviewer should redirect the respondent politely. The interviewer should treat all answers in a matter-of-fact manner.
- The setting of the interview can affect the answers. Only the interviewer and the interviewee should be present.

- The questions should be asked exactly as they appear on the questionnaire and no words or information should be added or left out.
- The interviewer should conduct the interview at a reasonable pace and non-directive feedback can be given to maintain interest.

The following steps, as proposed by Leedy (1997:199), were followed in conducting the interviews:

- The interviewer assured the respondents of absolute confidentiality before beginning the interview.
- The interviewer built rapport by engaging in small talk before beginning the interview and by using an everyday conversational style.
- The interviewer reserved complex or controversial questions for the latter part of the interview, after rapport has been established.
- The interviewer explained the potential benefits of the study to the respondents.
- The interviewer ensured that she spoke less than the respondent did. As a rule, the less the interviewer talks, the more information is produced.
- The interviewer endeavoured to:
 - pose questions in a language that is clear and meaningful to the respondent;
 - ask questions that contain only a single idea;
 - use simple probes when appropriate, for example: "Can you tell me more about that?";
 - avoid contradicting questions or cross-examination styles;
 - avoid asking many closed-form questions in succession;
 - avoid changing interview topics too often; and
 - avoid leading questions.
- Whenever the interviewer perceived that the respondent felt threatened by a specific topic, the interviewer moved on to another one. However, the interviewer tried to return to that topic later, with different phrasing.
- Whenever it was necessary to ask threatening or sensitive questions, the interviewer would ask the respondent about the behaviour of friends, as well as about the respondent's own behaviour.

5.5.5 Analysis of the interview

The interviews were recorded and transcribed by an independent transcriber within a day after the interview. The researcher checked and verified the transcriptions. Responses were recorded exactly as it was given and no information was left out or summarised (Neuman, 2000:277).

Several questions were asked to more than one person, thereby corroborating the information obtained.

5.5.6 Reliability and validity of the interview

Reliability is the extent to which one can consistently depend on that which is observed. Validity on the other hand refers to the truthfulness of the results obtained. Reliability is necessary to ensure that a measure is valid, but it does however not guarantee validity (Neuman, 2000:170-171).

In conducting the interviews the researcher attempted to address the following factors that may influence the reliability of the results obtained (Woods & Catanzaro, 1988:136-137):

Table 5.1: Reliability of the interview

Threat	Specific examples	Control
Researcher's status position	Investigator may be well known to the participants; The gender of the investigator may influence the openness with which participants share information.	Clearly identify the researcher's role in the research setting; Describe the content and development of the researcher's role as the study evolves.
Participant choice	Intermediary may approach only those judged "good" participants; Those who elect to participate may possess characteristics that differ from non-participants.	Encourage intermediaries to recruit participants non-selectively; Describe characteristics of participants and the decision processes involved in their choice to participate.
Social situation conditions	Participants may judge the appropriateness of information in relation to the context.	Delineate the context (social, physical, and interpersonal) in which data are gathered; Record field notes immediately after data collection to ensure accurate recall of the structure and function of the context.
Methods of procedure	Replication of qualitative studies not possible; Constant comparative analysis may result in lack of agreement on description or composition of events.	Report precisely and thoroughly on the strategies used to collect, analyse and report data; Transcribe tape-recorded interviews verbatim; At least two coders perform theoretical coding; Phrase low inference descriptors in concrete, precise terms; Seek reaction to working analysis from selected participants; Compare findings with published studies and other investigators pursuing similar work.

Validity was ensured by taking into account the factors that could influence the validity of the interview as set out in table 5.2 (Woods & Catanzaro, 1988:137):

Table 5.2: Validity of the interview

Threat	Specific examples	Control
History and maturation	Particular problem when data are generated over time, (e.g., longitudinal studies)	Identify those changes that are recurrent, progressive, and cyclical as the sources of change; Distinguish maturation from effects of intervening phenomena by use of constant comparative analysis and discrepant-case analysis.
Observer effects	Participants may become dependant on researchers for status enhancement or satisfaction or psychological needs; Participants may behave abnormally to put self in best light, lie, omit relevant data, or misrepresent their claims; Researchers may see and report data as a function of their position.	Independent corroboration from multiple participants, discrepant-case analysis, and observation; Substantive and theoretical coding likely to elicit contrived responses; Comparison of data to theories and analytical models derived from literature; Presentation of data in relation to researcher's position and relationships; Constant comparative analysis and validity checks with participants.
Selection and regression	Possible distortion of data by selection of participants (see above).	Recruit participants who meet purposive sampling criteria; Question commonly assumed meanings, utilise discrepant-case analysis, compare data across sampling categories.
Mortality	Longitudinal study requiring hours of commitment.	Remind participants often that they are experts in the topic of study (input valued); Provide consistent follow-up to participants in the form of information about the ongoing study; Make it easy for participants to notify the investigator of address changes, (e.g., provide return postcards).

5.6 THE SURVEY QUESTIONNAIRE

The objective, study sample, structure, administration, analysis and reliability and validity of the survey questionnaires will be discussed next.

5.6.1 Objective of the questionnaire

The objective of the questionnaire was to measure the impact of the training of pharmacist's assistants as perceived by the pharmacist's assistants as well as by the pharmacy managers, supervisors and co-workers. This instrument was included to provide the researcher with some

insight regarding the impact of the so-called “softer” issues resulting from training as subjectively perceived by the trainees and co-workers (paragraph 3.6, page 55).

5.6.2 Study sample of the questionnaire

The study sample for the questionnaire included the total population of trainee and newly qualified pharmacist’s assistants in the pharmacy group ($n^1=41$). The latter group (newly qualified) are the first successful learners to complete the pharmacist’s assistant course according to unit standards and in line with the Skills Development Act. Twenty-seven pharmacists and pharmacy managers were identified ($n^2=27$). Several of these pharmacists or managers evaluated more than one learner, resulting in a total of 123 evaluations by the pharmacists and pharmacy managers.

A total of 25 respondents did not return the questionnaires due to maternity leave, sick leave and annual leave. These non-respondents included four pharmacist’s assistants and 21 pharmacists or pharmacy managers.

Descriptive information of the sample of pharmacist’s assistants is given in table 5.3.

Table 5.3: Descriptive information of sample of pharmacist’s assistants

Employment Sector		Training Status	
Sector	Number	Status	Number
Community Pharmacy	22	Newly Qualified	9
Hospital Pharmacy	5	Trainee Post-Basic	14
Courier Pharmacy	4	Qualified Basic Level	0
Bulk Store Pharmacy	5	Trainee Basic Level	16
No response	5	No response	2
Total:	41	Total:	41

Descriptive information of the sample of raters acting as tutors is given in table 5.4.

Table 5.4: Descriptive information of the sample of raters acting as tutors

Employment Sector of TUTOR		Rater's Position	
Sector	Number	Position	Number
Community Pharmacy	23	Pharmacist and Co-supervisor	21
Hospital Pharmacy	6	Pharmacy manager	15
Courier Pharmacy	6	Area manager	5
Bulk Store Pharmacy	5		
No response	1	No response	
Total:	41	Total:	41

5.6.3 Structure of the questionnaire

Two questionnaires (appendix 2, page 212 and appendix 3, page 223) were developed based on the learning outcomes of the unit standards and the literature for the measurement of training impact (Chapter 3). The first questionnaire was developed for distribution to the pharmacist's assistants and the second one for distribution to pharmacy managers, supervisors, and co-workers. The questionnaires were developed based on the guidelines and recommendations on questionnaire design as provided by Breakwell *et al.* (2000:158-174).

The questionnaires consist of three sections. The first section was designed to gather **demographic information** such as the position, the employment sector and the current training status of the pharmacist's assistant.

The second section of the training impact questionnaire dealt with the extent to which the learner's **ability to perform tasks** is affected by the training intervention. This section was developed according to the learning outcomes as stipulated in the unit standards for pharmacist's assistants, Basic and Post-Basic level (South African Pharmacy Council, 1999). Items 4-33 in both questionnaires refer to these outcomes and ratings are conducted on a five-point interval rating scale (Breakwell *et al.*, 2000:150-151); where a rating of one on the scale means **no improvement**, two means a **minor improvement**, three provides for a rating of **moderate improvement**, four for **substantial improvement** and five for a **major improvement** in the learner's ability to perform certain outcomes and tasks as stipulated in the unit standards. An opportunity for a comment from the rater is also provided.

The third section addressed the **work outputs** of the trainee or newly qualified pharmacist's assistant. Items 34-45 in both questionnaires address the work outputs of the learner on a seven-

point interval rating scale (Breakwell *et al.*, 2000:150-151); where a rating of one means a **major negative effect**, two means a **moderate negative effect**, three means a **minor negative effect**, four means that **no effect** was perceived by the raters, five means a **minor positive effect** was perceived, six means a **moderate positive effect** was perceived, and a rating of seven implies that a **major positive effect** was perceived on the work outputs and performance of the learner. An opportunity for the rater to motivate a rating is also provided. It is important to note that not all the statements in these two questionnaires correspond in terms of content. The following statements in this section correspond between the questionnaire completed by the learners and the questionnaire completed by pharmacy managers, supervisors, and co-workers:

- Item 34 measuring **self-confidence** (pages 217 and 226);
- Item 35 measuring the level of **empowerment** (pages 218 and 227);
- Item 36 (Managers and Pharmacists) (page 227) and Item 38 (Pharmacist's Assistants) measuring **productivity** (page 219);
- Item 37 (Managers and Pharmacists) (page 228) and Item 39 (Pharmacist's Assistants) measuring **work speed** (page 219);
- Item 38 (Managers and Pharmacists) (page 228) and Item 40 (Pharmacist's Assistants) measuring **accuracy** (page 220);
- Item 39 (Managers and Pharmacists) (page 228) and Item 41 (Pharmacist's Assistants) measuring **organisational commitment** (page 220);
- Item 40 (Managers and Pharmacists) (page 229) and Item 42 (Pharmacist's Assistants) measuring **overall job performance** (page 220);
- Item 41 (Managers and Pharmacists) (page 229) and Item 43 (Pharmacist's Assistants) measuring **number of mistakes** (page 221);
- Item 42 (Managers and Pharmacists) (page 230) and Item 44 (Pharmacist's Assistants) measuring **customer service** (page 221); and
- Item 43 (Managers and Pharmacists) (page 230) and Item 45 (Pharmacist's Assistants) measuring **guidance from supervisor** (page 222).

Items 44 and 45 in the Managers and Pharmacists' questionnaire (page 231) measure the raters' perception regarding the effect of the training on the workload of the rater and the trust that the rater has in the learner's ability to perform tasks. These measurements were not included in the pharmacist's assistant questionnaire for obvious reasons. Items 36 (page 218) and 37 (page 219) in the Pharmacist's Assistant questionnaire measuring the impact of the training on the raters' self-efficacy and job satisfaction were not included in the Managers and Pharmacists' questionnaire.

The items regarding mistakes and work speed were included in an attempt to measure the benefits of training that can be converted to monetary value, i.e. the savings due to a decrease in mistakes and the time saved by the pharmacists or pharmacy managers.

Both questionnaires included a letter to the respondent explaining the purpose of the questionnaire and stressing the fact that all responses will be treated confidentially. Furthermore, a letter of consent that had to be signed by the respondent was included, giving the researcher permission to use the information provided for research purposes. Examples of the questionnaires to pharmacy managers and pharmacists as well the questionnaire to pharmacist's assistants are presented in Appendixes 2 (page 212) and 3 (page 223).

5.6.4 Administration of the questionnaire

The Training Manager identified the learners in terms of their registration status with the SAPC. Legislation also requires the supervising pharmacists to be registered as tutors with the SAPC (paragraph 2.4, page 25).

The survey questionnaires were delivered to every tutor and learner via the area managers. The area managers attended a training session during which they were briefed on the purpose of the research project, what is expected from the respondents, the time-limit allowed for the submission of the completed questionnaires to the researcher and the logistical arrangements for the retrieval of the questionnaires by the area managers. The area managers conveyed this information to the pharmacy managers, tutors and learners.

The questionnaire comprises a fill-in format for the demographic information and interval rating scales for the abilities and job outputs sections (see description in 5.6.3). The answers and ratings were written down on the questionnaire. *Learners, tutors (supervisors) and pharmacy managers completed the questionnaires and placed them in a sealed envelope. The questionnaires were handed back to the area managers, who in turn personally delivered them to the researcher. A time-limit of two weeks was allocated.

* A pharmacy manager might also be the registered tutor in which case a co-worker (pharmacist) will also complete a rating

5.6.5 Analysis of the questionnaire

The data gathered was entered into a spreadsheet using Microsoft Excell. The data was organised in a format that assisted the statistical analysis that was carried out with the help of the SAS program (SAS Institute, 2000). Descriptive statistics (e.g. means, standard deviations) were used to analyse the data (Neuman, 2000:319-320).

5.6.6 Reliability and validity of the questionnaire

The opinions of experts regarding the constructs and items were obtained in order to ensure the face and content validity of the questionnaire. The training impact questionnaire was presented to the Chief Executive Officer of the pharmacy group, the Managing Director of the training company, the Training Operations Manager of the pharmacy group as well as an expert in questionnaire development at the North-West University (Workwell: Research Unit for People, Policy and Performance) in order to confirm face validity. The items in the questionnaires were based on the literature (learning outcomes stipulated in the registered unit standards for Basic and Post-Basic level Pharmacist's Assistants and job performance measurements as described in Chapter 3) thereby enhancing the content and construct validity of the items.

A trial run was implemented to further enhance the validity and reliability of these measuring instruments. During a trial run, the questionnaires were presented to five pharmacists and five pharmacist's assistants for completion. This was done to ensure that the questions were clearly understood and measure what they are suppose to measure (to ensure the validity and reliability of the constructs). During the completion of the questionnaires the trial run raters were enquired about their understanding of each question and the researcher noted all the biased questions. These questions were reformulated and again presented to the trail run raters until the researcher was satisfied that all the questions were well understood and unbiased. The researcher spent five working days to complete the trial run on the questionnaires.

In order to enhance the reliability of the rating regarding the abilities and work outputs of the learners, more than one rater were selected. In most cases these raters represent the tutor of the learner, the pharmacy manager and in some cases pharmacists working in close contact with the learner. Inter-rater correlations were performed to ensure that the reliability of the raters' rating corresponds.

5.7 THE EXAMINATION OF THE FINANCIAL RECORDS

The objective, administration, analysis and the reliability and validity of the examination and analysis of the financial records of the pharmacy group will be discussed in this section.

5.7.1 Objective

The financial records of the pharmacy group were examined in order to obtain information on the costs and benefits of the training intervention. This examination was conducted in an *ex post facto* fashion.

5.7.2 Administration

The financial records were obtained from the Chief Financial Officer of the pharmacy group. These records of the pharmacy group and the training company within the group included:

- Income statements of the head office and the training company;
- Balance sheets of the head office and the training company;
- Detailed trial balances of the head office and the training company; and
- Appropriate general ledger accounts of the head office and the training company.

The period under review was January 2002 to December 2003.

5.7.3 Analysis

The information obtained was examined and the costs and benefits of the training intervention were extracted according to the literature as discussed in chapters three and four.

The researcher took into cognisance the following questions during the evaluation process, as suggested by Conner (2000):

- Are the metrics you collect meaningful for the organization?
- What categories are you missing? Does another department collect the data you need?
- How will you convert data that is not in a useful format?
- What should you isolate and when is it more important to look at an overall effect?
- What are the intangible factors that contribute to the programme's success and the growth of those who participate?

The following methods and techniques were applied to evaluate the performance of the training intervention (paragraph 4.5, page 81):

- Return on investment
- Benefit/cost ratio
- Payback period
- Net present value
- Internal rate of return
- Residual income
- Economic value added
- Bottom line evaluation

5.7.4 Reliability and validity

No direct manipulation of financial information by the researcher is possible. The criteria and formulas are used as described in the literature and applied by experts in the field, thereby ensuring construct validity of the criteria.

In terms of the reliability the assumption is made that the financial statements provided were prepared in accordance with generally accepted accounting practice.

The formulas and techniques applied are scrutinised by a panel of experts in the field of Management Accounting, thereby ensuring the reliability of calculations and results.

5.8 RESEARCH METHOD

The steps in conducting this research were as follows:

▪ Step 1: Planning of the research

During this initial step the research was planned by the researcher after extensive reading and the draft proposal was presented to the study leaders. The pharmacy group was identified and consent for the research was obtained from the Managing Director of the training company. A formal research proposal was compiled and presented to the research committee of the School of Accounting Sciences of the North-West University for approval. Logistic requirements were planned and discussed with the study leaders and the Managing Director of the training company.

- **Step 2: Compilation of measuring instruments**

The compilation of the measuring instruments was driven by an extensive literature study (Chapters 2, 3, and 4). The measuring instruments were furthermore compiled according to the research designs proposed in the approved research proposal. Questions for the semi-structured interviews and the questionnaires were compiled and presented to experts for inputs (see the reliability and validity descriptions of the measuring instruments). Requirements for the gathering of the financial data were proposed and discussed with the study leaders and the Chief Financial Officer of the pharmacy group.

- **Step 3: Administration of the interviews**

The administration of the interviews was conducted prior to the compilation of the questionnaires and the gathering of financial data. The interviewees were selected on the basis of their position and responsibilities in the pharmacy group. Appointments were scheduled with the interviewees and the interviews were conducted in a semi-structured way as described in section 5.5 (page 101). Information from the interviews was, *inter alia*, used during the compilation of the survey questionnaires and the gathering of financial data.

- **Step 4: Administration of the questionnaires**

The questionnaires were administrated as described in section 5.6 (page 108).

- **Step 5: Gathering and examination of financial data**

The financial data was gathered and examined as described in section 5.7 (page 114).

- **Step 6: Data analysis**

The data obtained from the different measuring instruments was analysed as described in sections 5.5, 5.6, and 5.7. A statistical consultant and well-known researcher in the field of Industrial Psychology assisted the researcher in the statistical analysis of the questionnaire.

- **Step 7: Reporting of results**

The results of the interviews, survey questionnaires and financial data were tabulated, reported and discussed in Chapter 6. Where possible, the results were related to the literature.

- **Step 8: Conclusions and recommendations**

Conclusions and recommendations regarding the research will be provided in Chapter 7. The inputs of the Managing Director, Training Manager, and Chief Financial Officer were obtained during the formulation of these.

5.9 SUMMARY

In this chapter the objectives and method of investigation were discussed. This included a description of the study samples and the measuring instruments. Where applicable the relevant objectives (paragraph 1.3.2, page 5) were referred to. The interviews were described and the process of interviewing was outlined. The method of analysing the interviews was described and the reliability and validity of the interviews were discussed. This was followed by a discussion on the research questionnaire, which included discussions on the objective, study sample, structure of the questionnaire, administration, analysis and reliability and validity of the questionnaires. The process of examining the financial records was explained by referring to the objective, administration, analysis and reliability and validity. The chapter was concluded with a discussion of the proposed research method outlining the steps of conducting the research.

In Chapter 6 the results of the empirical investigation will be reported and discussed.

CHAPTER 6

ANALYSIS OF RESULTS

6.1 INTRODUCTION

The overall aim of this research was to determine the financial viability of the training and development of pharmacist's assistants in a corporate pharmacy group (paragraph 1.3.1, page 4). To that end various specific objectives were set. A literature study, which examined the relevant legislation regarding training and development in South Africa, the methods and techniques described for the measurement of training and development in terms of costs and benefits and the performance evaluation of training and development (objectives 1.3.2.1 to 1.3.2.3, page 5), was undertaken and reported in chapters two, three and four. The research methodology most suitable for this study was discussed and a motivation was provided for the chosen methodology (paragraph 1.5, page 6).

The results of the empirical study are reported and discussed in this chapter under the following headings:

6.2 Interviews

6.3 The effect of the training as perceived by the pharmacist's assistants and the pharmacy managers and pharmacists (objective 1.3.2.4, page 5)

6.4 Calculating the costs and benefits of training pharmacist's assistants in a corporate pharmacy group (objective 1.3.2.5, page 5)

6.5 Calculating the costs and benefits of the outsourcing of the training of pharmacist's assistants (objective 1.3.2.6, page 5)

6.6 Determining how in-house training and the outsourcing of training compare in terms of costs and benefits for a corporate pharmacy group (objective 1.3.2.7, page 5)

6.7 Evaluation of the performance of the training programme for pharmacist's assistants in a corporate pharmacy group (objective 1.3.2.8, page 5)

The final objective, namely to formulate recommendations regarding the financial viability of the establishment of an in-house infrastructure versus the utilisation of external training providers for the training of pharmacist assistants in a corporate pharmacy group (objective 1.3.2.9, page 5) will be discussed in chapter 7.

6.2 INTERVIEWS

The responses of the Managing Director, the Operations Manager and the Financial Officer of the training company and the Chief Financial Officer of the pharmacy group will now be summarised.

The questionnaire is presented in Appendix 1 (page 208). Certain leading questions were added to the questionnaire where the researcher needed to obtain further information or clarification of an answer.

6.2.1 The pharmacist's assistants training programme

The Managing Director and the Operations Manager of the training company provided the following background information in respect of the pharmacist's assistants training programme:

6.2.1.1 Structure and process

The South African Pharmacy Council (SAPC) prescribes the requirements for the training of pharmacist's assistants and the training for the qualification of Pharmacist's Assistant must be approached according to the South African Qualifications Authority (SAQA). The course is presented in in-service training format and is specifically designed to achieve the outcomes as set out by SAQA.

A pharmacist acting as a tutor must always supervise the trainee pharmacist's assistants. The training of pharmacist's assistants entails 70% practical training in the workplace and 30% theoretical training. It entails on-the-job training and the learner should be employed in a pharmacy. The learner completes practical learning activities. The tutor evaluates these activities according to a memorandum provided by the training institute. The learning activities are compiled as a portfolio of learning and are one of the assessment tools utilised by the external assessor during the summative assessment.

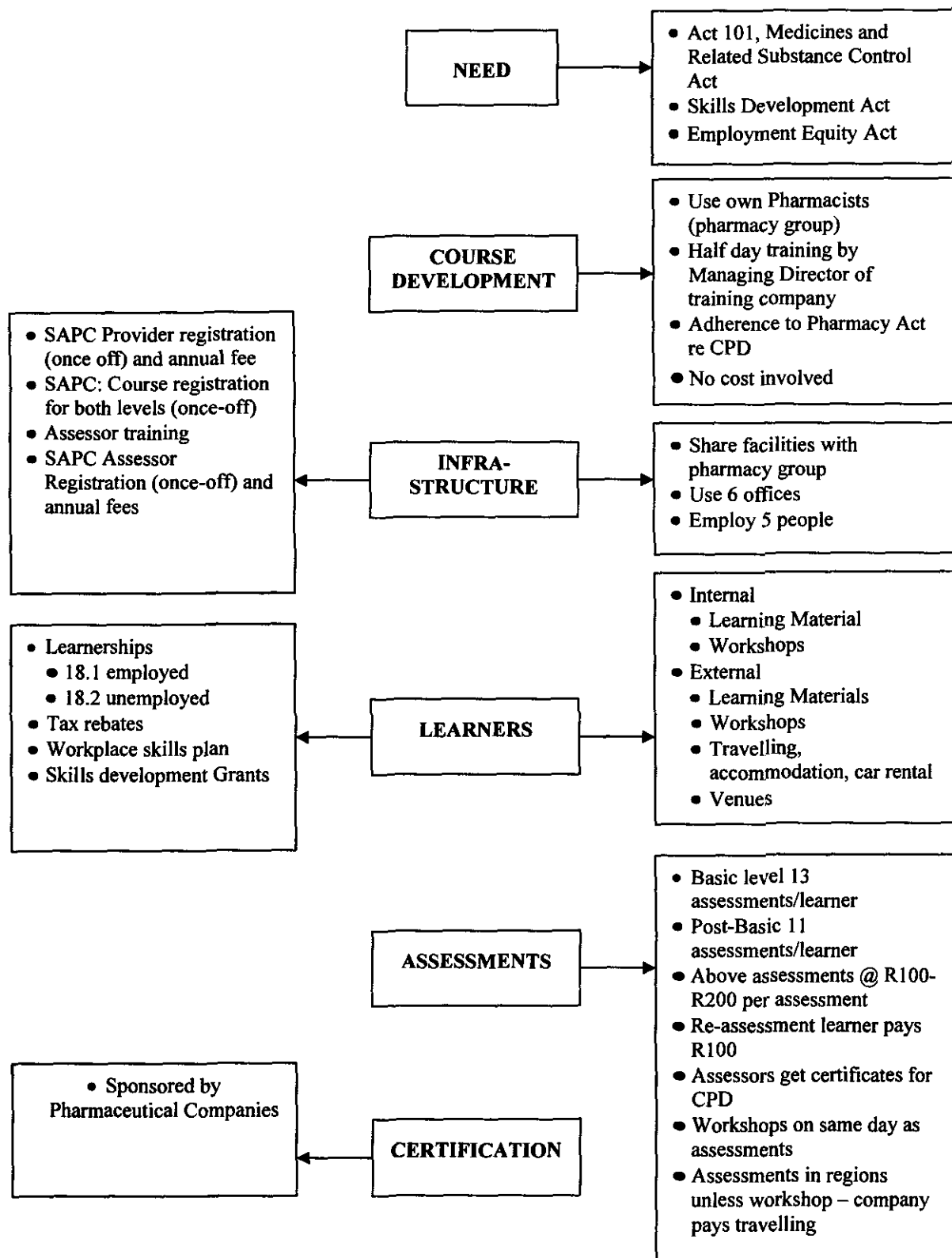
The training comprises two levels. The Basic level consists of 13 modules and the Post-Basic level consists of 11 modules.

The pharmacist's assistants work under close supervision of a tutor. These tutors are registered pharmacists. Every tutor has to register as a tutor with the South African Pharmacy Council. The tutor receives credits towards Continuous Professional Development (CPD) if a learner under his supervision passes.

The pharmacy group implemented the programme for the training of pharmacist's assistants in 2002. The pharmacy group has had section 18(1) and 18(2) learners (paragraph 2.3.5, page 24) on the Basic and Post-Basic levels in their employment since 2002. Other pharmacist's assistants employed by the company, not under learnership agreement, are also trained.

The Managing Director of the training company provided the researcher with the following diagram of the training process within the pharmacy group (Figure 6.1):

Figure 6.1: Learning process diagram



6.2.1.2 Number of pharmacist's assistants under learnership agreements

The Operations Manager provided the researcher with the information required regarding the number of pharmacist's assistants that has been trained since the implementation of the programme. Pharmacist's assistants under learnership agreement as well as pharmacist's assistants that are employed by the company but not under learnership agreements are trained. This information is however subject to the confidentiality agreement of the company and is not published.

The learners employed by the company will be referred to as "internal learners".

6.2.1.3 Training of pharmacist's assistants not employed by the company

Over and above the learners employed within the pharmacy group, the group provides training to other pharmacist's assistants. These learners will be referred to as "external learners".

6.2.1.4 Workshops

The respondents reported that the training and development company presents workshops as part of the theoretical component of the programme. All of the respondents agreed that these five-hour workshops are held in five different cities throughout the country. The Basic level has five workshops and the Post-Basic level has four workshops. Learners on both levels have to attend all of these workshops.

According to the Operations Manager, all of the learners within the group attend the workshops at the head office of the pharmacy group. The external learners attend the workshops at the different venues throughout the country.

6.2.2 Needs assessment

The four respondents agreed that no needs assessment was conducted by the company. According to the Managing Director of the training company the needs assessment was done by the Department of Labour in their quest to rectify the skills shortage in South Africa. As a result of this needs assessment the concept of learnerships was introduced. The HWSETA identified the need for a learnership programme for pharmacist's assistants.

The training of pharmacist's assistants is required by legislation and can be regarded as pro-active action by government. Therefore, the training company in this study had no expenses towards conducting a needs assessment.

6.2.3 Development and preparation of the material

The four respondents agreed that the courses for the training of pharmacist's assistants were developed internally by pharmacists, some of which hold positions in management and senior management, within the company.

The Managing Director of the training company, who was closely involved with the development, provided more details of the development process. The course materials were written by 21 pharmacists. The Basic level was developed by 16 pharmacists of whom 11 are managers and five are senior managers. The Post-Basic level was developed by 15 pharmacists of whom eight are managers and five are senior managers. Some of the pharmacists were involved in the writing of both the Basic and Post-Basic level courses. The Managing Director indicated that where pharmacists were involved in the development of both levels, the time spent on the Post-Basic level could be multiplied by 75%. In total, 21 people were involved. Development was done during office hours as well as after hours.

The course material was edited by personnel within the company. A pharmacist, a manager and a senior manager each spent approximately eight hours on the editing of the material. This is done annually.

6.2.3.1 Hours

Each writer spent approximately 30 days developing the courses. The time involved in this development is estimated at approximately 5 hours per day during working hours and 3 hours per day after hours. Some of the developers were involved in the development of both the Basic level as well as the Post-Basic level courses. If a writer was responsible for more than one course, the time taken was multiplied by 75%. No remuneration was paid to the writers for the work that was done after hours.

6.2.3.2 Levels of employment

The Managing Director of the training company provided the researcher with a list of people involved in the writing of the course material and their various job levels. These job levels were

used to determine an average market related remuneration to establish the cost of personnel time for the development of course material.

6.2.3.3 External developers or consultants

Although no external developers or designers were used, the language editing was done by an external consultant. The Operations Manager provided the researcher with the fees that were charged by the external consultant.

6.2.3.4 Updating of material

Courses are updated every two years. The first update is due in 2004. According to the Managing Director of the training company the updating of the course material will be done by the developers, which will each spend approximately eight hours in total. This answer was corroborated by the Operations Manager.

6.2.3.5 Other costs of development

The Operations Manager of the training company provided the information regarding the registration fees. The pharmacy group had to register as a training provider with the South African Pharmacy Council. The registration fee was a once-off payment of R5 700 (VAT inclusive) and an annual fee of R652.08 (VAT inclusive) thereafter. Both levels of the course had to be registered with the South African Pharmacy Council at a once-off cost of R1 140 (VAT inclusive) in 2002. The figures were confirmed by the Managing Director of the training company.

The Managing Director of the training company stated that other costs included stationery cost of R1 500 and textbooks amounting to R2 800 for the development of the material. A cost of R1 000 is expected to be incurred with the first update of the material in 2004 and the stationary cost is expected to be approximately R500 per annum.

6.2.4 Training attendance

The pharmacist's assistants are not available for their normal duties while attending workshops or assessments. They are, however, not replaced while they are away from the workplace. There does not seem to be any loss of productivity when they are away, as the other personnel in the pharmacy are deputizing for them. No clients are denied service as a result of the assistant not being present

and therefore no revenue is lost. The workload of the other personnel however increases when the pharmacist's assistants are absent from the workplace.

6.2.4.1 Attendance cost of internal learners

According to the Managing Director and the Operations Manager of the training company refreshments are provided at the workshops. The Operations Manager reported that the costs of refreshments per learner per workshop vary between R10 and R30. Travelling costs are also incurred by the learners when they travel to the head office for the workshops. The workshops are presented during the morning and the learners return home the same day. Therefore no costs are incurred for accommodation.

6.2.4.2 Attendance cost of external learners

The pharmacy group does not bear the travelling costs of the external learners. The only attendance costs that the company do incur as a result of the training of the external learners are the cost of refreshments of between R10 and R30, and a fee for the venue that amounts to an average cost of R30 per learner. The average venue fee per external learner was provided by the Operations Manager.

6.2.5 Instructor cost

Senior Management personnel of the pharmacy group act as instructors during the workshops. Workshops are always combined with assessments. Instructors are not replaced when away from the workplace and there is no loss of productivity as no customer is denied service.

According to the Managing Director of the training company, the preparation for each workshop amounted to 2 weeks at the beginning of the programme. This has however decreased to approximately 1 day as the presenters became familiar with the course content.

6.2.6 Course material

The course material is presented in the form of an A5 booklet. One booklet is issued per module. The booklets are printed by the company itself. The costs are incurred by head office and are not allocated to the training company within the group. A textbook of R100 is also supplied to the learners. The book is used for both levels of the programme.

6.2.7 Equipment

The equipment used forms part of the building and facilities. The equipment used for the training of the pharmacist's assistants includes laptops, a data projector, photo copy machines and printers. According to the Managing Director of the training company none of this equipment would be obsolete if the training of the pharmacist's assistants had not been done. This information was confirmed by the other respondents.

The demand for the equipment is such that it could not have been utilised for other purposes during the time it was used for the training of the pharmacist's assistants.

6.2.8 Facilities

According to the Operations Manager and Managing Director of the training company workshops are presented throughout the country. The Operations Manager stated that the average cost for these venues are R30 per learner per workshop. As previously stated, only the external learners attend the workshops at the external venues.

The training company is located at the head office of the pharmacy group. The building is the property of the pharmacy group. According to the Chief Financial Officer and the Financial Officer of the training company, there are no separate accounts for expenses such as water and electricity, security, etc. A floor plan of the head office building indicating the space occupied by the training company was provided to the researcher by the Managing Director of the training company.

The building at the head office has special training facilities that are also used for the training of the pharmacist's assistants. Although these training rooms can be rented out to outside users, the demand is not enough for the rental to be taken into account as an opportunity cost.

6.2.9 Travel

The pharmacy group has to make regular presentations, especially to the government. According to the Operations Manager, the average cost is R500 per month.

The respondents agreed that no other travelling costs that can be directly linked to the training of pharmacist's assistants are incurred by the training company.

6.2.10 Promotional cost

The company does not incur any promotional costs.

6.2.11 Administration cost

The administration costs incurred by the training company are not allocated to the training company. These costs include telephones, cellular phone accounts, faxes, cost of photocopies and printing, stationery, water and electricity and salaries. According to the Chief Financial Officer and the Financial Officer of the training company, no separate account of these expenses is kept for the training company. The Financial Officers agreed that it would be difficult to provide the information for the training company, but that an overhead rate could be provided in the form of a percentage of total expenses.

The Managing Director of the training company indicated that there would have been a saving in personnel if the pharmacist's assistants training programme had not been presented. There could have been a saving in terms of four positions, namely two pharmacists and two administrative personnel.

6.2.12 Evaluations/assessments

Regular evaluations in the form of learner assessments take place during the course to ensure learner competence in the various modules. These assessments are done by qualified assessors. An assessor is somebody who is qualified to measure the competence of a learner against the desired outcomes. The company uses only assessors within the pharmacy group, most of whom are managers. All of these assessors are however not employed within the training company. According to the Operations Manager, the assessors were trained by external providers at an average cost of R3 000 per person.

The Managing Director of the training company indicated that each learner is required to complete 24 assessments (13 on Basic level and 11 on Post-Basic level). The duration of each assessment is half an hour. These assessments would have cost R200 per assessment if they were done externally. If the learner is not successful with the first assessment, he or she has to pay R100 for the follow-up assessment. This information was confirmed by the Operations Manager.

The Operations Manager provided the costs of registration with the SAPC. Each assessor has to register with the SAPC. The cost of registration is a once-off registration fee of R171 (VAT

inclusive) and an annual fee of R114 (VAT inclusive) thereafter. The training company bears this cost. According to the Operations Manager, ten assessors were registered in 2002 and an average of two new assessors are trained and registered every year.

The Managing Director reported that once again the company has the benefit of saving on CPD. Each assessment conducted by an assessor is recognised as CPD for that person. Each assessment performed by an assessor is estimated as the equivalent of a CDP course valued at R300.

The head office of the pharmacy group bears the travelling cost of the internal learners and the assessors. As previously stated, assessments are always combined with workshops and the workshops are presented by one of the assessors. No additional lodging costs are therefore incurred by the instructors of the workshops. Three assessors travel to the assessment sites for the assessment of external learners every three months.

The internal learners attend the workshops at the head office of the company. If the assessment is not combined with a workshop, the assessment takes place in the area where the pharmacist's assistants are employed and is conducted by a local assessor and no travelling costs are incurred by the learners.

6.2.13 Cost allocation

The Managing Director and the Financial Officer of the training company and the Chief Financial Officer of the group responded that only a portion of salaries is allocated to the training company. The salary of the Managing Director of the training company is paid by head office and a portion thereof is allocated to the training company. No other head office costs or administration costs are allocated to the training company.

6.2.14 Outsourcing

All of the participants agreed that there are options available for outsourcing the training and development of the pharmacist's assistants.

6.2.14.1 Rates

According to the Managing Director and the Operations Manager of the training company the market related fees for the training of pharmacist's assistants are R6 000 per learner per annum for both the Basic and the Post-Basic levels.

6.2.14.2 Other costs

The company will incur travelling costs if the training of pharmacist's assistants is outsourced. Both the Managing Director and the Operations Manager of the training company agreed that the travelling costs would depend on the agreement with the training provider.

According to the Managing Director the service provider will probably travel to the main centres in the country. The pharmacist's assistants will have an average travelling distance of 70 kilometres to travel (140 kilometres per round trip). The company usually provides two cars per area (Mpumalanga, Gauteng and Free State). The courses will most probably be presented four times per annum.

6.2.14.3 Motivation for decision to do training in-house

According to the Managing Director and the Operations Manager of the training company the internal development of the material made it possible to set the standard of learning within the company. The material developed by external developers is not always applicable to the unique circumstances within a company and the specialised nature of this pharmacy group makes this especially true.

The Managing Director of the training company reasoned that the management of a certain culture is obtained by doing the development internally. The majority of the course writers are middle management and top management and cooperation between managers is thus accomplished. Furthermore, the development of the training material is recognised as continuous professional development (CPD) for the pharmacists involved. If these pharmacists did not participate in developing the courses, they would have had to attend additional CPD courses. These courses would not only have entailed cost implications for the company, but the pharmacists would have been away from the workplace. This is a major benefit as top management does not have to be withdrawn from the organisation and their management duties to attend CPD courses. The Managing Director of the training company estimated that the development of the courses is the equivalent of a management course of 8 credits, or 10 hours of company time and that the benefit is estimated at R1 300 per person.

6.2.15 Benefits

All of the respondents were convinced that the in-house training of pharmacist's assistants had certain benefits.

6.2.15.1 Grants received

According to the Managing Director and the Financial Officer of the training company and the Chief Financial Officer of the group, the pharmacy group received the mandatory grants from the Sector Education and Training Authority (SETA) by meeting the requirements as set out by the SETA. The Managing Director informed the researcher that the company would have submitted the Workplace Skills Plan and the Workplace Skills Report even if the training programme for the pharmacist's assistants had not been implemented and therefore the grants would have been received whether the training programme was implemented or not.

The Managing Director of the training company provided the researcher with the breakdown of the discretionary grants that are received from the SETA. The grant comprises of an amount towards the salary of the learner, the training fees of the learners and the registration costs with the SAPC.

6.2.15.2 Qualitative and quantitative benefits

The respondents indicated that the measure of increased productivity could be the number of scripts, the number of mistakes that were avoided or staff turnover.

All of the respondents agreed that there has been an increase in sales and the number of scripts processed since the training programme for the training of pharmacist's assistants has been implemented. The Financial Officer of the training company indicated that sales would not necessarily increase as a direct result of the training, but that the effect of training could have an impact on other factors such as customer satisfaction. This in turn would lead to better customer retention and even an increase in the customer base. An increase in sales is therefore possible as an indirect result of the training intervention.

The Managing Director of the training company believes that other factors play a role in the increase in the number of scripts. The medical aid funds are increasingly making use of the postal pharmacy within the group and have indicated that the excellent service is their main motivation for this. It is possible that training has contributed to the excellent service.

The Managing Director of the training company believes that training has a positive effect on the morale and organisational commitment of the learners. The company does however experience that as they are one of a few companies that do offer this training programme, the learners are recruited by other companies as soon as their training is completed. The other companies offer a slightly higher salary to convince the pharmacist's assistant to make the move. According to the Managing

Director of the training company the benefit of an increased organisational commitment is offset by this phenomenon.

6.2.15.3 Income from external users

The respondents agreed that the training programme is used by external learners. External learners attend the workshops presented by the pharmacy group and other users buy the course material from the company at a cost per learner. The Operations Manager provided the researcher with the information of the number of external learners and the fees applicable.

6.3 THE EFFECT OF THE TRAINING AS PERCEIVED BY THE PHARMACIST'S ASSISTANTS AND THE PHARMACY MANAGERS AND PHARMACISTS

The research question sought to determine the impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists (objective 1.3.2.4, page 5).

In this section the results of the questionnaires completed by the pharmacist's assistants (appendix 2, page 212) and their pharmacy managers and pharmacists (appendix 3, page 223) are reported and discussed. Each respondent was required to indicate the training status of the pharmacist's assistants that were being evaluated in item one of the questionnaire. The data was sorted according to the training status of the pharmacist's assistants, i.e. Registered Trainee Basic level Pharmacist Assistant (PA), Registered Trainee Post-Basic level PA or Qualified and Registered Post-Basic level PA. The mean (M) and standard deviations (SD) of each measuring instrument are reported.

6.3.1 The effect of training on the learner's ability to perform tasks

Section 2 (items 4 to 33) of the questionnaire dealt with the extent to which the learner's ability to perform tasks is affected by the training intervention. The questionnaires completed by the pharmacist's assistants (appendix 2, page 212) and the supervising pharmacists (appendix 3, page 223) were similar. The respondents were required to indicate the improvement of the pharmacist's assistant on a five-point interval rating scale, where a rating of one on the scale means **no improvement**, two means a **minor improvement**, three provides for a rating of **moderate improvement**, four for **substantial improvement** and five for a **major improvement** in the learner's ability to perform certain outcomes and tasks.

Mouton (2001:113) describes descriptive findings as presenting interesting and significant patterns in existing or new data such as survey studies. Leedy (1997:191) warns that data in descriptive research survey can be particularly susceptible to distortion as a result of bias. He suggests that the researcher should give particular attention to the safeguarding of data from the influence of bias. Furthermore, the population of the study must be carefully chosen and clearly defined to set precise parameters for ensuring discreteness.

The results obtained from the descriptive statistics of Section 2 of the questionnaire are reported in the tables below:

Table 6.1 : Impact of training as rated by a Qualified and Registered Post-Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=9)			Supervising Pharmacists (n=24)					
Ability/skill/application	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
4. Approach customers	3.88	0.64	4.13	0.64	4.14	0.69	3.80	0.45
5. Perform final transaction	4.25	0.71	3.88	0.83	4.29	0.95	4.00	1.22
6. Customer communication	4.29	0.49	4.00	0.76	4.43	0.53	4.00	0.71
7. Function as part of team	4.25	0.46	4.00	0.76	4.14	0.69	4.00	1.22
8. Monitor and maintain stock	4.25	0.46	4.00	0.53	4.00	0.58	4.00	0.00
9. Stocktaking procedures	4.50	0.53	4.13	0.35	3.71	0.49	4.00	0.00
10. Handle returned goods	4.25	0.46	4.00	0.76	3.57	0.79	3.80	1.10
11. Manage incoming stock	4.25	0.46	3.88	0.83	3.71	0.76	3.40	1.34
12. Perform calculations	4.00	0.53	3.50	0.76	3.86	0.38	3.80	0.84
13. Good practice when mixing	4.00	0.76	4.00	0.53	4.00	0.00	4.20	0.84
14. Ensure proper packaging	4.50	0.55	4.13	0.63	4.20	0.84	4.20	0.84
15. Control and distribution	4.25	0.46	3.75	0.46	4.17	0.75	4.40	0.89
16. Collect data or information	4.13	0.83	4.00	0.76	3.71	0.76	3.80	1.10
17. Understand English	4.00	0.82	4.13	0.64	4.14	0.69	4.00	1.22
18. Computer skills	3.63	1.30	4.13	0.83	3.71	0.49	4.20	0.84
19. Business principles	3.88	0.83	3.88	0.64	3.57	0.53	3.4	0.89
20. Pharmacy law and ethics	4.25	0.46	4.13	0.83	4.00	0.58	4.00	1.22
21. Conduct business ethically	4.13	0.35	4.13	0.83	4.14	0.38	4.00	0.71
22. Take responsibility	4.25	0.46	3.88	0.83	4.14	0.38	3.80	0.84
23. Manage conflict	3.50	0.76	3.50	0.93	3.29	0.76	4.00	0.71
24. Inter-personal relationships	4.00	1.00	3.50	1.07	3.43	0.79	4.40	0.55
25. Cope under stress	3.33	0.82	3.13	0.83	3.57	0.53	4.00	0.71
26. Dispense	3.71	0.95	4.38	0.74	4.29	0.49	4.40	0.89
27. Interpret a prescription	3.23	0.49	4.25	0.71	4.00	0.58	4.20	0.84
28. Capture a prescription	3.71	0.95	4.38	0.74	4.29	0.49	4.00	1.22
29. Prepare labels	3.67	0.52	4.25	0.89	4.29	0.49	4.40	0.89
30. Prescription for validity	3.71	0.49	4.38	0.92	4.00	0.58	4.00	1.22
31. Pick medicines	3.86	0.69	4.63	0.74	4.29	0.49	4.20	0.45
32. Maintain documentation	3.29	1.25	4.38	0.74	4.14	0.69	3.80	0.84
33. Check own actions	3.86	0.69	3.75	0.89	3.71	0.49	3.80	0.84

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.1 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.1 the following results are discussed:

There were nine pharmacist's assistant respondents (n=9), all of which are employed in a community pharmacy. The supervising pharmacists (n=24) are also community pharmacists working in the same pharmacy as the pharmacist's assistants (permanently or part-time).

Pharmacist's assistants and supervising pharmacists gave favourable ratings (i.e. above 3 - moderate improvement) on all the items. The overall impact of training is perceived as positive. Both pharmacist's assistants and supervising pharmacists indicated that the impact of the training contributed most to the **ability of pharmacist's assistants to monitor and maintain stock** and the **ability to ensure the proper packaging of medicine**. Effective stock management is a strategic objective of the company (Pharmacy group, 2002/2003) and according to the results of this survey it seems that the training, according to the above ratings, contributed to improving the company's chances of achieving this objective once a trainee is qualified.

Interesting though were the differences in perceptions obtained regarding the **act of dispensing** (dispense medicine, interpret a prescription, capture a prescription, prepare labels, evaluate a prescription for validity, pick medicine according to the prescription and maintain filing and documentation). Although the pharmacist's assistants' ratings reflect a moderate to substantial improvement (ratings of three and four) the supervising pharmacists' rated the improvement substantial to major (ratings of four and five). Peterson and Seligman (2004:161) indicated that if a person were confronted with a challenging environment he/she would compare their own ability to those of superiors and try to achieve the same level of skill. Pharmacists are dispensing experts and serve as role models and tutors for pharmacist's assistants, therefore the pharmacist's assistants might compare their own ability to the ability of the supervising pharmacists. The latter might be a reason for the lower ratings obtained from the pharmacist's assistants. However, it is important to note that the supervising pharmacists perceived that the training contributed substantially to the ability of the pharmacist's assistants to dispense.

On an **intra- and interpersonal level** (management of conflict, cope under stress, sustain interpersonal relationships and the checking of own actions) both rater groups agreed on a moderate to substantial improvement. Ratings were also comparable regarding the impact of the training on communication skills (including English ability), good pharmacy practice, application of the law, the understanding of business principles and the performance of the final transaction.

The results of the impact of training on a trainee Post-Basic pharmacist's assistant are provided in table 6.2.

Table 6.2: Impact of training as rated by a Trainee Post-Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=10)			Supervising Pharmacists (n=37)					
Ability/skill/application	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
4. Approach customers	3.50	0.76	3.29	0.95	3.38	0.74	3.14	0.90
5. Perform final transaction	3.50	1.20	3.00	0.71	3.50	0.58	3.50	0.58
6. Customer communication	3.44	0.73	3.44	1.13	3.75	0.46	3.63	0.92
7. Function as part of team	3.67	0.71	3.11	0.33	3.56	0.53	3.25	0.89
8. Monitor and maintain stock	3.89	0.93	3.67	1.12	4.00	0.71	3.13	0.99
9. Stocktaking procedures	4.11	0.78	3.56	1.13	4.11	0.60	3.38	1.19
10. Handle returned goods	3.56	1.13	3.44	0.73	3.67	0.87	3.14	1.46
11. Manage incoming stock	3.78	0.97	3.67	0.87	4.00	0.50	3.13	1.13
12. Perform calculations	3.44	1.51	3.00	0.50	3.33	0.50	2.88	0.83
13. Good practice when mixing	3.63	1.06	3.75	1.04	3.50	0.76	3.13	0.83
14. Ensure proper packaging	4.33	0.87	3.67	1.00	3.63	1.19	3.25	0.71
15. Control and distribution	4.00	0.71	3.44	0.73	3.56	1.13	3.25	0.89
16. Collect data or information	3.78	0.97	2.67	0.71	3.56	1.01	3.00	0.93
17. Understand English	3.67	0.71	3.22	0.97	3.75	1.04	3.13	0.83
18. Computer skills	3.67	0.87	3.22	0.67	3.56	0.73	3.25	1.28
19. Business principles	3.56	0.88	2.89	0.93	3.67	0.71	3.25	0.71
20. Pharmacy law and ethics	3.56	1.42	2.89	0.93	3.33	0.71	3.00	0.93
21. Conduct business ethically	3.67	1.41	2.89	1.05	3.33	0.71	3.13	0.99
22. Take responsibility	3.89	0.78	3.11	0.93	3.78	0.44	3.13	0.99
23. Manage conflict	3.78	0.83	2.89	0.60	3.00	0.71	3.25	0.89
24. Inter-personal relationships	3.22	0.97	3.22	0.44	3.22	0.83	3.00	0.76
25. Cope under stress	3.56	0.88	3.00	0.87	3.33	0.71	3.00	0.76
26. Dispense	3.00	1.63	3.33	1.03	3.67	1.03	3.33	1.03
27. Interpret a prescription	3.25	1.16	3.00	1.26	3.67	1.03	3.17	0.98
28. Capture a prescription	3.25	1.58	3.50	1.38	3.50	1.05	3.20	1.10
29. Prepare labels	3.00	1.41	3.50	1.38	3.50	1.05	3.17	0.98
30. Prescription for validity	3.63	1.69	2.83	1.17	3.17	0.75	2.67	0.82
31. Pick medicines	4.00	0.71	4.22	0.83	4.11	0.60	3.25	1.04
32. Maintain documentation	3.56	0.73	3.11	1.17	3.56	1.33	3.00	1.00
33. Check own actions	3.56	1.01	3.22	0.44	3.67	0.87	3.00	0.93

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.2 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.2 the following results are discussed:

There were ten pharmacist's assistant respondents of whom three are employed in a community pharmacy, one in a bulk store and six in hospital pharmacies. The supervising pharmacist raters are supervising these pharmacist's assistants in their different settings.

The trainee Post-Basic level pharmacist's assistants reported less improvement in abilities than that reported by the qualified and registered Post-Basic level pharmacist's assistants. However, the ratings provided by the two rater groups are more similar, indicating that the perceptions of both groups regarding the impact of the training are perceived similarly.

The ratings on items 26 to 29 provided by both the pharmacist's assistants and the supervising pharmacists were much lower than the rest of the items. These items deal with the dispensing of medicine, interpretation of prescriptions, capturing of a prescription on a computer and the preparation of labels. However, it is important to note that the module dealing with **dispensing** (module 11) is the last module of the Post-Basic training course and none of the trainee pharmacist's assistants has undergone training in this module prior to the research survey.

Both rater groups rated a substantial to major improvement on the items measuring **the packaging of medicine, the ability to participate in stock taking procedures, the ability to control and distribute medicine and the picking of medicine from the shelf**. It is important to note that these competencies are extensively dealt with during the Basic level course, which all of the trainee Post-Basic pharmacist's assistants have completed.

Only two trainee Post-Basic level pharmacist's assistants reported no improvement in their **ability to perform tasks**. One of the two reported no improvement on his/her **ability to do calculations, ability to dispense prescription and OTC medicine, ability to capture a prescription on a computer, ability to prepare labels and ability to evaluate a prescription for legality, authenticity and validity**. The other respondent reported no improvement on the same items and added the **ability to perform a final transaction associated with the sale of a product, ability to act and conduct daily practice within the legal and ethical requirements and ability to apply ethical business practices**. Neither of the two respondents provided any reasons or motivations. Both of the respondents however work in the same hospital pharmacy.

The results of the impact of training on a trainee Basic level pharmacist's assistant are provided in table 6.3.

Table 6.3: Impact of training as rated by a Trainee Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=18)			Supervising Pharmacists (n=41)					
Ability/skill/application	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
4. Approach customers	3.76	1.03	3.29	1.14	3.21	0.70	3.29	0.49
5. Perform final transaction	3.47	0.99	3.15	0.90	3.17	0.72	3.29	0.76
6. Customer communication	4.00	0.87	3.19	1.11	3.43	0.51	3.71	0.49
7. Function as part of team	4.29	0.69	3.63	0.72	3.53	0.64	3.50	0.53
8. Monitor and maintain stock	3.63	1.02	3.13	1.13	3.62	0.51	3.50	0.93
9. Stocktaking procedures	4.19	0.66	3.56	0.96	3.79	0.80	3.50	0.93
10. Handle returned goods	3.50	1.26	3.08	1.08	3.17	0.83	3.29	0.76
11. Manage incoming stock	3.69	1.01	3.36	1.01	3.36	0.74	3.25	0.71
12. Perform calculations	3.14	0.86	2.57	0.85	2.75	0.97	3.38	1.06
13. Good practice when mixing	3.27	1.33	3.17	0.94	3.17	1.11	3.50	0.93
14. Ensure proper packaging	3.50	1.15	3.20	0.86	3.36	1.01	3.50	0.93
15. Control and distribution	3.63	1.15	3.33	0.98	3.54	0.66	2.88	0.83
16. Collect data or information	3.38	1.02	3.13	0.99	3.43	1.09	3.00	1.07
17. Understand English	3.63	1.15	3.47	0.99	3.57	1.09	3.25	0.89
18. Computer skills	3.94	1.03	3.75	0.86	3.79	0.89	3.38	0.74
19. Business principles	3.50	1.21	2.71	0.99	3.14	1.03	3.14	0.90
20. Pharmacy law and ethics	4.00	0.82	3.00	1.07	3.50	0.85	3.43	0.53
21. Conduct business ethically	4.06	0.68	3.00	1.07	3.43	0.94	3.43	0.53
22. Take responsibility	4.06	0.85	3.13	0.96	3.71	0.61	3.38	1.06
23. Manage conflict	3.71	0.77	3.07	0.70	2.77	0.93	3.25	1.04
24. Inter-personal relationships	4.06	0.66	3.25	0.77	3.36	1.01	3.25	0.89
25. Cope under stress	3.71	0.92	3.00	1.03	3.14	1.17	3.13	1.13
26. Dispense	3.53	1.30	3.36	0.67	4.11	0.78	3.29	0.76
27. Interpret a prescription	3.33	1.18	3.20	0.79	3.40	0.84	3.00	0.82
28. Capture a prescription	3.27	1.28	3.33	0.87	3.00	0.87	2.71	0.49
29. Prepare labels	3.60	1.12	3.70	0.67	3.27	0.65	3.00	0.82
30. Prescription for validity	3.29	1.38	3.30	0.82	3.11	0.33	3.00	0.82
31. Pick medicines	4.50	0.63	3.87	0.64	3.67	1.35	3.63	0.74
32. Maintain documentation	4.06	0.85	3.87	0.99	3.43	1.22	3.63	0.74
33. Check own actions	3.88	0.93	3.14	0.77	3.43	0.94	3.25	0.89

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.3 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.3 the following results are discussed:

There were 18 trainee Basic level pharmacist's assistant respondents of which four work in a bulk store, five in a postal pharmacy and nine in a community pharmacy.

The trainee Basic level pharmacist's assistants perceived the most improvement in their ability to perform as part of a team, their ability to pick medicine from a shelf, their ability to maintain and

file documentation, their understanding and application of legal and ethical principles, their ability to take responsibility for own outcomes, their ability to sustain interpersonal relationships and their ability to use a computer. **Teamwork, ethical and legal principles, computer skills and interpersonal skills** are the fundamental skills required from SAQA (58/1995) and form an integral part of the training of Basic level pharmacist's assistants (the first six modules of the training course). All the respondents have completed the fundamental modules prior to the research survey. The **picking of medicine and the maintenance and filing of documentation** are both core outcomes within the training course and an important part of the scope of practice of a Basic level pharmacist's assistant (Pharmacy Act, 53/1974).

The supervising pharmacists perceived only a slight to moderate improvement in the ability of the trainee Basic level pharmacist's assistants to **perform calculations** related to the practice of the pharmacy. During further discussions, the Managing Director of the training company emphasised the fact that the success rate of the learners on module 6 (Pharmacy calculations) are the lowest of all the modules and that the learners seem to struggle with this module. In addition, most learners (and tutors) indicate that this module is perceived as very difficult. Nine of the trainee Basic level pharmacist's assistants have not completed the calculation module at the time of the research survey. The latter might have contributed to the lower rating by the supervising pharmacists.

DISCUSSION

The results obtained from the descriptive statistics with regard to section 2 of the questionnaire indicate the following:

- It is evident from tables 6.1 (page 132), 6.2 (page 134) and 6.3 (page 136) above that in the majority of items the qualified and registered Post-Basic pharmacist's assistants experienced the most improvement. The raters seemed to agree with this.
- Tables 6.1 (page 132), 6.2 (page 134) and 6.3 (page 136) also indicate that in the following items the pharmacist's assistants registered as trainee Basic level pharmacist's assistants experienced more improvement than the qualified and registered and trainee Post-Basic level pharmacist's assistants:
 - Item 18: Measuring the ability to use the computer (mean of 3.94 versus 3.63 and 3.67).
 - Item 25: Measuring the ability to cope under stress (mean of 3.71 versus 3.33 and 3.56)
 - Item 27: Measuring the ability to interpret prescriptions (mean of 3.33 versus 3.23 and 3.25).

- Item 31: Measuring the ability to pick medicine from the shelf (mean of 4.50 versus 3.86 and 4.00).
- Item 32: Measuring the ability to file and maintain documentation re. prescriptions and/or requisitions (mean of 4.06 versus 3.29 and 3.56).

Training on the ability to cope under stress and the interpretation of prescriptions are only done on the Post-Basic level and yet the registered trainee Basic level pharmacist's assistants indicated more improvement than the qualified and registered Post-Basic level pharmacist's assistants. A reason for the latter might be the fact that module 1 of the Basic level course (personal effectiveness in the workplace) focuses comprehensively on intrapersonal skills, teamwork, diversity management and self-knowledge. During further discussions with the Training Manager and the Managing Director of the training company, it was established that most learners are confronted with these concepts for the first time in their life in this module and perceive it as contributing substantially to their life and intra- and interpersonal skills. Charlton (2000:27) confirms these perceptions. He claims that when intrapersonal skills and self-knowledge improve an improvement in interpersonal relationships and skills (e.g. coping with stress) are evident. In the Basic level course the learners are confronted with the legal requirements for a prescription (Module 3 (SAQA fundamental module): Pharmacy laws and Ethics) as well as the Latin abbreviations used to describe the instructions for the use of the medicine, and this might contribute to the learners' perception that they can interpret a prescription, thus leading to the better rating in the ability to interpret a prescription.

The following are the results of the survey regarding the effect of the training on the work outputs of the learners.

6.3.2 The effect of training on the work outputs of the learner

Section 3 of the questionnaire (appendix 2, page 212 and appendix 3, page 223) addressed the work outputs of the pharmacist's assistants. Respondents were required to indicate their ratings on a seven-point interval rating scale where a rating of one means a **major negative effect**, two means a **moderate negative effect**, three means a **minor negative effect**, four means that **no effect** was perceived by the raters, five means a **minor positive effect** was perceived, six means a **moderate positive effect** was perceived, and a rating of seven implies that a **major positive effect** was perceived in the work outputs and performance of the learner. An opportunity for the rater to motivate a rating was also provided.

Note that items 44 and 45 in the Managers and Pharmacists' questionnaire (appendix 3, page 223) measuring the raters' perception regarding the effect of the training on the workload of the rater and the trust that the rater have in the learner's ability to perform tasks, were not included in the Pharmacist's Assistant questionnaire for obvious reasons. Items 36 and 37 (page 218) in the Pharmacist's Assistant questionnaire measuring the impact of the training on the raters' self-efficacy and job satisfaction, were not included in the Managers and Pharmacists' questionnaire.

The mean and standard deviations of the ratings by pharmacist's assistants as well as by their pharmacy managers, supervisors and co-workers were calculated per level of training. These results are reported in tables 6.4, 6.5 and 6.6 below:

Table 6.4: Impact of training as rated by a Qualified and Registered Post-Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=9)			Supervising Pharmacists (n=18)					
Question	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
Self-confidence	5.75	0.46	6.14	0.69	6.29	0.76	5.80	0.45
Level of empowerment	5.75	0.46	6.13	0.64	5.86	0.69	6.00	0.71
Self-efficacy	5.38	0.74	-	-	-	-	-	-
Job satisfaction	5.25	0.89	-	-	-	-	-	-
Productivity	5.63	1.06	5.75	1.16	5.71	0.76	5.80	0.45
Work speed	5.38	0.92	5.00	1.20	5.57	0.53	6.00	0.71
Accuracy	5.75	0.71	5.88	0.83	5.71	1.11	5.40	1.52
Organisational commitment	5.63	1.06	5.75	0.89	5.50	0.55	5.40	0.89
Overall job performance	5.75	0.71	6.13	0.64	6.29	0.95	5.60	1.14
Number of mistakes	5.38	0.74	5.38	0.92	5.14	1.07	5.00	1.22
Customer service	5.86	0.69	5.88	0.64	6.14	1.07	5.80	0.84
Guidance from supervisor	5.88	0.99	6.25	0.71	5.71	0.76	5.80	1.30
Workload of rater	-	-	6.14	0.69	5.86	0.69	5.50	0.58
Trust in learner's ability	-	-	5.71	0.76	5.80	0.45	5.50	1.29

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.4 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.4 the following results are discussed:

The qualified Post-Basic pharmacist's assistants all indicated a minor to moderate improvement on all the work output items with the most improvement indicated on the items measuring guidance from supervisor (5.88) and customer service (5.86). The reasons provided for the improvement in guidance needed were increased self-confidence and an increased ability to work more independently. No reasons or motivations were provided for the improvement in customer service.

The strategic planning document of the pharmacy group (2002/2003) indicates customer service as a core dimension in the performance management system of the group as well as a strategic objective. Independence (less guidance and supervision) can contribute significantly to the overall performance of an organisation (Aspinwall & Staudinger, 2003:153-157).

In addition, the supervising pharmacists rated a moderate to major decrease in their workload as a result of the qualified Post-Basic pharmacist's assistant's presence in the workplace, as well as in their trust in the ability of the qualified Post-Basic pharmacist's assistants to perform duties. This can contribute to the pharmacist focusing more on his/her duties such as the provision of pharmaceutical care to patients and general management functions. The strategic document of the group (Pharmacy group, 2002/2003) indicates that customer service (which includes pharmaceutical care in a pharmacy environment) and the effective management of outlets are important strategic objectives.

Following are the results of the impact of the training on the work outputs of trainee Post-Basic level pharmacist's assistants.

Table 6.5: Impact of training as rated by a Trainee Post-Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=10)			Supervising Pharmacists (n=30)					
Question	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
Self-confidence	6.10	1.05	5.44	0.73	6.00	0.00	5.50	0.53
Level of empowerment	6.10	0.93	5.56	0.73	5.89	0.33	5.25	0.71
Self-efficacy	6.00	1.00						
Job satisfaction	5.78	0.83						
Productivity	6.00	1.00	5.33	0.71	5.89	0.33	5.13	1.13
Work speed	5.78	1.20	5.22	0.83	5.67	0.50	5.00	0.76
Accuracy	5.89	1.05	5.56	0.53	5.78	0.44	5.14	0.38
Organisational commitment	5.78	0.97	5.11	0.93	5.67	0.50	4.71	0.76
Overall job performance	6.00	0.87	5.89	1.05	5.78	0.44	5.50	0.76
Number of mistakes	5.13	0.83	5.50	0.93	5.56	0.73	5.25	0.46
Customer service	6.00	0.93	5.67	1.00	5.22	0.83	5.25	0.71
Guidance from supervisor	5.30	1.21	5.25	0.71	5.78	0.97	5.38	0.52
Workload of rater	-	-	4.33	1.00	5.22	1.09	4.75	1.83
Trust in learner's ability	-	-	5.78	0.83	5.50	1.07	5.38	0.74

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.5 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.5 the following results are discussed:

All of the trainee Post-Basic level pharmacist's assistants indicated a minor (5) to major (7) improvement in their work outputs as a result of the training intervention. The most improvement was perceived on the items measuring self-confidence (6.10), level of empowerment (6.10), their self-efficacy (belief that they can perform a task well, 6.00), their productivity (6.00), overall job performance (6.00) and the rendering of good customer service (6.00). In return, the pharmacist supervisors indicated that the training contributed to them trusting the ability of the trainee. However, the supervising pharmacists indicated only a minor improvement regarding the effect of the training on their workload. Some of the supervising pharmacists indicated that the training contributed negatively to their workload because they need to tutor and assist the learners during the learning process, which causes an increase in their workload.

Five of the pharmacist's assistants indicated that the reason for the improvement in self-confidence was better knowledge of medicine and the use thereof.

Following are the results of the impact of the training on the work outputs of trainee Basic level pharmacist's assistants.

Table 6.6: Impact of training as rated by a Trainee Basic level Pharmacist's Assistant

Pharmacist's Assistants (n=18)			Supervising Pharmacists (n=54)					
Question	Assistant		Pharmacist 1		Pharmacist 2		Pharmacist 3	
	M	SD	M	SD	M	SD	M	SD
Self-confidence	5.76	1.03	5.73	0.80	5.80	0.68	5.88	0.64
Level of empowerment	6.24	0.56	5.50	1.03	5.67	0.90	5.63	0.74
Self-efficacy	5.80	0.94	-	-	-	-	-	-
Job satisfaction	5.94	0.77	-	-	-	-	-	-
Productivity	5.53	2.12	5.13	0.96	5.07	1.39	5.63	0.92
Work speed	5.94	0.90	5.50	0.73	5.13	0.83	5.25	1.04
Accuracy	6.35	0.77	5.44	0.96	5.40	0.74	5.63	0.92
Organisational commitment	5.53	2.12	5.53	0.83	5.36	0.74	5.50	1.07
Overall job performance	6.24	0.66	5.38	1.02	5.60	0.63	5.71	1.11
Number of mistakes	6.09	0.70	5.47	0.92	5.40	0.91	5.50	0.93
Customer service	6.19	1.05	5.36	0.93	5.38	0.77	5.00	0.82
Guidance from supervisor	6.33	0.72	5.38	0.72	5.40	0.74	5.38	0.92
Workload of rater	-	-	5.06	1.57	4.93	1.86	5.13	1.13
Trust in learner's ability	-	-	5.79	1.12	5.38	0.65	5.63	0.92

Note: The items Pharmacist 1, Pharmacist 2 and Pharmacist 3 in table 6.6 refer to the pharmacy managers, supervisors, and co-workers of the pharmacist's assistant respondents.

With reference to table 6.6 the following results are discussed:

The trainee Basic level pharmacist's assistants indicated that the training caused a minor (5) to major (7) positive effect on their work outputs. The most improvement was evident on the items measuring the contribution that the training made to empower them (6.24), their overall job performance (6.24), the rendering of customer service (6.19), the fact that they work more accurate (6.35), and the fact that they need less supervision and guidance (6.33). In addition, it is evident from the supervisor's rating that as a result of the training they trust the ability of the trainee to perform tasks (minor positive effect) and that the training decreased their workload (minor positive effect).

DISCUSSION

The results obtained from the descriptive statistics with regard to section 3 of the questionnaire (items 34 to 45) indicate the following:

- The training contributed to an improvement in the work outputs of qualified pharmacist's assistants as well as the work outputs of the trainees on both levels.
- The trainee Basic level pharmacist's assistants perceived the most improvement in terms of work outputs; indicating that the training contributed to them being more accurate. Four of the pharmacist's assistant respondents indicated that the improvement in accuracy was as a result of an improvement in their dispensing abilities.
- Compared to the two other groups the trainee Post-Basic level pharmacist's assistants provided the most positive effect related to their self-confidence and organisational commitment. None of the pharmacist's assistant respondents indicated a negative effect on their organisational commitment. Four respondents (two qualified and registered Post-Basic level, one trainee Basic level and one trainee Post-Basic level) felt that the training had no effect at all. These respondents, except for the trainee Basic level pharmacist's assistant, indicated that the reason for this was that they had been committed to the organisation before the training. Six of the trainee Basic level pharmacist's assistants and three trainee Post-Basic level pharmacist's assistants reporting an increase in organisational commitment, indicated that the reason for the increase in their organisational commitment was that they appreciated the opportunity to learn and obtain a qualification. Two respondents felt that their organisational commitment had improved, but that other factors played a role.

- The qualified and registered Post-Basic level pharmacist's assistants reported the highest positive effect on the guidance needed from their supervisors. Two of the pharmacist's assistants agreed that an increase in self-confidence was the reason for the positive effect and four of the pharmacist's assistants attributed it to their ability to work more independently.
- Customer service forms part of the strategic objectives and key performance areas of the company. The ratings of the three groups of pharmacist's assistants indicated an improvement in this work output as a result of the training. Reasons provided by the pharmacist's assistants for the positive effect of the training on their customer service included:
 - Knowledge of medication and the use thereof;
 - More confidence when serving customers;
 - Became more professional;
 - Increased knowledge;
 - Better communication skills;
 - Increased ability to serve or advise customers; and
 - Improvement in stock control.
- It is evident from the above results that the supervising pharmacists perceived a decrease in the workload as the level of training increases. The reason that was most frequently reported (six respondents) are that the pharmacist's assistant is able to work independently as a result of the training intervention. Other reasons included:
 - Picking takes less time;
 - Increase in self-confidence of the pharmacist's assistant;
 - Improvement in dispensing abilities
 - Increased self-confidence;
 - Better team player; and
 - Increase in speed and accuracy.
- The questionnaire to both the pharmacist's assistants and supervising pharmacists included an item on the effect of the training intervention on the number of mistakes that were made by the pharmacist's assistant. The respondents were asked to provide examples of mistakes that were avoided as a result of the training intervention.

Although the response rate of this question was not high, tables 6.4 (page 139), 6.5 (page 140) and 6.6 (page 141) indicated that the qualified and registered and trainee Post-Basic level pharmacist's assistants experienced a minor to moderate positive effect and the trainee Basic level pharmacist's assistants perceived a moderate positive effect.

One of the trainee Basic level pharmacist's assistants indicated that the training contributed to a better understanding of the dispensing process and therefore fewer mistakes. One trainee Post-Basic level pharmacist's assistant indicated that a better understanding of stock control procedures contributed to fewer mistakes while eleven raters (seven trainee Basic level, two trainee Post-Basic level and two qualified and registered Post-Basic level) were confident that the training contributed to less picking mistakes. One trainee Post-Basic level pharmacist's assistant felt that he/she made less pre-packing mistakes as a result of the training.

- Only five supervising pharmacists motivated their ratings in terms of the number of mistakes made by the (trainee) pharmacist's assistants with examples of the mistakes. The five supervising pharmacists that responded to this question were all supervisors for the trainee Basic level pharmacist's assistants. Their motivations are as follows:
 - Improvement in stock control (1);
 - Less mistakes with picking of medicine (2); and
 - Improvement in dispensing (2).

It can be concluded from the above that the training intervention had a definitive positive effect on the number of picking mistakes made by the pharmacist's assistants.

- Another question was included in the questionnaire to be completed by the pharmacists in an attempt to quantify some of the data. Item 44 (page 231) measured the extent to which the training affected the pharmacists' workload. The pharmacists were asked to indicate the number of hours per month that they saved due to the reduction in workload. The results were as follows:
 - i. The majority of the pharmacists supervising the **trainee Basic level pharmacist's assistants** indicated that they saved one to ten hours per month (8 respondents). Four respondents felt that they saved 11 to 30 hours and another 2 felt that they saved more than 30 hours. Three pharmacists indicated that they experienced no time saving and two were unable to say.
 - ii. The majority of the pharmacists supervising the **trainee Post-Basic level pharmacist's assistants** also indicated a time saving of one to ten hours per month (6 respondents). Three indicated a saving of 11 to 30 hours and six respondents felt that they saved no time as a result of the training. Four respondents experienced an increase in their workload as a result of the training intervention, but did not provide the increase in the number of hours.

- iii. The pharmacists supervising the **qualified and registered Post-Basic pharmacist's assistants** experienced a greater saving in time than the other two levels. Only two respondents indicated a saving of one to ten hours and only one felt that he/she saved 11 to 30 hours. Two respondents felt that they saved 30 to 50 hours and the majority experienced a saving of more than 50 hours (5 respondents). Three respondents experienced no time saving and another three were unable to say.

It can be concluded from the above that the training of pharmacist's assistants does have a positive effect on the workload of the supervising pharmacists.

6.4 CALCULATING THE COSTS AND BENEFITS OF TRAINING PHARMACIST'S ASSISTANTS IN A CORPORATE PHARMACY GROUP

The specific objective (objective 1.3.2.5, page 5) was to determine the implications (costs and benefits) of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group and what it entails.

In order to find an answer to the research question, the costs and benefits were calculated for the Basic and the Post-Basic level of the pharmacist's assistants' training programme. Only the relevant costs are included, i.e. only the costs that could have been avoided if the pharmacist's assistants were not trained by the company.

6.4.1 Case study information

The information obtained in the semi-structured interviews as well as from the analysis of the financial records of the pharmacy group is used to illustrate the financial implications of the training of pharmacist's assistants in a pharmacy group.

Although actual information was used as far as possible, some of the figures were adjusted in congruence with the confidentiality agreement with the pharmacy group. Financial and other data, such as salaries, sales figures and number of learners were changed according to a pre-determined formula.

The following data, other than that reported in the interviews (paragraph 6.2, page 119) pertains to this case study:

6.4.1.1 Period under review

The period under review is the 2002, 2003, 2004 and 2005 financial years. Projected figures are used for the 2004 and 2005 financial years. Phillips *et al.* (2001:222) recommend that the lifetime of a programme should not exceed one to three years unless the programme is extremely expensive and is not expected to change significantly for several years. A period of four years was chosen for this study as the programme is not expected to change within this period.

6.4.1.2 Number of learners

In this study, the trainee pharmacist's assistants are referred to as learners. The pharmacist's assistant learners employed by the pharmacy group are referred to as internal learners and the pharmacist's assistants that are not employed by the pharmacy group but merely attend the training programme are referred to as external learners. The number of pharmacist's assistants trained by the pharmacy group, as adjusted by the pre-determined formula is presented in table 6.7 below. The projections for 2005 were made on the basis of the expectations of the Managing Director and the Operations Manager of the training company as obtained during further discussions.

Table 6.7: Number of learners

	2002	2003	2004	2005 (Projected)
Pharmacist's assistant status				
Internal learners:				
<i>Basic level</i>	0	17	5	10
Basic level learnership section 18(1)	13			
Basic level learnership section 18(2)	4			
Total number of Basic level learners	17	17	5	10
<i>Post-Basic level</i>	9	8	7	7
Post-Basic learnership section 18(1)	0			
Post-Basic learnership section 18(2)	0			
Total number of Post-Basic level learners	9	8	7	7
Total number of internal learners	26	25	12	17
External learners:				
Basic level	59	83	56	70
Post-Basic level	5	25	20	22
Total number of external learners	64	108	76	92
Internal and external learners:				
Total number of Basic Learners	76	100	61	80
Total number of Post-Basic Learners	14	33	27	29
Total number of learners	90	133	88	109

6.4.1.3 Inflation

The inflation rate applied in the case study is 10% and was supplied to the researcher by an asset manager (Lefebvre, 2004) (appendix 4, page 232). The financial data obtained during the interviews are 2002 values. Where applicable, adjustments for inflation will be made at the rate of 10% per annum.

6.4.1.4 Salaries

The following market related annual remuneration packages including benefits are assumed (table 6.8):

Table 6.8: Salaries

	2002
	R
Administrative assistant	50 000
Pharmacist's assistant – [section 18(2)]	16 000
Pharmacist's assistant – Basic level [section 18(1)]	40 000
Pharmacist's assistant – Post-Basic level [section 18(1)]	80 000
Pharmacists	150 000
Managers	250 000
Senior Management	400 000

The section 18(2) learners receive a salary of R16 000 per annum. This is paid out of the grants received from the SETA and the balance is paid by the pharmacy group.

6.4.1.5 Other information

It can be assumed, unless otherwise stated, that cash flows occur at the end of the year. Although tax is usually paid at the end of the year, it is assumed for the purposes of this case study that the tax effect of a transaction occurs at the same time as the underlying transaction.

The company tax rate is 30% per annum. It is assumed that the pharmacy group has sufficient income from other sources to fully utilise any tax allowances. The pharmacy group is registered for value added tax (VAT) and therefore all income and expenses are treated net of VAT.

The cost of capital rate of the pharmacy group is assumed to be 14%. The cost of capital rate is the minimum required return and is based on the inflation rate plus four percent (Lefebvre, 2004) (paragraph 6.4.1.3, page 147).

6.4.2 Calculation of the costs of training

The costs of training are calculated as proposed by the relevant literature and by making use of the processes and structures of the pharmacy group obtained during the interviews with the key personnel of the pharmacy group. Where financial information of the pharmacy group is regarded as confidential, market related figures are used as presented in the case study information

(paragraph 6.4.1, page 145). The researcher rounded all amounts to the nearest rand. Rates and tariffs are rounded to two decimal places.

6.4.2.1 Skills Development Levy

The Skills Development Levy was not included as a cost of training, as it is not a relevant cost (paragraph 3.2.6, page 36). The levies are paid regardless of the fact that the pharmacist's assistants are trained.

6.4.2.2 Needs assessment

There was no cost incurred for a needs assessment. As discussed during the interviews, the needs assessment for the training of pharmacist's assistants was done by the Department of Labour (paragraph 6.2.2, page 122).

6.4.2.3 Cost of developing and preparing of training materials

The calculation of the cost of development is based on the information provided by the Managing Director of the training company (paragraph 6.2.3, page 123).

The material was developed internally by pharmacists within the company. The cost of the personnel time spent on the development is calculated by calculating the number of hours spent by pharmacists, management and senior management. These hours are then multiplied by the average hourly remuneration of the pharmacists, management and senior management respectively.

The annual remuneration packages of the developers are calculated in the same way as the annual remuneration used in the calculation of the cost of attendance (paragraph 3.4.2.4, page 44). The annual remuneration is calculated as an average of the salaries and benefits of the material developers (Phillips *et al.*, 2001:224; Carnevale & Schulz, 1998:234). The types of jobs represented were obtained from the Managing Director of the training company. Based on this information, an average market related remuneration package for these job levels are used in the calculations.

Each pharmacist spent approximately 30 days on the development. Five hours per day were spent during working hours and another three hours per day after hours. Some of the pharmacists were involved in the development of both the Basic level as well as the Post-Basic level courses. The

time spent by these pharmacists on writing the Post-Basic level material was multiplied by 75%. In total, six of the developers hold positions in senior management and 13 in management.

The actual total hours spent by personnel of the pharmacy group on the development of the courses for the pharmacist's assistants learnerships are as follows:

Pharmacists:

Office hours: 300 (30 days x 5 hours x 2)

After hours: 180 (30 days x 3 hours x 2)

Management:

Office hours: 2 625 (30 days x 5 hours x 17.5)

After hours: 1 575 (30 days x 3 hours x 17.5)

Senior management:

Office hours: 1 350 (30 days x 5 hours x 9)

After hours: 810 (30 days x 3 hours x 9)

The average hourly remuneration is calculated by dividing the total annual remuneration including benefits (Campbell, 1994:33; Phillips *et al.*, 201:24) by the number of working days in a year and then by the number of working hours in a day. The average number of working days in a year is 260 (Fisher & Ruffino, 1996:58) (paragraph 3.4.2.4, page 44).

Market related salaries are used for the purpose of these calculations in terms of the confidentiality agreement with the company. The average annual remuneration package of the pharmacists, management and senior management are R150 000, R250 000 and R400 000 respectively (paragraph 6.4.1.4, page 147). The calculation of the cost of personnel time for the development of material for the pharmacy group is as follows:

Calculation 1: Cost of personnel time for the development of course material

	Average annual remuneration R	Average hourly compensation R	Normal hours spent	Cost of develop- ment R
Pharmacist	150 000	72.12	300	21 636
Management	250 000	120.19	2 625	315 499
Senior management	400 000	192.31	1 350	259 619
Total cost of personnel time				<u>596 753</u>

The overtime hours are not included in the calculation due to the fact that the developers did not receive remuneration for the overtime hours (paragraph 6.2.3, page 123). The cost of the development as presented in calculation 1 is a once-off start-up expense in year one.

The **editing of the material** was done by a pharmacist, a manager and a senior manager who spent approximately eight hours per person on the editing of the material. This is done annually (paragraph 6.2.3, page 123). The cost of editing the material is presented in calculation 2 and presents an annual expense.

Calculation 2: Cost of editing the course material

	Average annual remuneration R	Average hourly remuneration R	Normal hours spent	Cost of editing R
Pharmacist	150 000	72.12	8	577
Management	250 000	120.19	8	962
Senior management	400 000	192.31	8	1 538
Total cost of personnel time				<u>3 077</u>

The **updating of the study material** is done every second year by the developers. Each developer will spend 8 working hours on the updates (paragraph 6.2.3.4, page 124). The time each job type spent on updates is calculated by dividing the number of hours for the development by 30 to obtain

the total hours per five-hour day. The answer is then divided by five and multiplied by eight to calculate the hours if eight hours are worked per day. The cost of personnel time is calculated in exactly the same way as for the development of the material (calculation 1, page 151). The total bi-annual cost of personnel time for the updating of course material is presented in calculation 3.

Calculation 3: Cost of personnel time for the updating of material

	Average annual remuneration R	Average hourly remuneration R	Normal hours spent	Cost of updating R
Pharmacist	150 000	72.12	16	1 154
Management	250 000	120.19	140	16 827
Senior management	400 000	192.31	72	13 846
Total cost of personnel time				31 827

Other costs incurred in the development of the course material in year one included stationery and office expenses and textbooks that amounted to R4 300 (paragraph 6.2.3.5, page 124) in total. The language editing was done by external consultants. According to the Operations Manager, the actual cost that the company incurred was R5 per page (paragraph 6.2.3.3, page 124). The number of pages was provided to the researcher by the Operations Manager.

Calculation 4: Cost of language editing

	Basic level	Post-Basic level
Number of pages in study material	775	569
<i>Multiply by cost per page</i>	<i>R 5</i>	<i>R 5</i>
Cost of language editing	R 3 875	R 2 845

The fee for registration as a training provider with the South African Pharmacy Council (SAPC) was a once-off payment of R5 700 (R5 000 excluding VAT) in 2002. The Basic and the Post-Basic levels of the programme were registered at a once-off cost of R1 000 per course (VAT exclusive)

in 2002 and an annual fee of R572 (excluding VAT) thereafter. These fees were increased by the SAPC in the years following 2002.

The initial investment in 2002 in the development and preparation of the programme is presented in calculation 5:

Calculation 5: Initial investment in the development of the material

		2002
		R
Personnel time: writing	(Calc. 1, p. 151)	596 753
Personnel time: editing	(Calc. 2, p. 151)	3 077
Language editing	(Calc. 4, p. 152)	6 720
Registration costs:	(Given)	
Provider with Pharmacy Council		5 000
Registration of courses		2 000
Stationery	(Paragraph 6.2.3.5, p. 124)	1 500
Textbooks	(Paragraph 6.2.3.5, p. 124)	2 800
		<u>617 850</u>

The total annual cost of the development of the programme for a pharmacist's assistant training course is shown in calculation 6. All of the amounts are adjusted with the inflation rate of 10% (paragraph 6.4.1.3, page 147) in the years 2003, 2004 and 2005.

Calculation 6: Total annual cost of the development of training material

	2002	2003	2004	2005
	R	R	R	R
Personnel time: editing [3 077 (Calc. 2, p. 151) adjusted for inflation]	0	3 385	3 723	4 095
Personnel time: updating [31 827 (Calc. 3, p. 152) adjusted for inflation]	0	0	38 511	0
Language editing [6 720 (Calc. 5, p. 153) adjusted for inflation]	0	0	8 131	0
SAPC Provider fees (Paragraph 6.2.3.5, p. 124)	572	612	673	740
Stationery (Paragraph 6.2.3.5, p. 124)	500	550	605	666
Textbooks (Paragraph 6.2.3.5, p. 124)	0	0	1 000	0
	1 072	4 547	52 643	5 501

6.4.2.4 Training attendance costs

The cost of lost productivity and the cost of replacing employees attending training courses as well as the cost of personnel time have to be taken into account in the calculation of the cost of attendance (Phillips *et al.*, 2001:224; Carnevale & Schulz, 1998:234; Fisher & Ruffino, 1996:58; Shepherd, 1999) (paragraph 3.4.2.4, page 44).

During the interviews, it was established that there is no loss of productivity as a result of the trainees' absence from the workplace (paragraph 6.2.4, page 124). Furthermore, pharmacist's assistants are not replaced while they are away to attend workshops. Their work is simply done by other staff members. Although the literature suggests that the cost of employee time should be included in the calculation of the attendance cost (paragraph 3.4.2.4, page 44), the researcher believes that this is not a relevant cost for the calculation of the cost of attendance of the pharmacist's assistants. There is no lost productivity due to their absence and their work is done by other staff members. Therefore the cost of personnel time of pharmacist's assistants is not included in the calculation of attendance cost. The only costs that are taken into account are travelling cost and refreshments.

Five workshops are presented on the Basic level and four workshops on the Post-Basic level. It can be assumed that every Basic level pharmacist's assistant attends five workshops and every Post-Basic level pharmacist's assistant will attend four workshops (paragraph 6.2.1.4, page 122).

The total annual attendance cost per internal learner per workshop is calculated by adding the average cost of refreshments of R20 per learner (paragraph 6.2.4.1, page 125) and multiplying it by the number of workshops presented on each level per annum (calculation 7):

Calculation 7: Total annual attendance cost per internal learner

	Basic level	Post-Basic level
Refreshments per learner per workshop	R 20.00	R 20.00
<i>Multiply by number of workshops</i>	x <u>5</u>	x <u>4</u>
Attendance cost per learner per annum	<u>R 100.00</u>	<u>R 80.00</u>

The attendance cost of the external learners consists of an average venue cost of R30 per learner and an average cost of refreshments of R20 (paragraph 6.2.4.2, page 125). This amounts to an average total attendance cost of R50 per external learner per workshop. The total annual attendance cost for the external learners is calculated in calculation 8 by multiplying the attendance cost per learner per workshop by the number of workshops per annum.

Calculation 8: Total annual attendance cost per external learner

	Basic level	Post-Basic level
Total cost of attendance per learner per workshop	R 50.00	R 50.00
<i>Multiply by number of workshops</i>	x <u>5</u>	x <u>4</u>
Attendance cost per external learner per annum	<u>R 250.00</u>	<u>R 200.00</u>

The Operations Manager also provided the researcher with details of the travelling costs incurred by the company in respect of the workshops. The researcher used this information to calculate an average annual cost of travelling to the workshops of R12 164. The **total attendance cost per level of training** per year is calculated by multiplying the average annual cost per learner per annum by the number of learners in each level for each year in the period (table 6.7, page 147) and adding the annual travelling cost. The figures for 2003, 2004 and 2005 are adjusted with inflation.

Calculation 9: Total annual cost of attendance

	2002 R	2003 R	2004 R	2005 R
Internal learners				
<i>Basic level:</i>				
Attendance cost per learner p.a. (Calc. 7, p. 155)	100.00	110.00	121.00	133.10
<i>Multiply by number of learners</i>	17	17	5	10
Total attendance cost per level	1 700	1 870	605	1 331
<i>Post-Basic level:</i>				
Attendance cost per learner p.a. (Calc. 7, p. 155)	80.00	88.00	96.80	106.48
<i>Multiply by number of learners</i>	9	8	7	7
Total attendance cost per level	720	704	678	745
Annual attendance cost	2 420	2 574	1 283	2 076
Average annual travel costs (Given)	12 164	13 380	14 718	16 190
Total attendance cost of internal learners (i)	14 584	15 954	16 000	18 266
External learners				
<i>Basic level:</i>				
Attendance cost per learner p.a. (Calc. 8, p. 155)	250.00	275.00	302.50	332.75
<i>Multiply by number of learners</i>	59	83	56	70
Total attendance cost per level (ii)	14 750	22 825	16 940	23 293
<i>Post-Basic level:</i>				
Attendance cost per learner p.a. (Calc. 8, p. 155)	200.00	220.00	242.00	266.20
<i>Multiply by number of learners</i>	5	25	20	22
Total attendance cost per level (iii)	1 000	5 500	4 840	5 856
Total annual attendance costs (i + ii + iii)	30 334	44 279	37 780	47 415

6.4.2.5 Registration cost of learners

Every learner has to be registered with the South African Pharmacy Council. These costs are however refunded by the Health and Welfare Sector Education and Training Authority (HWSETA) and are therefore not included in the calculation of the cost of training of the pharmacist's assistants.

6.4.2.6 Instructor cost

The instructor cost includes the time spent by the instructor in training, the time spent on preparation, reviewing the material and evaluation of the work, travelling and lodging, and cost of lost productivity or replacing the individual while attending the training course (Fisher & Ruffino, 1996:56; Phillips *et al.*, 2001:223) (paragraph 3.4.2.5, page 45).

The total instructor cost per workshop is calculated by adding the cost of the instructor's time, the cost of refreshments and lodging and the travelling costs. Due to the fact that the workshops are combined with the assessments and the workshops are presented by one of the assessors (paragraph 6.2.12, page 127), all of these costs are included in the cost of assessment. There was no lost productivity or replacement costs in the pharmacy group (paragraph 6.2.5, page 125).

6.4.2.7 Cost of material

During further discussions, the information regarding the number of pages of the course material and handouts that are copied were provided by the Operations Manager. The number of pages copied is 775 pages of study material and 77 handout pages on the Basic level, and 569 pages of study material and 37 handout pages on the Post-Basic level. The cost of the photocopies of the study material is calculated by multiplying the number of copies per level by the average cost per photocopy. An average market related cost of R0.20 per page is used for the purposes of this calculation.

The only other material that is provided to the pharmacist's assistants is a textbook. The textbook is used on both the Basic level and the Post-Basic level. The cost of the textbook is therefore only included in the costs of the Basic level. The total cost of study material is calculated by adding the cost of the photocopies per learner and the cost of the textbook (calculation 10):

Calculation 10: Cost of study material per learner

	Basic level	Post-Basic level
Number of study material copies	775	569
Number of handout copies	77	37
	<u>852</u>	<u>606</u>
<i>Multiply by average cost per page</i>	<i>x R 0.20</i>	<i>x R 0.20</i>
Average cost of photocopies	<u>R 170.40</u>	<u>R 121.20</u>
Textbook	R 100.00	
Average cost of study material per learner	<u><u>R 270.40</u></u>	<u><u>R 121.20</u></u>

The total cost of study material provided to the learners for every year in the period is calculated by multiplying the cost per learner by the number of learners (table 6.7, page 147) in calculation 11:

Calculation 11: Total annual cost of materials

	2002	2003	2004	2005
	R	R	R	R
<i>Basic level:</i>				
Cost of material per learner (Calc. 10, p. 158)	270.40	297.44	327.18	359.90
<i>Multiply by number of learners</i>	76	100	61	80
Total cost of materials	<u>20 550</u>	<u>29 744</u>	<u>19 958</u>	<u>28 792</u>
<i>Post-Basic level:</i>				
Cost of material per learner (Calc. 10, p. 158)	121.20	133.32	146.65	161.32
<i>Multiply by number of learners</i>	14	33	27	29
Total cost of materials	<u>1 697</u>	<u>4 400</u>	<u>3 960</u>	<u>4 678</u>
Total annual materials cost	<u><u>22 247</u></u>	<u><u>34 144</u></u>	<u><u>23 918</u></u>	<u><u>33 470</u></u>

6.4.2.8 Cost of equipment

The equipment used in the training of the pharmacist's assistants includes laptops, a data projector, photo copy machines and printers. None of this equipment would be obsolete if the training of the pharmacist's assistants had not been done (paragraph 6.2.7, page 126). Therefore the cost of equipment is not a relevant cost and is not included in the calculation of the costs of training.

The demand for the equipment is such that it could not have been utilised for other purposes during the time it was used for the training of the pharmacist's assistants (paragraph 6.2.7, page 126). Therefore, no revenue is forfeited because of utilising the equipment for the purposes of the training of pharmacist's assistants and no opportunity costs are included in this calculation as suggested by Campbell (1994:34) (paragraph 3.4.2.7, page 46).

6.4.2.9 Cost of facilities

When a building is the property of the training provider, the cost of facilities should include a depreciation charge of the building as well as a portion of the maintenance costs of the building (Campbell, 1994:35) (paragraph 3.4.2.8, page 46). The maintenance cost and depreciation charge is the total annual facilities costs. The training company is located at the head office of the pharmacy group. The cost of the facilities is not regarded as a relevant cost by the researcher as none of the costs could have been avoided if the training of the pharmacist's assistants had not been done.

External learners attend workshops throughout the country. The cost of the venues is included in the attendance cost of the external learners (calculation 8, page 155).

6.4.2.10 Travelling cost

The travelling cost includes any travelling costs to a training site or in the preparation of the training programme. Travelling expenses to the workshops have already been included in the calculation of the cost of attendance and instructor cost and travelling expenses to the assessment centres are included in the cost of assessment (paragraph 6.4.2.12, page 161).

According to the Operations Manager presentations are done on a regular basis and travelling costs are incurred as a result. These costs amount to R500 per month on average (paragraph 6.2.9, page 126).

Calculation 12: Annual travel cost

Total annual travelling cost amounts to R6 000 (R500 x 12 months). This amount is adjusted for inflation at 10% per annum.

6.4.2.11 Administration cost

Certain administration costs are incurred that are not directly attributable to the training of the pharmacist's assistants, such as cost of clerical support, departmental office expenses, salaries and benefits of Operations Managers, technology support and other fixed costs (Phillips *et al.*, 2001:225-226) (paragraph 3.4.2.11, page 47).

Phillips *et al.* (2001:232) recommend that all costs be included in the calculation of the costs of a training programme, even if it goes beyond the requirements of company policy. The administration costs with the exception of cellular phone expenses and certain salaries, are however not relevant to the decision whether to train in-house or to outsource the training intervention.

The cellular phone costs of the Managing Director and the Operations Manager of the training company are included in the calculation. Only the portion attributable to the training of pharmacist's assistants is included. The estimation of the proportion spent on the training of the pharmacist's assistants was made by the Managing Director and the Operations Manager themselves during further discussions. The actual cellular phone costs were obtained from the financial records of the company. The actual cost is used for 2002 and 2003 and the costs for 2004 and 2005 are projected. The cost in the 2002 year is higher than that of the 2003 year. This makes perfect sense since the training programme was implemented in 2002 and the administration burden was higher.

The salaries of the personnel that are directly attributable to the training of pharmacist's assistants are also included. The salaries of two pharmacists and four administrative assistants would have been saved if the programme for the training of the pharmacist's assistants had not been implemented by the pharmacy group (paragraph 6.2.11, page 127). The market related annual remuneration packages in table 6.8 (page 148) are used in the calculation of the administrative costs in calculation 13.

Calculation 13: Administration cost allocated to training programme

	2002	2003	2004	2005
	R	R	R	R
Cellular phone costs	8 098	6 907	7 598	8 357
Salaries of training personnel	400 000	440 000	484 000	532 400
	<u>408 098</u>	<u>446 907</u>	<u>491 598</u>	<u>540 757</u>

6.4.2.12 Cost of evaluations/assessments

Evaluations are done in the form of regular assessments by qualified assessors. The assessors are trained at an average cost of R3 000 each. Furthermore, they have to register with the South African Pharmacy Council at a once-off fee of R171 (VAT inclusive) and an annual fee of R114 (VAT inclusive) thereafter. The pharmacy group registered 10 assessors in 2002 and an average of two new assessors every year thereafter (paragraph 6.2.12, page 127).

The only other costs regarding the assessors are the cost of personnel time, travelling and lodging and refreshments. The initial cost of assessment incurred at the beginning of the first year is therefore the cost of training the assessors and the once-off registration fees (calculation 14):

Calculation 14: Initial investment in assessors

	2002
	R
Cost of training per assessor	3 000
Registration fee per assessor (VAT exclusive)	150
Total initial cost per assessor	<u>3 150</u>
<i>Multiply by the number of assessors in year 1</i>	<i>x 10</i>
Total initial cost of assessors	<u><u>31 500</u></u>

Assessments are always combined with workshops. The internal learners attend the workshops at the head office of the company and assessments are done at the same time. Their travel costs are already included in the cost of attendance (calculation 9, page 156). The costs of refreshments for the learners are also included in the attendance cost of the learners.

Assessors travel to the various assessment centres quarterly for the assessment of external learners and the workshops are then presented by one of the assessors. The assessment sites are located in four different geographical areas. Only the external learners are assessed at these sites. The Operations Manager provided detail information on the number of assessors per assessment, distances travelled, travel costs per assessment and lodging costs incurred. The researcher used this information to calculate an average cost of travelling and lodging per annum (R49 317 and R34 080 respectively), the average number of assessors per assessment (2.75) and the average time away from the workplace (3.5 days). These calculations were based on the total costs and time for all the regions in one year.

Most of the assessors are managers, and therefore the average daily cost of remuneration is calculated by dividing the market related total annual remuneration package of a manager (paragraph 6.4.1.4, page 147) by the average number of working days in the year. The total annual remuneration package includes benefits (Campbell, 1994:33; Phillips *et al.*, 2001:224) (paragraph 3.4.2.4, page 44). The average number of working days in the year is 260 (Fisher and Ruffino, 1996:58) (paragraph 3.4.2.4, page 44). The average cost of an assessor per assessment is then calculated by multiplying the average daily cost of compensation by the average time away from the workplace and this is multiplied by the average number of assessors per assessment and the number of assessments per year to calculate the total cost of personnel time for assessments per annum. These workings are shown in calculation 15:

Calculation 15: Total annual cost of personnel time

	R
Average total annual remuneration of assessor (manager)	250 000
<i>Divide by 260 working days in a year</i>	/ 260
Average daily remuneration cost per assessor	961.54
<i>Multiply by average time away (days)</i>	x 3.5
Average personnel cost per assessor per assessment	3 365.38
<i>Multiply by the average number of assessors per assessment</i>	x 2.75
Average cost per assessment	9 255
<i>Multiply by the number of assessments (4 areas x 4 assessments p.a.)</i>	16
Total cost of personnel time per annum	148 077

After the initial training and registration of the assessors at the beginning of the programme, an average of two new assessors are trained and registered per annum (paragraph 6.2.12, page 127). The total annual cost of assessments is as follows (calculation 16):

Calculation 16: Total annual cost of assessments

	2002	2003	2004	2005
	R	R	R	R
Cost of personnel time (Calc. 15, p. 162)	148 077	162 885	179 173	197 090
New assessors' training fees	0	6 000	6 600	7 260
SAPC: Registration fee	0	300	330	363
SAPC: Annual fee	1 000	1 200	1 540	1 936
Travelling costs (Given)	49 317	54 248	59 673	65 641
Lodging costs (Given)	34 080	37 488	41 237	45 360
	232 474	262 121	288 553	317 651

6.4.2.13 Salaries of learners

The salaries of learners are not included in the calculations. The salaries are not relevant as the learners would have been employed by the company irrespective of the fact whether training was done in-house or externally.

An expense towards the salaries of section 18(2) learners (paragraph 2.3.5, page 24) is however included in the annual expense of the internal learners. Normally the grants that are received from the HWSETA would be used to cover the training expenses of that learner. The amount of the grant remaining after these expenses have been covered is then paid to the learner. The employer therefore has no expense towards the salary of a section 18(2) learner. During further discussions with the Managing Director of the training company, it was established that the pharmacy group contributes a further amount of R4 500 per annum per section 18(2) learner towards the salaries of these learners.

The company employed section 18(2) learners in 2002 only (table 6.7, page 147).

Calculation 17: Salaries of section 18(2) learners

The total expense for 2002 is R18 000 [4 18(2) learners x R4 500].

6.4.3 Benefits of training

The benefits of training are not as easy to quantify as the costs and much more difficult to measure. Another problem is that benefits often accrue long after the training has been completed (Parry, 1998:202) (paragraph 3.6, page 55). The benefits of the training of pharmacist's assistants are calculated in the following section based on the financial records of the company, the interviews with the key personnel of the pharmacy group (paragraph 6.2, page 119) and the information in the case study (paragraph 6.4.1, page 145). Money made as well as money saved is included in the calculations (Conner, 2002) (paragraph 3.6, page 55).

6.4.3.1 Skills Development Grant

An organisation can only receive Skills Development Grants if certain criteria as set out by the Sector Education and Training Authority (SETA) are met (paragraph 3.6.2.1, page 55).

The pharmacy group received the mandatory grants by submitting a Workplace Skills Plan and a Workplace Skills Report. The Workplace Skills Planning Grant amounts to 15% of the levies paid by the company and the Workplace Skills Implementation Grant amounts to 45% of the levies paid (paragraph 3.6.2.1, page 55). This income is however not taken into account for the purposes of his study, as it is not relevant. The company would have submitted a Workplace Skills Plan and a Workplace Skills Report even if the training of pharmacist's assistants did not take place (paragraph 6.2.15.1, page 130).

The Managing Director of the training company provided the researcher with the following breakdown of the grant that is received from the Health and Welfare Sector Education and Training Authority (HWSETA) for the section 18(1) and section 18(2) pharmacist's assistant learners. The amount of this grant was the same for 2002 and 2003. It is expected that it will remain the same for the 2004 year:

	R
Salary	11 500.00
Training fees	5 000.00
SAPC registration fee	230.82
	16 730.82

An amount of R16 500 is taken into account for the calculations of the grants received. The SAPC registration fee is an expense that is covered. It was not included in the costs of training (paragraph 6.4.2.5, page 156) and is therefore not included in the benefits.

The company only had pharmacist's assistants under learnership agreements in 2002. The grants received are calculated by multiplying the amount of the grant by the number of learners under learnership agreement (table 6.7, page 147):

Calculation 18: Discretionary grants received

	2002
	R
Discretionary grants:	
Section 18(1) learners (R16 500 x 13 18(1) learners)	214 500
Section 18(2) learners (R16 500 x 4 18(2) learners)	66 000
	<u>280 500</u>

6.4.3.2 Tax deduction in respect of learnership

The pharmacy group qualified for the section 12H tax deduction in 2002 by offering learnership agreements to pharmacist's assistant learners (paragraph 3.6.2.2, page 57). The allowance in the case of entering into a learnership is equal to the lesser of the annual equivalent of the remuneration of the learner or R25 000 where the learner was not employed by the employer prior to the learnership [section 18(2) learner]. If the learner was employed by the employer prior to the learnership [section 18(1) learner], the deduction is the lesser of 70% of the annual equivalent of the remuneration of the learner or R17 500. The deduction on completion of the learnership is in all cases the lesser of the annual equivalent of the remuneration of the learner or R25 000 (paragraph 3.6.2.2, page 57).

The company only had Basic level pharmacist's assistants under learnership agreements in 2002 (table 6.7, page 147) and therefore the deduction is calculated for 2002 only. A market related rate is used for the annual remuneration of the pharmacist's assistants according to the confidentiality agreement with the company. The annual remuneration of a section 18(1) learner on the Basic level is R40 000 (table 6.7, page 147). The tax deduction for an 18(1) learner on the Basic level on entering into a learnership will therefore be the lesser of R28 000 (R40 000 x 70%) or R17 500,

thus R17 500. The average remuneration of a section 18(2) learner is R16 000 [R11 500 (paragraph 6.4.3.1, page 164) + R4 500 (paragraph 6.4.2.13, page 163)]. The tax deduction is therefore limited to R16 000.

The total deductions are multiplied by the annual tax rate on companies to calculate the annual tax saving. The total tax saving on the learnership agreements that were entered into during 2002 are as follows:

Calculation 19: Tax saving on learnerships

	18(1) learners 2002 R	18(2) learners 2002 R	Total 2002 R
Number of learners (table 6.7, p. 147)	13	4	
Tax deduction	17 500	16 000	
Total tax deduction	227 500	64 000	291 500
Tax benefit at 30%	68 250	19 200	87 450

6.4.3.3 Effect of training on company performance

In an attempt to quantify the effect of training, the questionnaires to both the pharmacist's assistants and supervising pharmacists included an item on the effect of the training intervention on the number of mistakes that were made by the pharmacist's assistants (appendix 2, page 212 and appendix 3, page 223). The respondents were asked to provide examples of mistakes that were avoided as a result of the training intervention. Phillips *et al.* (2001:199) and Swanson (2001:44) propose that the following steps be followed to convert this data into a monetary value (paragraph 4.3.2.4, page 75):

Step 1: Focus on a unit of measure

According to Phillips *et al.* (2001:171) strategies to isolate the effect of the training programme should include participant estimates, supervisor estimates and management estimates (paragraph 4.3.2.3, page 70). The survey questionnaires (appendix 2 and 3, pages 212 and 223 respectively) were sent to pharmacist's assistants (participants), supervising pharmacists (supervisors) and

pharmacy managers (management). It was evident from these survey questionnaires that the training of the pharmacist's assistants had a positive effect on the number of picking mistakes by the pharmacist's assistants (paragraph 6.3.2, page 138). A total of 13 respondents (11 pharmacist's assistants and 2 supervising pharmacists) indicated that the pharmacist's assistants made less picking mistakes. Phillips *et al.* (2001:199) indicate that the number of errors or defects can be used as the unit of improvement (paragraph 4.3.2.4, page 75). Therefore, the unit of measure that is focused on in this study is the number of picking mistakes.

Step 2: Determine a value for each unit

During further discussions, the Chief Financial Officer of the pharmacy group indicated that the estimated cost of picking mistakes is R2 000 per month.

Step 3: Calculate the change in performance data

Swanson (2001:45) proposes that the level of performance before the training intervention should be compared to the level of performance after the training intervention (paragraph 4.3.2.4, page 75). No information is available on the number of picking mistakes that was actually avoided as a result of the training. Tables 6.4 (page 139), 6.5 (page 140) and 6.6 (page 141) indicated that the qualified and registered pharmacist's assistants and the trainee Post-Basic level pharmacist's assistants experienced a minor to moderate positive effect; while the trainee Basic level pharmacist's assistants perceived a moderate positive effect on the number of mistakes made. Based on these ratings the researcher believes that at least 50% of picking mistakes are avoided as a result of the training intervention. During further discussions this estimate was confirmed by the Managing Director of the training company. The change in performance data is therefore estimated at 50%.

Step 4: Calculate the total value of the improvement

The total value of the improvement is calculated by multiplying the change in annual performance by the unit value calculated in step 2 (Phillips *et al.*, 2001:199; Swanson, 2001:47) (paragraph 4.3.2.4, page 75).

Calculation 20: Value of reduction of picking mistakes

The value of the reduction of picking mistakes for the pharmacy group is estimated at R12 000 per annum (R2 000 x 12 months x 50%).

Other quantitative benefits of training include increased productivity, increased sales, labour savings and lower staff turnover (paragraph 3.6.2, page 55).

6.4.3.4 Increased productivity

It is difficult to determine the rand value of increased productivity and the researcher did not have sufficient information available to quantify this benefit. It can however be reported that the researcher is of the opinion that the level of productivity did increase based on the respondents' ratings of the survey questionnaires. The trainee Basic level, trainee Post-Basic level and qualified and registered Post-Basic level pharmacist's assistant respondents as well as their supervising pharmacists indicated a minor to moderate improvement in their productivity (tables 6.4, 6.5 and 6.6, pages 139, 140 and 141 respectively).

During the interviews (paragraph 6.2.15.2, page 130) it was established that the respondents were not sure whether the training of the pharmacist's assistants had an effect on productivity and what the actual measure of productivity would be. A logical measure would be the number of scripts processed (paragraph 6.2.15.2, page 130). It is however not certain whether the actual number of scripts would increase as a result of the training. The number of scripts did increase, but the extent to which it can be attributed to the training is uncertain (paragraph 6.2.15.2, page 130). Since the training programme is only in the early stages of implementation, there is not enough information to determine the impact of the training on the number of scripts processed.

6.4.3.5 Increase in sales

An increase in the number of scripts will result in increased sales. The financial records of the company were analysed and it was established that there was an increase in sales of 11% for the 2003 financial year. It is however not possible to isolate the effect of the training as other factors may contribute to the increase in sales (paragraph 6.2.15.2, page 130).

6.4.3.6 Improved customer satisfaction

One of the reasons for an increase in scripts and sales could be that the customer satisfaction increased and more customers were retained and new customers gained as a result of better customer service (paragraph 6.2.15.2, page 130). Improved customer service is one of the intangible benefits of training (Phillips *et al.*, 2001:250) (paragraph 3.6.2.8, page 59). There was an increase in customer service as reported by the respondents in the survey questionnaires. The trainee Basic level and trainee Post-Basic level pharmacist's assistants reported that the training had a moderate to major positive effect (tables 6.5 and 6.6, pages 140 and 141) on their customer service; while qualified and registered Post-Basic level pharmacist's assistants indicated a minor to moderate positive effect (table 6.4, page 139). Although the raters only reported a minor to

moderate positive effect, the conclusion can be made that the training intervention did have a positive effect on the customer service.

6.4.3.7 Labour savings

The survey questionnaire included a question in an attempt to measure labour savings as a result of the training of the pharmacist's assistants. This question was presented to the supervising pharmacists and pharmacy managers (item 44, appendix 3, page 231). The response rate on this question was 78% (21 pharmacists out of a possible 27). The researcher assumes that the respondents who did not respond to this item did not experience any saving in time. The total saving of hours is calculated by adding the hours as indicated by the respondents on their completed questionnaires. The total saving in hours is calculated as 664 hours per month. This figure is multiplied by 12 months to obtain an annual saving of pharmacist's time of 7 968 hours.

According to Shepherd (1999) this saving has to be put to use for it to be a saving in cost (paragraph 3.6.2.5, page 58). After further discussions with the Operations Manager and Managing Director of the training company, it was decided that 25% of the hours saved would be a prudent estimate of the saving in hours that is put to productive use. The saving in labour hours is therefore estimated at 1 992 hours (7 968 x 25%).

The monetary value of this saving is calculated by multiplying the saving in hours by the average hourly remuneration of the supervising pharmacists. The average hourly remuneration is calculated by dividing a market related annual remuneration of a pharmacist (table 6.8, page 148) by 260 days (Fisher and Ruffino, 1996:58) (paragraph 3.4.2.4, page 44) to obtain the daily remuneration and then divide by eight working hours per day for the average hourly remuneration. The monetary value of the total annual saving on pharmacists' time is shown in calculation 21:

Calculation 21: Annual saving of pharmacists' time

	R
Average total annual remuneration package	150 000
<i>Divide by 260 workdays in a year</i>	/ 260 days
Average daily compensation cost per pharmacist	= 576.92
<i>Divide by eight hours per day</i>	/ 8 hours
Average compensation per hour per pharmacist	= 72.12
<i>Multiply by annual saving in hours</i>	x 1 992
Annual saving in labour time of pharmacists	<u>143 663</u>

6.4.3.8 Staff turnover

Lower staff turnover is another possible benefit of training that could be quantified. Research indicated that training had a positive effect on staff retention (paragraph 3.6.2.7, page 58). It can be concluded from the survey questionnaires that the training of the pharmacist's assistants had a positive effect on the pharmacist's assistants' organisational commitment (table 6.4, 6.5 and 6.6, pages 139, 140 and 141). Since the pharmacist's assistants training programme is still in the early stages of implementation, it is difficult to determine the effect on the staff turnover.

According to the results of the survey questionnaires, the trainee Basic level pharmacist's assistants, the trainee Post-Basic level pharmacist's assistants and the qualified and registered pharmacist's assistants reported that the training had a minor to moderate positive effect (tables 6.4, 6.5 and 6.6., pages 140, 142 and 143) on their organisational commitment. This increase in organisational commitment could lead to lower staff turnover, but this positive effect is offset by the recruitment of other companies. Pharmacist's assistants leave the company once training is completed due to a slight increase in salary offered by another company, which does not offer the training (paragraph 6.2.15.2, page 130). It can be concluded that there is no financial benefit as a result of the increased organisational commitment.

6.4.3.9 Cost savings

The pharmacy group saved on certain continuous professional development (CPD) courses as a result of the implementation of the training programme.

Each assessment performed by an assessor is recognised as CPD for that person to the equivalent of a CDP course valued at R300 (paragraph 6.2.12, page 127). The number of assessments is equal to the number of learners (table 6.7, page 147) multiplied by the number of assessments per level of training. The number of assessments is 13 on the Basic level and 11 on the Post-Basic level (paragraph 6.2.12, page 127).

Another saving on CPD was obtained as a result of the development of the course material. The saving is estimated at R1 300 per person for the 21 pharmacists involved in the development of the course material (paragraph 6.2.14.3, page 129).

This amounts to a saving of R27 300 (21 pharmacists x R1 300) in 2002.

Calculation 22: Savings on CPD

	2002 R	2003 R	2004 R	2005 R
Assessments:				
Basic level				
Number of learners (table 6.7, p. 147)	76	100	61	80
<i>Multiply by number of assessments per level</i>	13	13	13	13
Number of assessments	988	1 300	793	1 040
Post-Basic level				
Number of learners (table 6.7, p. 147)	14	33	27	29
<i>Multiply by number of assessments per level</i>	11	11	11	11
Number of assessments	154	363	297	319
Total number of CPD courses	1 142	1 663	1 090	1 359
<i>Multiply by saving per course</i>	300.00	330.00	363.00	399.30
Saving on assessments	342 600	548 790	395 670	542 649
Development of material:				
Number of pharmacists involved	21		21	
<i>Multiply by saving per pharmacist</i>	1 300		1 573	
Saving on development	27 300	0	33 033	0
Total CPD saving	369 900	548 790	428 703	542 649

6.4.3.10 Income from other users

Opportunity cost occurs when choosing one option or alternative above another results in the loss of income or the forfeit of an economical benefit (Blocher *et al.*, 2002:82; Garrison *et al.*, 2003:39; Brigham & Ehrhardt, 2005:383) (paragraph 3.2.6, page 36).

The pharmacy group presents the training programme to internal as well as external learners. The fee charged to the external learners amounts to R5 000 per annum (paragraph 6.2.15.3, page 131). The total income that would be forfeited if the training programme was not presented in-house is presented in calculation 23:

Calculation 23: Income from external learners

	2002	2003	2004	2005
	R	R	R	R
Number of external learners (table 6.7, p. 147)	64	108	76	92
<i>Multiply by training fee per annum</i>	5 000	5500	6 050	6 655
Income from external learners	320 000	594 000	459 800	612 260

Other users buy the course material from the pharmacy group (paragraph 6.2.15.3, page 131). The Operations Manager provided the researcher with the information on the number of learners as well as the fees that are paid to the company per learner:

Calculation 24: Income from sale of material

	2002	2003	2004	2005
	R	R	R	R
Basic level:				
Number of learners	19		32	
<i>Multiply by fee per learner</i>	2 000		2 000	
Income from sale of material	38 000	0	64 000	0
Post-Basic level:				
Number of learners	2		67	
<i>Multiply by fee per learner</i>	2 000		1 000	
Income from sale of material	4 000	0	67 000	0
Total income from sale of material	42 000	0	131 000	0

6.4.4 Summary

The costs and benefits of the training of the pharmacist's assistants to the pharmacy group is summarised below. Tax is calculated on the net income and taken into account. It is assumed that the company has sufficient income from other sources to fully utilise any tax allowances in the year

in which they occur. Note that the annual costs and benefits presented in calculation 25 also present the annual cash flows of the training programme.

Calculation 25: Net income from training programme

	2002 R	2003 R	2004 R	2005 R
Total annual expenses				
Development of material (Calc. 6, p.154)	1 072	4 547	52 643	5 501
Attendance cost (Calc. 9, p.156)	30 334	44 279	37 780	47 415
Cost of material (Calc. 11, p.158)	22 247	34 144	23 918	33 470
Travelling cost (Calc. 12, p.160)	6 000	6 600	7 260	7 986
Administration cost (Calc. 13, p.161)	408 098	446 907	491 598	540 757
Assessment cost (Calc. 16, p. 163)	232 474	262 121	288 553	317 651
Salaries: 18(2) learners (Calc. 17, p.164)	18 000	0	0	0
Total annual cost	718 225	798 597	901 752	952 780
Total annual income				
Discretionary grants (Calc. 18, p. 165)	280 500	0	0	0
Saving in mistakes (Calc. 20, p. 167)	12 000	13 200	14 520	15 972
Labour saving (Calc. 21, p. 169)	143 663	158 029	173 832	191 216
Saving on CPD (Calc. 22, p. 171)	369 900	548 790	428 703	542 649
Fees: external learners (Calc. 23, p. 172)	320 000	594 000	459 800	612 260
Sale of training material (Calc. 24, p.172)	42 000	0	131 000	0
Total annual income	1 168 063	1 314 019	1 207 855	1 362 096
Taxable income:				
Total annual income	1 168 063	1 314 019	1 207 855	1 362 096
Total annual expenses	718 225	798 597	901 752	952 780
	449 838	515 422	306 103	409 316
Less: Tax deduction (Calc. 19, p. 166)	291 500	0	0	0
Taxable income	158 338	515 422	306 103	409 316
Net income after tax:				
Income less expenses	449 838	515 422	306 103	409 316
Tax at 30%	47 501	154 627	91 831	122 795
Net income	402 337	360 796	214 272	286 521

The initial investment in the training programme at the beginning of the project is calculated in calculation 26:

Calculation 26: Total initial investment in training programme

	R
Development and preparation of material (Calc. 5, p. 153)	617 850
Initial cost of assessments (Calc. 14, p. 161)	31 500
Total initial investment	649 350
Less: Tax at 30%	194 805
Initial investment after tax	454 545

Although tax is usually paid at the end of the year, it is assumed for the purposes of this case study that the tax effect of a transaction occurs at the same time as the underlying transaction (paragraph 6.4.1.5, page 148).

6.5 CALCULATING THE COSTS AND BENEFITS OF THE OUTSOURCING OF THE TRAINING OF PHARMACIST'S ASSISTANTS

The specific objective (objective 1.3.2.6. page 5) was to determine what the implications (costs and benefits) of the outsourcing of the training of pharmacist's assistants in a corporate pharmacy group entail.

In order to find the answer to the research question, the costs and benefits of the outsourcing of the training of the pharmacist's assistants are discussed and calculated below.

6.5.1 Training fees

The average market related fee for the training of a pharmacist's assistant is R6 000 per annum (paragraph 6.2.14.1, page 128) for both the Basic and Post-Basic level. The total cost of completing the Basic and Post-Basic level is therefore R12 000.

The total annual training fees are calculated by multiplying the number of learners (table 6.7, page 147) with the training fee of R6 000 per annum.

Calculation 27: Total annual training fees of outsourcing

	2002	2003	2004	2005
	R	R	R	R
Number of internal learners (table 6.7, p. 148)	26	25	12	17
<i>Multiply by training fee per annum</i>	<i>6 000</i>	<i>6 600</i>	<i>7 260</i>	<i>7 986</i>
Annual training fees	156 000	165 000	87 120	135 762

6.5.2 Travelling cost

The pharmacy group will have to bear the costs of transporting the learners to the training sites. It is assumed that the provider will deliver the courses in the major centres. The learners will have to travel an average of 140 kilometres per round trip. The company provides two cars per area and the courses are presented four times per annum (paragraph 6.2.14.2, page 129). According to the Operations Manager the average travelling cost per kilometre is R1.53.

Calculation 28: Total annual cost of outsourcing

	2002	2003	2004	2005
	R	R	R	R
Training fees (Calc. 27, p. 175)	156 000	165 000	87 120	135 762
Travel cost (140 km x 2 cars x 4 p.a. x R1.53)	1 714	1 885	2 073	2 281
	157 714	166 885	89 193	138 043
Tax at 30%	47 314	50 065	26 758	41 413
Total annual cost of outsourcing	110 400	116 819	62 435	96 630

6.6 DETERMINING HOW IN-HOUSE TRAINING AND THE OUTSOURCING OF TRAINING COMPARE IN TERMS OF COSTS AND BENEFITS FOR A CORPORATE PHARMACY GROUP

The research question sought to determine how the approaches of in-house training and the outsourcing of the training compare in terms of costs and benefits for a corporate pharmacy group.

This was also a stated specific objective of the study (objective 1.3.2.7, page 5). The following hypothesis was stated:

The costs of the establishment of the infrastructure for in-house training will exceed the costs of the utilisation of external training providers. However, the benefits of in-house training will surpass the benefits of outsourcing in the long-term.

The decision whether to do in-house training or to outsource the training to an external provider is in effect a make-or-buy decision (paragraph 3.5, page 49). Greaver (1999:158) suggests that a net present value calculation should be done by comparing the present value of the net cash flows of presenting the training programme in-house with the net present value of outsourcing the training (paragraph 3.5, page 49).

6.6.1 Net present value of in-house training

Only the costs that differ between the two options are taken into account (Horngren, 2003:376) (paragraph 3.5, page 49). The **financial benefits obtained from the reduction in the number of mistakes and the saving in terms of pharmacist's time** as a result of the training of pharmacist's assistants are irrelevant to the decision. These savings will be incurred, irrelevant of where the pharmacist's assistants receive their training and are not included in the calculation. It could be argued that the saving would be larger if they are trained in-house because the training will be customised for the unique circumstances within a company. The researcher does not have the information to perform such a calculation.

The costs and benefits of the in-house training as revised for the make-or-buy decision are presented in calculation 29 below. These costs and benefits also present the annual after-tax cash flows.

Calculation 29: Net income from an in-house training programme

	2002 R	2003 R	2004 R	2005 R
Total annual expenses				
Development of material (Calc. 6, p.154)	1 072	4 547	52 643	5 501
Attendance cost (Calc. 9, p. 156)	30 334	44 279	37 780	47 415
Cost of material (Calc. 11, p. 158)	22 247	34 144	23 918	33 470
Travelling cost (Calc. 12, p.160)	6 000	6 600	7 260	7 986
Administration cost (Calc. 13, p.161)	408 098	446 907	491 598	540 757
Assessment cost (Calc. 16, p. 163)	232 474	262 121	288 553	317 651
Salaries: 18(2) learners (Calc. 17, p. 164)	18 000	0	0	0
Total annual costs	718 225	798 597	901 752	952 780
Total annual income				
Discretionary grants (Calc 18, p. 165)	280 500	0	0	0
Saving on CPD (Calc. 22, p. 171)	369 900	548 790	428 703	542 649
Fees: external learners (Calc. 23, p. 172)	320 000	594 000	459 800	612 260
Sale of training material (Calc. 24, p.172)	42 000	0	131 000	0
Total annual income	1 012 400	1 142 790	1 019 503	1 154 909
Taxable income:				
Total annual income	1 012 400	1 142 790	1 019 503	1 154 909
Total annual expenses	718 225	798 597	901 752	952 780
	294 175	344 193	117 751	202 128
Less: Tax deduction (Calc. 19, p. 166)	291 500	0	0	0
Taxable income	2 675	344 193	117 751	202 128
Net income after tax:				
Income less expenses	294 175	344 193	117 751	202 128
Tax at 30%	803	103 258	35 325	60 638
Net income	293 373	240 935	82 426	141 490

The annual after-tax inflows presented in calculation 29 are discounted at the required rate of return of 14% (paragraph 6.4.1.5, page 148) to determine the present value of the inflows. The initial investment in the training programme (calculation 26, page 174) is deducted from the present value of the annual after-tax inflows to calculate the net present value of the in-house training programme (paragraph 4.5.2, page 87):

Calculation 30: Net present value of in-house training

	After-tax cash flow R	Present value factor 14%	Present value R
Initial investment (Calc. 26, p. 174)	-454 545	1.000	-454 545
Year 1 (2002) (Calc. 29, p. 177)	293 373	0.877	257 288
Year 2 (2003) (Calc. 29, p. 177)	240 935	0.769	185 279
Year 3 (2004) (Calc. 29, p. 177)	82 426	0.675	55 637
Year 4 (2005) (Calc. 29, p. 177)	141 490	0.592	83 762
Net present value			<u>127 421</u>

6.6.2 Net present value of outsourcing

No adjustments are made to the annual cash flows of the outsourcing of training. The net present value of the outsourcing decision is presented in calculation 31:

Calculation 31: Net present value of the outsourcing of training

	After-tax cash flow R	Present value factor 14%	Present value R
Initial investment	0	1.000	0
Year 1 (2002) (Calc. 28, p.175)	-110 400	0.877	-96 820
Year 2 (2003) (Calc. 28, p.175)	-116 819	0.769	-89 834
Year 3 (2004) (Calc. 28, p.175)	-62 435	0.675	-42 144
Year 4 (2005) (Calc. 28, p.175)	-96 630	0.592	-57 205
Net present value			<u>-286 003</u>

6.6.3 Results in terms of the hypothesis statement

Based on the above net present value calculations (calculation 30 and 31, page 178) of the training company, the net present value of the in-house option exceeds the net present value of that of the outsourcing option and the hypothesis is therefore rejected.

6.7 EVALUATION OF THE PERFORMANCE OF THE TRAINING PROGRAMME FOR PHARMACIST'S ASSISTANTS IN A CORPORATE PHARMACY GROUP

The research question sought to determine the performance of the training and development programme for pharmacist's assistants in a corporate pharmacy group (objective 1.3.2.8, page 5). The researcher will attempt to illustrate the performance of the training programme by utilising the techniques described in the literature study in chapter 4 (paragraph 4.5, page 81). The researcher assumes that the original investment in the training programme (calculation 26, page 174) can be seen as the investment in the project and will be uniformly consumed.

6.7.1 Return on investment (ROI)

Based on the literature (paragraph 4.5.1, page 82) the researcher is of the opinion that the **accounting rate of return** will provide the best indication of the return on the investment in the training programme for the training of pharmacist's assistants. The researcher further assumes that the initial investment in the training programme is the investment.

The accounting rate of return is the average annual profits of a project expressed as a percentage of the average investment in that project or as a percentage of the original investment. It is calculated by using the net profit and not the annual cash flows. The average annual profit is calculated by dividing the total profit by the economical life of the investment in years; and the average investment is the initial investment plus the salvage value divided by two (Drury, 204:513; Firer *et al.*, 2004:259; Correia *et al.*, 2003:8-11; Hansen & Mowen, 2003:907) (paragraph 4.5.1, page 82).

The accounting rate of return of the investment in the training programme can be calculated as follows:

Calculation 32: Accounting rate of return

$$\begin{aligned}\text{Accounting rate of return} &= \frac{\text{Average net profit}}{\text{Average investment}} \\ &= \frac{(402\,337 + 360\,796 + 214\,272 + 286\,521) / 4}{(454\,545 + 0) / 2} \\ &= 1.39\end{aligned}$$

The average net profit in this formula is the net income of the programme (calculation 25, page 173), while the investment represents the initial investment in the programme (calculation 26, page 174).

6.7.2 Net present value

The net present value of the training programme is calculated to measure whether the investment will result in an increase in the value of the pharmacy group. The net present value is the sum of the present value of the discounted future cash flows of the programme less the initial investment in the training programme (Correia, 2003:8-6; Brigham & Ehrhardt, 2005:349; Hansen & Mowen, 2003:909) (paragraph 4.5.2, page 87).

The net present value of the investment in the training programme is calculated by discounting the annual cash flows (calculation 25, page 173) at the cost of capital of 14% (paragraph 6.4.1.5, page 148) and subtracting the original investment (calculation 26, page 174) from the answer:

Calculation 33: Net present value

	After-tax cash flow R	Present value factor 14%	Present value R
Initial investment	-454 545	1.000	-454 545
Year 1 (2002)	402 337	0.877	352 849
Year 2 (2003)	360 796	0.769	277 452
Year 3 (2004)	214 272	0.675	144 634
Year 4 (2005)	286 521	0.592	169 620
Net present value			<u>490 010</u>

The net present value of R490 010 is the value that is added to the company by the training of the pharmacist's assistants.

6.7.3 Benefit/cost ratio

The benefit/cost ratio is also referred to as the **profitability index (PI)**. The profitability index is the present value of future cash flows divided by the initial investment (Drury, 2004:508; Firer *et al.*, 2004:273; Brigham & Ehrhardt, 2005:359; Correia, 2003:8-13) (paragraph 4.5.3, page 89). The

researcher prefers this method for calculating the benefit/cost ratio as the programme has an economical life of more than one year.

The profitability index is calculated by dividing the present value of the future cash flows (calculation 33, page 180) by the investment in the training programme (calculation 26, page 174):

Calculation 34: Benefit/cost ratio

$$\begin{aligned}
 \text{PI} &= \frac{\text{Present value of future cash flows}}{\text{Investment}} \\
 &= \frac{944\,555}{454\,545} \\
 &= 2.08
 \end{aligned}$$

The ratio is more than one, and the investment would have been accepted (Drury, 2004:508; Firer *et al.*, 2004:273; Brigham & Ehrhardt, 2005:359; Correia, 2003:8-13) (paragraph 4.5.3, page 89).

6.7.4 Payback period

The payback period for the investment in the pharmacist's assistant training programme is the time that it will take to recover the initial investment in the programme from the annual cash flows generated by the programme (Correia *et al.*, 2003:8-10; Brigham & Ehrhardt, 2005:347; Hansen & Mowen, 2003:906) (paragraph 4.5.4, page 90).

The annual cash flows from the training of pharmacist's assistant programme (calculation 25, page 173) are not even, and therefore the payback period of the investment in the training programme can be calculated as follows (Brigham & Ehrhardt, 2005:347) (paragraph 4.5.4, page 90):

Calculation 35: Payback period

$$\begin{aligned}
 \text{Payback period} &= \text{Year before full recovery} + \frac{\text{Unrecovered cost at start of year}}{\text{Cash flow during year}} \\
 &= 1 + (52\,208 / 360\,796) \\
 &= 1.14 \text{ years}
 \end{aligned}$$

The initial investment of R454 545 (calculation 26, page 174) will be recovered in less than two years. This calculation does however not take into account the time value of money. The discounted payback period can be calculated to take into account the time value of money by using the present value of the annual cash flows as calculated in calculation 33 (page 180).

Calculation 36: Discounted payback period

$$\begin{aligned}\text{Discounted payback period} &= \text{Year before full recovery} + \frac{\text{Unrecovered cost at start of year}}{\text{Present value of cash flow during year}} \\ &= 1 + (101\,696 / 277\,452) \\ &= 1.37 \text{ years}\end{aligned}$$

Although the discounted payback period is slightly longer than the payback period, it is still under two years.

6.7.5 Internal rate of return

The internal rate of return for the training project is the rate of return where the present value of the net future cash flows will equal the initial cost of the investment in the programme. If the IRR of the programme exceeds the cost of capital of 14% (paragraph 6.4.1.5, page 148), the programme will add value to the company (Correia *et al.*, 2003:8-7; Brigham & Ehrhardt, 2005:351; Phillips *et al.*, 2001:243; Garrison *et al.*, 2003:368; Firer *et al.*, 2004:261) (paragraph 4.5.5, page 92).

The IRR can be calculated by a process of trial and error or by using a financial calculator (Brigham & Ehrhardt, 2005:352).

Calculation 37: Internal rate of return

The IRR of the training programme is calculated by entering the annual net after-tax cash flows (calculation 25, page 173) into the Sharp EL-735 financial calculator:

	RCL	CFi	2ndF	CA	ENT
- 454 545	CFi				
402 337	CFi				
360 796	CFi				
214 272	CFi				
286 521	CFi				
COMP	IRR				
	= 66.7%				

This is much higher than the required rate of return of 14% and the programme is therefore adding value to the company.

6.7.6 Residual income

Residual Income (RI) is the operating income of the company less a minimum required return on the investment. This required return is calculated by multiplying the operating assets with the minimum rate of return required by the company (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364; Drury, 2004:846) (paragraph 4.5.6, page 93).

The operating assets for the training programme are the investment before tax in the training programme of R649 350 (calculation 26, page 174) and the operating income is the income before tax (calculation 25, page 173). The residual income is calculated for each of the four years as well as an average for the four years under review.

The formula for the calculation of RI is (Horngren *et al.*, 2003:789; Hansen & Mowen, 2003:364):

Calculation 38: Residual income

Residual income (2002)	= Income – (Required rate of return x Investment) = 449 838 – (14% x R649 350) = 358 929
Residual income (2003)	= 515 422 – (14% x R649 350) = 424 513
Residual income (2004)	= 306 103 – (14% x 649 350) = 215 194
Residual income (2005)	= 409 316 – (14% x R649 350) = 318 407
Average RI	= 420 170 – (14% x R649 350) = 329 261

The training programme has a residual income in each of the four years over and above the charge for the required return on the investment.

6.7.7 Economic value added

The economic value added (EVA) of the training programme is the earnings of the programme once the cost of capital is deducted and measures whether shareholder wealth was created by the programme. EVA is calculated by subtracting an amount for the opportunity cost of all capital invested in the programme from the after-tax operating profit (Correia *et al.*, 2003:5-23, 8-13; Brigham & Ehrhardt, 2005:110) (paragraph 4.5.7, page 94).

The after-tax profits of the programme were calculated in calculation 25 (page 173) and the capital employed is the investment in the programme (calculation 26, page 174). The cost of capital charge for the programme is 14% (paragraph 6.4.1.5, page 148). The formula for calculating the EVA of the programme is the after-tax operating profit less the cost of capital multiplied by the total capital employed (Correia *et al.*, 2003:5-23; Horngren *et al.*, 2003:790; Hansen & Mowen, 2003:365; Brigham & Ehrhardt, 2005:110; Drury, 2004:848) (paragraph 4.5.7, page 94):

Calculation 39: Economic value added

$$\begin{aligned}\text{EVA (2002)} &= \text{after-tax operating profit} - (\text{cost of capital} \times \text{total capital employed}) \\ &= 402\,337 - (14\% \times 454\,545) \\ &= 338\,701\end{aligned}$$

$$\begin{aligned}\text{EVA (2003)} &= 360\,796 - (14\% \times 454\,545) \\ &= 297\,160\end{aligned}$$

$$\begin{aligned}\text{EVA (2004)} &= 214\,272 - (14\% \times 454\,545) \\ &= 150\,636\end{aligned}$$

$$\begin{aligned}\text{EVA (2005)} &= 286\,521 - (14\% \times 454\,545) \\ &= 222\,885\end{aligned}$$

$$\begin{aligned}\text{EVA (average)} &= 316\,095 - (14\% \times 454\,545) \\ &= 252\,459\end{aligned}$$

Brigham and Ehrhardt (2005:110) specify that the capital employed is the capital used to support operations. Current liabilities should be deducted from the total assets, but there were no current liabilities in this case study. Expenses that have long-term benefits must be treated as assets rather than expenses when calculating EVA to ensure that income is more closely aligned with economic income. These expenses are investments used to earn income and can be treated as such in the EVA calculation (Correia *et al.*, 2003:8-15; Horngren *et al.*, 2003:790; Hansen & Mowen, 2003:366) (paragraph 4.5.7, page 94). The initial investment in the programme (calculation 26, page 174) is therefore used in this calculation.

6.7.8 Bottom line evaluation

This measure of performance requires pre- and post-training productivity measures (paragraph 4.5.8, page 97). Since the training programme has only been running for two years, there is not enough information available to do this calculation.

6.7.9 Utility analysis

As with the bottom line evaluation, this calculation requires information that the researcher does not have available (paragraph 4.5.9, page 98). The calculation can therefore not be performed.

6.8 SUMMARY

In this chapter the results of the empirical study were presented and discussed.

The information obtained during the interviews with the key personnel in the pharmacy group was presented. The results obtained from the survey questionnaires to measure the impact of the training on the pharmacist's assistants as perceived by the pharmacist's assistants themselves and by their supervising pharmacists, were presented and discussed. The training had an overall positive impact on the pharmacist's assistants and it was possible to quantify some of the results obtained from the survey questionnaires.

The costs and benefits were calculated for the in-house training of pharmacist's assistants as well as for the outsourcing thereof. These two approaches were compared by applying the net present value method to the annual after-tax cash flows of each approach. The net present value of presenting the training programme in-house amounts to R127 421 (calculation 30, page 178). The net present value of the outsourcing of training amounts to a negative amount of R286 003 (calculation 31, page 178). Therefore, the in-house training of pharmacist's assistants adds more value to the pharmacy group.

The performance of the in-house training programme of the pharmacy group was measured by applying the techniques obtained from the literature. The results are presented in table 6.9 below:

Table 6.9: Results of performance evaluation on in-house training programme for pharmacist's assistants in a corporate pharmacy group

Performance measure	Results				
	Total project	2002	2003	2004	2005
Accounting rate of return (Calc. 32, p. 179)	1.39				
Net present value (Calc. 33, p. 180)	R490 010				
Benefit/cost ratio (Calc. 34, p. 181)	2.08				
Payback period (Calc. 35, p. 181)	1.14 years				
Discounted payback period (Calc. 36, p. 182)	1.37 years				
Internal rate of return (Calc. 37, p. 183)	66.7%				
Residual income (Calc. 38, p. 184)	R 329 261	R358 929	R424 513	R215 194	R318 407
Economic value added (Calc. 39, p. 185)	R252 459	R338 701	R297 160	R150 636	R222 885

The results indicate that the programme for the in-house training of the pharmacist's assistants is adding value to the pharmacy group and that the return on the programme exceeds the required return of 14%.

Thus, the fourth, fifth, sixth, seventh and eighth research question has been answered and the specific research objectives have been reached.

Chapter 7 will offer the conclusions and recommendations.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The final specific research objective (paragraph 1.3.2.9, page 5) was to formulate recommendations regarding the financial viability of the establishment of an in-house infrastructure versus the utilisation of external training providers for the training of pharmacist's assistants in a corporate pharmacy group. In this concluding chapter, the findings of the research, as it relates to the research question, will briefly be discussed. Furthermore, the limitations are highlighted and recommendations are made. Finally some research options are also suggested.

7.2 CONCLUSIONS

The conclusions of the research will be discussed based on the specific objectives of the research and the results obtained during the empirical study.

7.2.1 Conclusions regarding the specific theoretical objectives

The results obtained from the literature study to reach objectives 1.3.2.1 to 1.3.2.3 (page 5) are discussed below:

7.2.1.1 Legislation and pharmaceutical regulatory requirements that influence the training and development of pharmacist's assistants in South Africa

The legislation and pharmaceutical regulatory requirements that influence the training and development of pharmacist's assistants in South Africa (objective 1.3.2.1, page 5) were researched from the literature (Chapter 2, page 12). This was necessary as training and development in South Africa is governed by legislation and training and education has become a national priority since the ANC came into power. Three important pieces of legislation were identified from the literature, namely the SAQA Act, the Skills Development Act and the Skills Development Levies Act. The Skills Development Levies Act in effect forces companies to pay skills levies. The aims of these acts are to develop the skills of the

South African workforce, to increase the levels of education and training, to encourage employers to provide opportunities for current employees and new entrants to the labour market, to encourage workers to participate in learnerships and other training programmes, to improve the employment prospects of previously disadvantaged people and to ensure the quality of education in South Africa.

The Health and Welfare Sector Education Training Authority (HWSETA) identified the need to increase the human resource pool in the pharmaceutical industry and came up with the pharmacist's assistant learnership. The pharmacist's assistant always works under the direct supervision of a qualified pharmacist.

7.2.1.2 The measurement of the costs and benefits of training and development

A literature study on the measurement of the costs and benefits of training and development (research objective 1.3.2.2, page 5) revealed that current practices include a variety of methods and techniques for the measurement and assigning of the costs of a training programme (Chapter 3, page 30). The **costs of a training programme** mainly entail the costs of a needs assessment, the development and preparation of the material, training attendance costs, instructors' cost, the cost of facilitators and coordinators, the cost of materials and facilities, travelling costs, promotional costs, administration costs and the costs of evaluations or assessments.

The training of employees can be **outsourced** to service providers. Apart from the qualitative factors that should be kept in mind when outsourcing the training function, the economic viability must be evaluated. This is done by comparing the costs and benefits of outsourcing with the costs and benefits of in-house training by means of a make-or-buy decision. Only relevant costs, i.e. the costs that will differ for the two decisions are taken into account in making this decision. Sunk costs and any costs that do not differ between the two options are not relevant and should not be taken into account.

The literature study yielded little on the subject of assessing **the benefits of training and development** programmes. Most writers agree that it is senseless to measure the costs of training without taking into account the economic benefits. These writers also agree that the benefits are however not easy to measure and quantify. Benefits include the skills development grants that can be claimed, tax benefits, increases in productivity, sales and quality as well as other cost savings such as a lower personnel turnover and a reduction in bad debts. Other factors could play a role in the latter and it is important to isolate the effects of

the training programme. Training and development has intangible benefits that cannot be converted to monetary value but they are crucial to the overall evaluation process. These benefits include customer satisfaction, reduced employee withdrawal, increased customer service and increased team effectiveness.

7.2.1.3 Performance evaluation of training and development

The techniques for the evaluation of the performance of training programmes (objective 1.3.2.3, page 5) were researched from the literature (Chapter 4, page 63). Most writers seem to agree that return on investment should be calculated in order to do a performance evaluation of training and development. In the past, organisations measured the learning effect of the training programmes without taking into account the economical impact. A fifth level has now been added to the traditional Kirkpatrick model of training evaluation. This level measures the return on investment of training and development programmes. The effectiveness of training and development programmes is still being assessed by using capital budgeting techniques that are usually applied to capital investments. The problem with this is that human capital does not depreciate over time, but competencies, attitudes and skills can be expected to grow instead (Swanson, 2001:10). The techniques used to evaluate the performance of training programmes are, *inter alia*, return on investment, benefit/cost ratio, payback period, net present value, internal rate of return, residual income, economic value added, bottom-line evaluation and utility analysis.

The conclusion from the above is that it has become increasingly important for organisations to invest in their human capital. Training and development programmes should be evaluated to determine their financial viability and in doing so, all the costs and benefits should be taken into account.

7.2.2 Conclusions regarding the specific empirical objectives

The following conclusions were made based on the results of the empirical study in reaching objectives 1.3.2.4 to 1.3.2.8:

7.2.2.1 The impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists

The research question (objective 1.3.2.4, page 5) sought to determine the impact of the training intervention in a corporate pharmacy group as perceived by the pharmacist's assistants as well as the pharmacy managers and pharmacists. Results on the following two areas are discussed:

- **The effect of training on the learner's ability to perform tasks:**

The overall impact of the training of the pharmacist's assistants in the corporate pharmacy group was perceived as positive by the pharmacist's assistants and their supervising pharmacists (paragraph 6.3.1, page 131). The qualified and registered Post-Basic level pharmacist's assistants experienced the most improvement in their ability to perform tasks. The most positive effect was on their ability to maintain stock and the ability to ensure the proper packaging of medicine. Although the pharmacist's assistants experienced a moderate to substantial improvement regarding their dispensing abilities, their supervisors indicated that the training had a substantial to major impact on these abilities. The training also resulted in a moderate to substantial positive effect on the intra- and interpersonal skills of the pharmacist's assistants. On average, the learners reported less improvement than their supervising pharmacists. This phenomenon was justified from the literature.

Although the trainee Post-Basic level learners experienced slightly less improvement than the qualified and registered Post-Basic level learners, their ratings were more in line with that of their supervising pharmacists. The most improvement on this level of training was experienced in the packaging of medicine, the ability to participate in stocktaking procedures, the ability to control and distribute medicine and the picking of medicine from the shelf. It was interesting to note that all of these competencies were dealt with in the Basic level of training which all of the Post-Basic level trainees had already completed.

The training contributed substantially to the life and intra- and interpersonal skills of the trainee Basic level pharmacist's assistants. They perceived the most improvement in their ability to perform as part of a team, their ability to pick medicine from a shelf, their ability to maintain and file documentation, their understanding and application of legal and ethical principles, their ability to take responsibility for own outcomes, their ability to sustain interpersonal relationships and their ability to use a computer.

- **The effect of training on the work outputs of learners**

The training contributed to an improvement in the work outputs of qualified pharmacist's assistants as well as the work outputs of learners on both levels (paragraph 6.3.2, page 138).

The trainee Basic level pharmacist's assistants perceived the most improvement in terms of their work outputs. Compared to the other two groups, the trainee Post-Basic level pharmacist's assistants experienced the most positive effect related to their self-confidence and organisational commitment.

Areas of improvement that could possibly be quantified in monetary terms were identified. These areas were the number of mistakes made by the learners before and after the training intervention and the time saved by the supervising pharmacist's. The learners did experience an improvement in their accuracy resulting in fewer mistakes. The mistakes that were avoided as a result of the training were reported to be less picking mistakes and a value was placed on this improvement. As would be expected, the pharmacist's assistants indicated a positive effect on the level of guidance needed from their supervisors. The supervising pharmacists seemed to agree with this indicating an average saving in time of 31.6 hours per pharmacist per month as a result of the training of the pharmacist's assistants. A value could also be placed on this saving.

It can be concluded from the above that the training intervention did have an overall positive effect on all three levels of pharmacist's assistants as perceived by the pharmacist's assistants themselves and by their supervisors.

7.2.2.2 Costs and benefits of the establishment of an in-house training infrastructure for the training of pharmacist's assistants in a corporate pharmacy group

The costs of the training programme for pharmacist's assistants were relatively easy to obtain and measure (objective 1.3.2.5, page 5). A detailed analysis of the pharmacy group's financial records and interviews with the key personnel made it possible to calculate the costs of the training intervention (paragraph 6.4.2, page 148). As predicted in the literature, **the benefits of the training programme** were however not so easy to calculate and some of the calculations were based on estimates. The benefits that were possible to quantify were calculated for the period under review (paragraph 6.4.3, page 164). In addition to the monetary benefits the training programme has a number of other benefits, such as improved organisational commitment by the learners, improved abilities and competencies of the

pharmacist's assistants, improved customer service and less mistakes other than the picking mistakes that were quantified. The costs were deducted from the benefits to calculate the net effect of the training programme and the results indicated that the benefits outweigh the costs (paragraph 6.4.4, page 172).

7.2.2.3 Costs and benefits of the outsourcing of the training of pharmacist's assistants in a corporate pharmacy group

The costs of the outsourcing of the training programme were calculated (objective 1.3.2.6, page 5) by making use of market related training fees (paragraph 6.5, page 174). Other costs included the cost of travelling to the training sites. The costs were added to obtain the cost of the outsourcing of the training programme for pharmacist's assistants.

7.2.2.4 Comparison of in-house training and outsourcing of training in terms of costs and benefits for a corporate pharmacy group

The results of the comparison between the outsourcing of the training option and the in-house training option in terms of costs and benefits for the corporate pharmacy group (objective 1.3.2.7), indicated that the net present value of the in-house training is more than that of the outsourcing option (paragraph 6.6, page 175) . It is therefore more financially viable for the pharmacy group to provide an in-house training structure for the training of the pharmacist's assistants. Other benefits such as high standards of learning, maintaining a certain culture in the company, and increased cooperation between managers confirm this conclusion.

7.2.2.5 Performance evaluation of the training of pharmacist's assistants in a corporate pharmacy group

An evaluation of the performance of the training programme for pharmacist's assistants was done (objective 1.3.2.8, page 5) based on costs and benefits that were calculated for the training programme (paragraph 6.7, page 179). By applying the performance evaluation techniques illustrated in the literature to the data of the pharmacy group, it was confirmed that the in-house training of the pharmacist's assistants was financially viable for the pharmacy group. All of the techniques applied indicated that the training of pharmacist's assistants added value to the company. The return on investment of the training programme, as proposed by many writers on the subject of training evaluation, yielded a return in excess of the required rate of return.

It has to be said that the calculation of the benefits is based on estimates and therefore the return on investment serves as a best estimate. There is no way to calculate the actual return on the investment.

7.3 LIMITATIONS OF THE RESEARCH

The following shortcomings that were identified during the research should be kept in mind:

- The study involved a non-probability sample constituting an entire study field in a closed environment (all pharmacist's assistants in the pharmacy group) and financial statements of one pharmacy group. Therefore the results can not be generalised to other settings.
- It was not possible to convert all of the benefits to monetary value. Some of the benefits that were calculated were based on estimates provided by the key personnel of the pharmacy group and the researcher can not verify the accuracy thereof.
- The training programme was implemented in 2002 and has only been running for two years. The information for the 2004 and 2005 years were forecasted and based on estimates and averages.

7.4 RECOMMENDATIONS

The following recommendations are made in terms of the training of pharmacist's assistants and further research:

- The pharmacy group should continue providing the pharmacist's assistants with in-house training. The in-house training option is not only financially viable, but provides other benefits such as increased organisational commitment, high standards of learning, maintaining a certain culture in the company, and increased cooperation between managers.
- Personnel of the pharmacy group have to be informed about the benefits of determining the return on investment of a training programme and trained in the implementation thereof. This is not a simple procedure and if one does not see and believe the benefits it can bring about, the implementation thereof will not succeed.

- More effort should be put into the measuring of improvement as a result of the training programme. Productivity measures or performance indicators such as the number of mistakes that are made by the pharmacist's assistants should be evaluated at different stages of implementation, i.e. before training, during training and after training. Any other factors that could have had an effect must be identified.
- When the training programme has been running for a number of years, the number of scripts at that time should be compared to the number of scripts before the training intervention. Any other factors that could have had an influence should be identified. Hereby the effect of the training intervention on the number of scripts processed can be determined.
- The costs that are contributable to the training of the pharmacist's assistants should be allocated to the training company and to the training programme.

The following recommendations are made for further research:

- The survey questionnaire should be used in other pharmaceutical companies to test its reliability and validity.
- The costs and benefits of the training of pharmacist's assistants in other companies should be measured and compared with the results of the pharmacy group in this study to verify the validity of the results.
- The techniques and guidelines for the measurement of the benefits of training programmes are few. It would be helpful if the measurement of the benefits of training in monetary terms was researched further.
- The financial viability of training programmes in other sectors should be researched.

7.5 SUMMARY

In this chapter the conclusions resulting from this study were presented and discussed.

The new legislation on training and development in South Africa impacts on the training and development in companies as they are forced to develop their workforce. The pharmacist's assistants in the corporate pharmacy group perceived the impact of the training programme as positive and this was confirmed by their supervising pharmacists. The comparison of the costs and benefits and the net present values of an in-house training programme for pharmacist's assistants in a corporate pharmacy group versus the outsourcing of the training programme proved that the in-house training programme adds more value to the company than outsourcing the training programme. It was further concluded that the training programme for pharmacist's assistants yields a return in excess of the required rate of return.

The limitations of the research were discussed and the chapter was concluded with recommendations for the training of pharmacist's assistants and for further research.

Thereby the last research question was answered and the last specific objective reached.

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APPENDIX 1: STRUCTURED INTERVIEW QUESTIONNAIRE

THE FINANCIAL VIABILITY OF THE TRAINING AND DEVELOPMENT OF PHARMACIST'S ASSISTANTS – QUESTIONNAIRE

The following questions seek to gain further insight into the processes and structure of as well as the costs involved in the learnership for pharmacist's assistants of a training company within a pharmacy group.

LEARNERSHIPS

1. Why does the company provide the Pharmacist's Assistants with training?
2. Briefly explain the process and structure of the training of pharmacist's assistants by your company.
3. How many pharmacist's assistants are currently registered under learnership agreements in your company:
 - Section 18.1 learners
 - Section 18.2 learners
4. What training courses are provided within the learnership programme?
5. How often are training courses presented?
6. How many hours does a course last?
7. How many courses are presented through the year?
8. How many days does a learner spend in training per annum?

NEEDS ASSESSMENT

9. Did the company conduct a needs assessment?
10. What job levels were involved in the needs assessment and how much time was spent by each of the staff members on the different levels?
11. What internal supplies or services were used?
12. Did the company make use of external consultants and, if so, what was the cost?

DEVELOPMENT AND PREPARATION OF THE MATERIAL

13. Who developed the training courses?
14. Why was the material developed internally/externally?
15. How much time did the developers spend on the development of the courses?

16. What are the job levels and average total compensation packages of the internal staff involved in the development of the course material?
17. Were any external developers or designers used, and if so, what were the costs involved?
18. What was the cost of materials and supplies required for the preparation of materials?
19. How often are these courses updated?
20. How much time will be spent on the updating of the courses?
21. Who will be responsible for the updates?
22. Were there any other costs incurred in the development of the course materials, such as:
 - Are there any fees for copyrights?
 - Were there any other costs such as licensing costs, travel expenses, etc.?

TRAINING ATTENDANCE COSTS

23. Are the trainees removed from the workplace for the training sessions?
24. Are the trainees replaced when they are not available to attend to their regular duties?
25. Is there a loss of productivity as a result of the absence of the trainees?
26. Are any of the following costs incurred by the company during training:
 - Lodging
 - Meals
 - Transportation
 - Other costs

INSTRUCTOR COST

27. Who acts as instructors during the training programmes?
28. What is the amount of time spent by the instructors in preparation for the workshops?

FACILITATORS AND COORDINATORS

29. Who acts as facilitators or coordinators for the training programmes?
30. How much time do the facilitators or coordinators spend?

COURSE MATERIAL

31. What course materials are used in you training programmes?
32. What are the costs of providing the attendants with material?

EQUIPMENT

33. What equipment is used for training purposes?
34. Would another department use this equipment if it were not used for training purposes?

35. Could this equipment be used to generate income if it was not used for training purposes?

FACILITIES

36. Where are the training courses presented?

37. Is this facility the property of the company or is it rented?

38. Could the facilities have been utilised for other purposes that could have added value, such as renting it out?

TRAVELLING

39. Does the company bear the cost of the following:

- Travelling by employees to the training sites;
- Travelling by employees in preparation for the training programme;
- Travelling for the development of materials; or
- Travelling by external consultants.

PROMOTIONAL COSTS

40. Briefly describe any promotion of the training courses by the company.

ADMINISTRATION

41. Do the training company bear any administration costs? Please specify.

EVALUATION/ASSESSMENT COSTS

42. Briefly describe the process of evaluation of training.

43. What costs do the company incur in the process of evaluation of the training intervention?

COST ALLOCATION

44. What overheads are allocated to the training department, e.g. cost of photocopies, water and electricity, etc.?

45. What basis is used for this allocation?

OUTSOURCING

46. Are there any options available for outsourcing?

47. What are the rates of outsourcing the current training courses to outside providers?

48. Would the company be able to utilise the facilities for other purposes if the training is outsourced?

49. Would the equipment be utilised for other purposes if the training is outsourced?

50. Would management have idle time if the training is outsourced?

51. Would there be redundant personnel if the training is outsourced?

52. Are there any other factors that should be considered in the decision to outsource the training programmes to outside training providers?

BENEFITS OF TRAINING

53. What qualitative benefits do the group derive from the training of the pharmacist's assistants?
54. Does the group experience any of the following quantitative benefits as a result of the training of the pharmacist's assistants:
- Increased sales?
 - Increased productivity?
 - Any other financial benefits?
55. Does the training of the pharmacist's assistants have an impact on results in any way?
56. Will we be able to measure an improvement in performance?
57. What other factors could have had an effect (e.g. advertising)?
58. What units of performance can be used to measure performance?
59. Can a value be placed on a unit of performance?

APPENDIX 2: TRAINING IMPACT QUESTIONNAIRE FOR PHARMACIST'S ASSISTANTS

CONFIDENTIAL

LETTER OF CONSENT

Date: _____

I, _____ hereby give my consent that the results of the completed questionnaires and the information provided by me may be used for research purposes and that the group results may be used in research articles and publications. I understand that the researchers will guarantee confidentiality regarding my personal information and results and that this information will be used anonymously for research purposes only.

Signature of participant



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SCHOOL OF ACCOUNTING SCIENCES

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21 August 2003

TO WHOM IT MAY CONCERN

We acknowledge that Mrs S. Van Rooyen is a registered Masters-degree student in Management Accounting at this University. She is carrying out her empirical research on the impact of pharmacist's assistants training. The results of this research form an important part of her studies.

Mrs Van Rooyen undertakes to treat your information confidentially.
Your cooperation in completing her questionnaire will be highly appreciated.

Yours sincerely

PROF. S.S. VISSER
STUDY LEADER AND PROGRAM LEADER:
MANAGEMENT ACCOUNTANTS' TRAINING

TRAINING IMPACT QUESTIONNAIRE FOR (TRAINEE-)PHARMACIST'S ASSISTANTS

The intention of this questionnaire is to **measure the impact of the pharmacist's assistant training** on job outputs, personal development, contribution to the organisation, and your competence and confidence in performing your job. Please rate each statement according to your perception of **improvement or no improvement**. Please provide **reasons** for your rating where applicable. Your supervisors and co-workers will also complete a similar questionnaire.

PLEASE NOTE:

- ☐ **THIS IS NOT AN EVALUATION OF YOUR PERFORMANCE BUT AN OVERALL TRAINING IMPACT STUDY.**
- ☐ **PLEASE BE HONEST IN YOUR RATINGS, WE ARE TRYING TO MEASURE THE IMPACT OF TRAINING IN TERMS OF COST-EFFECTIVENESS.**
- ☐ **THE CONFIDENTIALITY OF THE INFORMATION YOU PROVIDE IS ENSURED AND WILL BE KEPT BY THE SCHOOL OF ACCOUNTING SCIENCES AT POTCHEFSTROOM UNIVERSITY.**

NAME: _____

PHARMACY NAME: _____

INDICATE YOUR RESPONSES WITH AN "X"

Are you an 18.2 Learner?

Yes	No	Not Sure
1	2	3

EMPLOYMENT SECTOR:

Community Pharmacy	Hospital Pharmacy	Postal Pharmacy	Bulk Store	Other
1	2	3	4	5
				Specify: _____

1. Indicate your **current** pharmacist's assistant training status (i.e. how are you currently registered with Pharmacy Council)

Qualified and Registered Post-Basic	Registered as a Trainee- Post Basic level	Registered as Basic level PA and not in training	Registered as a Trainee Basic-level PA
1	2	3	4

Please state the date you've started with the PA training. If you are qualified and registered as Post Basic PA or qualified and registered as Basic Level PA – **meaning you are qualified and not in training any more**, please state the date you've started and the date of completion of training:

Starting date: _____ Completion date _____

2. a) If you are a trainee, indicate how many modules you have completed up to now.

b) Name the completed modules.

3. **Since your training**, to what extent do you think did the Pharmacist's Assistant training programme **affect your ability to perform the following tasks?**

- ☐ PLEASE INDICATE IN THE **COMMENTS/REASON BOX** WHERE AN ACTION IS **NOT APPLICABLE TO YOUR WORK SITUATION** E.G. BULK STORE PA'S AND DISPENSING ACTIONS.
- ☐ PLEASE **PROVIDE REASONS** FOR YOUR RATING IF YOU CAN (E.G. EXAMPLES OF IMPROVEMENT)-- IF THE SPACE IS NOT ENOUGH USE THE PAGES AT THE END OF THE QUESTIONNAIRE. INDICATE THE STATEMENT NUMBER AND PROVIDE YOUR REASONS.

Where:

1	2	3	4	5
No Improvement	Minor Improvement	Moderate Improvement	Substantial Improvement	Major Improvement

Since your training, to what extent do you think did the Pharmacist's Assistant **training** programme **affect** your ability to perform the following tasks?

1	2	3	4	5
No Improvement	Minor Improvement	Moderate Improvement	Substantial Improvement	Major Improvement

Ability/Skill/Application	No improvement					Major improvement	
	1	2	3	4	5	Comments or reasons	
4. Ability to approach the customer appropriately							
5. Ability to perform a final transaction associated with the sale of a product							
6. Ability to communicate well with the customer							
7. Ability to function as part of the work team							
8. Ability to monitor and maintain stock							
9. Ability to assist in stocktaking procedures							
10. Ability to handle returned goods							
11. Ability to assist and manage incoming stock							
12. Ability to do calculations (general and medicine related)							
13. Ability to ensure good practice when reconstituting or mixing a preparation according to a Rx							
14. Ability to ensure the proper packaging (pre-packaging) of medicine							
15. Ability to ensure the control and distribution of medicine							
16. Ability to collect data or information on the computer or in books e.g. MIMS							
17. Ability to understand and express him/herself in English							
18. Ability to use the computer							
19. Ability to understand basic business principles							
20. Ability to act and conduct daily practice within legal and ethical requirements							
21. Ability to apply ethical business principles							
22. Ability to take responsibility							
23. Ability to manage conflict and conflict situations							

Ability/Skill/Application	No improvement					Major improvement
	1	2	3	4	5	Comments or reasons
24. Ability to sustain interpersonal relationships with co-workers						
25. Ability to cope under stress						
26. Ability to dispense prescription and OTC medicine						
27. Ability to interpret prescriptions						
28. Ability to capture a prescription on the computer						
29. Ability to prepare labels						
30. Ability to evaluate a prescription for legality, authenticity and validity						
31. Ability to pick medicine from the shelf						
32. Ability to file and maintain documentation re. prescriptions and/or requisitions						
33. Ability to check and verify own actions and those of others in the dispensary/workplace						

34. Rate the extent to which the Pharmacist's Assistant training has affected your **self-confidence**. (**self-confidence**: the extent to which you believe in yourself as a person).

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

35. Rate the extent to which the Pharmacist's Assistant training has **empowered you to perform your job** i.e. affected your **confidence** with which you perform your daily tasks.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

36. Rate the extent to which the Pharmacist's Assistant training has affected your **self-efficacy** (self-efficacy: your belief in your **ability** to perform a task well)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

37. Rate the extent to which the Pharmacist's Assistant training has affected your **job satisfaction**.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

38. Rate the extent to which the Pharmacist's Assistant training has affected your **productivity** in the pharmacy/workplace (i.e. your work outputs)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

39. Rate the extent to which the Pharmacist's Assistant training has affected your **work speed**

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

40. Rate the extent to which the Pharmacist's Assistant training has affected the **accuracy** with which you perform your daily tasks (**accuracy** = less mistakes).

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

41. Rate the extent to which the Pharmacist's Assistant training has affected your **organizational commitment** (your commitment to S Buys as an organisation)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

42. Rate the extent to which the Pharmacist's Assistant training has affected your **overall job performance**

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

43. Rate the extent to which the Pharmacist's Assistant training has affected the **number of mistakes** made by you during the execution of your duties. Please provide examples of mistakes and reasons for the decrease or increase according to your rating.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

44. Rate the extent to which the Pharmacist's Assistant training has affected your **customer service**.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

45. To what extent did the Pharmacist's Assistant training affect the **guidance** that you need **from your supervisor** (i.e. the extent to which you can perform your duties on your own and take self-initiative. Your supervisor does not need to guide and explain step-by-step all your tasks)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

**APPENDIX 3: TRAINING IMPACT QUESTIONNAIRE FOR PHARMACY
MANAGERS AND PHARMACISTS**

PHARMACY MANAGERS AND CO-WORKERS (PHARMACISTS)

The intention of this questionnaire is to measure the impact of the pharmacist's assistant training on job outputs, personal development, contribution to the organisation, and trainee (or newly qualified post-basic) pharmacist's assistant's competence and confidence in performing his/her job. Please rate each statement according to your perception of improvement or no improvement. Please provide reasons for your rating where applicable. The trainee/post-basic level pharmacist's assistant will also complete a similar questionnaire.

PLEASE NOTE:

- ☐ THIS IS NOT AN EVALUATION OF THE TRAINEE OR QUALIFIED POST-BASIC LEVEL PHARMACIST'S ASSISTANT'S PERFORMANCE BUT AN OVERALL TRAINING IMPACT STUDY.
- ☐ PLEASE BE HONEST IN YOUR RATINGS, WE ARE TRYING TO MEASURE THE IMPACT OF TRAINING IN TERMS OF COST-EFFECTIVENESS.
- ☐ THE CONFIDENTIALITY OF THE INFORMATION YOU PROVIDE IS ENSURED AND WILL BE KEPT BY THE SCHOOL OF ACCOUNTING SCIENCES AT POTCHEFSTROOM UNIVERSITY.

NAME: _____

PHARMACY NAME: _____

NAME OF TRAINEE/NEWLY QUALIFIED PHARMACIST'S ASSISTANT:

INDICATE YOUR RESPONSE WITH AN "X"

The Rater's position:

Pharmacist and co-supervisor	Pharmacy manager	Area Manager
1	2	3

EMPLOYMENT SECTOR:

Community Pharmacy	Hospital Pharmacy	Postal Pharmacy	Bulk Store	Other
1	2	3	4	5
				Specify: _____

1. Indicate the **current** status of the pharmacist's assistant you are rating.

Qualified and Registered Post-Basic	Registered as a Trainee- Post Basic level	Registered as Basic level PA and not in training	Registered as a Trainee Basic-level PA
1	2	3	4

2. For how long have you been **working with** the trainee/newly qualified pharmacist's assistant? (State the **period** that you've been working with/supervised the PA. Include the time before training commenced where applicable.)

THE ENSUING QUESTIONS ADDRESS THE WORK ABILITY (SKILLS) OF THE TRAINEE/NEWLY QUALIFIED PA

3. Since the commencement of the pharmacist's assistant training, to what extent do you think did the Pharmacist's Assistant training programme affect the trainee/newly qualified PA's ability to perform the following tasks?

- ☐ PLEASE INDICATE IN THE COMMENTS/REASON BOX WHERE AN ACTION IS NOT APPLICABLE TO YOUR WORK SITUATION E.G. BULK STORE PA'S AND DISPENSING ACTIONS.
- ☐ PLEASE PROVIDE REASONS FOR YOUR RATING IF YOU CAN (E.G. EXAMPLES OF IMPROVEMENT)-- IF THE SPACE IS NOT ENOUGH USE THE PAGES AT THE END OF THE QUESTIONNAIRE. INDICATE THE STATEMENT NUMBER AND PROVIDE YOUR REASONS.

Where:

1	2	3	4	5
No Improvement	Minor Improvement	Moderate Improvement	Substantial Improvement	Major Improvement

Since the commencement of the pharmacist's assistant training, to what extent do you think did the Pharmacist's Assistant training programme affect the trainee/newly qualified PA's ability to perform the following tasks?

1	2	3	4	5
No Improvement	Minor Improvement	Moderate Improvement	Substantial Improvement	Major Improvement

Ability/Skill/Application	No improvement					Major improvement	
	1	2	3	4	5	Comments or reasons	
4. Ability to approach the customer appropriately							
5. Ability to perform a final transaction associated with the sale of a product							
6. Ability to communicate well with the customer							
7. Ability to function as part of the work team							
8. Ability to monitor and maintain stock							
9. Ability to assist in stocktaking procedures							
10. Ability to handle returned goods							
11. Ability to assist and manage incoming stock							
12. Ability to do calculations (general and medicine related)							
13. Ability to ensure good practice when reconstituting or mixing a preparation according to a Rx							
14. Ability to ensure the proper packaging (pre-packaging) of medicine							
15. Ability to ensure the control and distribution of medicine							
16. Ability to collect data or information on the computer or in books e.g. MIMS							
17. Ability to understand and express him/herself in English							
18. Ability to use the computer							
19. Ability to understand basic business principles							
20. Ability to act and conduct daily practice within legal and ethical requirements							
21. Ability to apply ethical business principles							
22. Ability to take responsibility							
23. Ability to manage conflict and conflict situations							

Ability/Skill/Application	No improvement					Major improvement
	1	2	3	4	5	Comments or reasons
24. Ability to sustain interpersonal relationships with co-workers						
25. Ability to cope under stress						
26. Ability to dispense prescription and OTC medicine						
27. Ability to interpret prescriptions						
28. Ability to capture a prescription on the computer						
29. Ability to prepare labels						
30. Ability to evaluate a prescription for legality, authenticity and validity						
31. Ability to pick medicine from the shelf						
32. Ability to file and maintain documentation re. prescriptions and/or requisitions						
33. Ability to check and verify own actions and those of others in the dispensary/workplace						

THE ENSUING QUESTIONS ADDRESS THE WORK OUTPUTS OF THE TRAINEE/NEWLY QUALIFIED PA

34. Rate the extent to which the Pharmacist's Assistant training has affected the trainee/newly qualified PA's self-confidence. (self-confidence: the extent to which the PA believe in him/herself as a person)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

35. Rate the extent to which the Pharmacist's Assistant training has **empowered the trainee/newly qualified PA to perform his/her job** i.e. affected the **confidence** with which he/she performs daily tasks.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

36. Rate the extent to which the Pharmacist's Assistant training has affected the trainee/newly qualified PA's **productivity** in the pharmacy/workplace (i.e. his/her work outputs)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

37. Rate the extent to which the Pharmacist's Assistant training has affected trainee/newly qualified PA's work speed

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

38. Rate the extent to which the Pharmacist's Assistant training has affected the accuracy with which the trainee/newly qualified PA's perform his/her daily tasks (accuracy = less mistakes).

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

39. Rate the extent to which the Pharmacist's Assistant training has affected the trainee/newly qualified PA's organizational commitment (his/her commitment to S Buys as an organisation)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

40. Rate the extent to which the Pharmacist's Assistant training has affected the trainee/newly qualified PA's overall job performance

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

41. Rate the extent to which the Pharmacist's Assistant training has affected the number of mistakes made by the trainee/newly qualified PA's during the execution of his/her duties. Please provide examples of mistakes and reasons for the decrease or increase according to your rating.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

42. Rate the extent to which the Pharmacist's Assistant training has affected the trainee/newly qualified PA's customer service.

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

43. To what extent did the Pharmacist's Assistant training affect the guidance that the trainee/newly qualified PA's needs from you the supervisor/manager/pharmacist (i.e. the extent to which he/she can perform his/her duties on his/her own and take self-initiative. You do not need to guide and explain step-by-step all the tasks)

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

THE ENSUING QUESTIONS ADDRESS THE WORK OUTPUTS AND PERCEPTIONS OF THE PHARMACY MANAGER AND PHARMACIST/SUPERVISOR

44. Rate the extent to which the Pharmacist's Assistant training has affected **your (the manager or pharmacist's) workload.**

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

Please give an indication of the saving in time (hours per month) due to the above reduction in your workload.

45. Rate the extent to which the Pharmacist's Assistant training has affected **your (the manager or pharmacist's) trust in the ability of the trainee/newly qualified PA.**

Major negative effect	Moderate Negative effect	Minor negative effect at all	No effect at all (Neutral)	Minor positive effect	Moderate positive effect	Major positive effect
1	2	3	4	5	6	7

Motivate your rating (provide reasons or examples):

APPENDIX 4: INFLATION RATE

Education inflation appears entrenched at 10% pa

