Title   A framework for assessing the impact of investment in human capital development on organisational performance

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A FRAMEWORK FOR ASSESSING THE IMPACT OF INVESTMENT IN HUMAN CAPITAL DEVELOPMENT ON ORGANISATIONAL PERFORMANCE

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A Framework for Assessing the Impact of Investment in Human Capital Development on Organisational Performance

By

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Dedication

I dedicate this thesis to my late father and mother because it was their

dream to see me at the peak of my career. Their continuous

encouragement and unwavering belief in my ability gave me the

courage to accomplish this task.

May the glory be theirs!

Abstract

This thesis aims to empirically examine the impact of investing in human capital development on organisational performance. It examines the relevant literature on human resource accounting and human capital development from different methodological strands and synthesises its findings in the development of a new theoretical framework. The literature review points out the challenges that remain to enterprises in quantifying and measuring the benefits of human capital development. The proposed framework takes into account those conceptual aspects of human resource accounting that how investment in human capital development can be measured to investigate the financial returns for organisations. The said framework also considers various contextual contingent factors that lead to a higher level of human resource sophistication and consequently which could affect the organisational performance. On the basis of relationships predicated between the key constructs of the theoretical model, a list of hypotheses is developed.

The research methodology adopted by the researcher is based on the ideology of objectivism. It adopts a functionalist paradigm and a set of philosophical assumptions related to realism, positivism, determinism and nomotheticism. Its approach is deductive in terms of theory testing, employs the survey as its primary research strategy and uses mainly quantitative and partially qualitative methods of data collection. It adopts a cross-sectional time horizon and seeks to be exploratory and explanatory in nature. The main sample is comprised of 320 leading manufacturing organisations in Pakistan. A self-administered questionnaire is designed to collect data from human resource managers or individuals dealing with human resource development within the Pakistani manufacturing enterprises. SPSS-19 and SmartPLS packages are employed to analyse the quantitative data. Partial least squares method of structural equation modelling (PLS-SEM) is adopted for the testing of hypotheses.

The study's quantitative results provide an evidence of association between investment in the development of human capital and the benefits to organisations. Furthermore, organisations that invest in training and development programmes have high employee productivity which ultimately contributes towards high organisational performance. The qualitative results help in identifying the major problems faced by management of the Pakistani manufacturing organisation in evaluating investments in HCD and their impact on organisational performance. This research is a pioneer work in Pakistan and thereby contributes to the existing global literature on management accounting in general and on human resource accounting in particular.

Acknowledgements

Declaration

I declare that this thesis is my own unaided work. It is being submitted for the degree of PhD, at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

Signature:

Name of candidate: Naveed Iqbal

Date: 05 September, 2013

List of Publications

During the preparation of this thesis, some papers were prepared as listed below. The remaining parts of the thesis have not yet been published.

- Chaudhry N.I., Abdel-Kader, M. & Roomi M.A. (forthcoming), Does Investment in Human Capital Development Bring any Benefits for Enterprises? Paper Accepted by British Accounting and Finance Association, Northern Area Conference, (9-10 September 2013), Nottingham Business School, Nottingham Trent University, Nottingham.

- Chaudhry N.I., Abdel-Kader, M. & Roomi M.A., A Framework of Accounting for Appraising Investment in Human Capital Development: Empirical Evidence from the Pakistani Manufacturing Sector, Paper submitted to British Accounting and Finance Association, BAFA Annual Doctoral Conference (April 2013), Paper submitted.

- Abdel-Kader, M., Roomi M.A & Chaudhry, N.I (2013) A Framework of Accounting for Appraising Investment in Human Resource Development, under the review process of *Journal of Applied Accounting and Research*.

- Roomi, M.A., Abdel-Kader, M. & Chaudhry, N.I. (2013) Does Investment in Human Capital Development Bring any Benefits for Enterprises? An Empirical Evidence from the Middle East, Paper is under the review process of The *British Accounting Review*.

- Chaudhry N.I. (2011) Accounting for Human Capital Development in the Pakistani Manufacturing Organisations, Paper Presented at International Conference on Management Research (ICMR), December, 2011, Superior University Lahore, Pakistan.

- Chaudhry, N.I. & Roomi, M. A. (2010) Accounting for the Development of Human Capital in Manufacturing Organisations: A Study of the Pakistani Textile Sector. *Journal of Human Resource Costing & Accounting*, 14 (3), 178–195.

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List of Abbreviations

AAA	American Association of Accounting
BCR	Benefit to Cost Ratio
BIHCD	Benefits of Investing in Human Capital Development
BLE	Bottom line Evaluation
GDP	Gross Domestic Product
HCD	Human Capital Development
HR	Human Resources
HRA	Human Resource Accounting
HRD	Human Resource Development
ICAP	Institute of Chartered Accountants of Pakistan
IHCD	Investment in Human Capital Development
MAS	Management Accounting Systems
MEDPK	Medical Equipment Manufacturing Capabilities of Pakistan
MHRD	Methods of Human Resource Development
MOTI	Ministry of Textile Industry
MPNR	Ministry of Petroleum & Natural Resources
OP	Organisational Performance
OS	Organisational Size
PACRA	Pakistan Credit Rating Agency
PBP	Payback period
PEU	Perceived Environmental Uncertainty
PHCD	Policies for Human Capital Development
PLS	Partial Least Square
PPMA	Pakistan Pharmaceutical Industry
PSHRD	Provisions for Specialized HR department
PSMA	Pakistan Sugar Mills Association
ROI	Return on investment
SECP	Securities Exchange and Commission of Pakistan
SEM	Structural Equation Modelling
TD	Training and Development
UT	Use of Technology
WACC	Weighted Average Cost of Capital

Chapter 1   Introduction and Context of the Study

1.1   Introduction

This chapter provides an outline of the research study. It provides background information that locates this thesis precisely within the domain of human resource accounting. It introduces the main aim, objectives and research questions that underline the study's original contribution. It also explores the significance of the study and the methodology that is used to draw the final conclusions. The chapter concludes with an outline of the thesis's structure.

1.2   Background of the Study

The last few decades have witnessed a global transition among most of the world's developed economies, from the industrial to the post-industrial (Bullen and Eyler, 2010). While most firms in the industrial era relied, by definition, on manufacturing capabilities, companies in the post-industrial era now rely on the knowledge and skills of their human resources for survival and profit. Former global giants such as US Steel, General Motors and International Harvester have gone into decline; the hallmarks of the new era are companies such as Microsoft, Intel, Google and Apple. These enterprises rely more heavily than industrial firms on their human resources. In the previous era, the basis of competition was to

made more investments in the physical properties such as inventories, plant and equipment. The core economic resource of the new era is clearly human resources and intellectual property. Organisations with strong knowledge-based human resources are generally considered to have a promising financial future (Flamholtz et al., 2003; Bullen and Eyler, 2010).

Unfortunately, accounting has not responded to this change in circumstances, and even today, it is still based on an industrial paradigm in which only physical property is considered an asset (Flamholtz et al., 2004; Bullen and Eyler, 2010). One of the uses of accounting information is to support the decision making of either managers or investors. Modern enterprises need a system of accounting that frequently assesses and re-assesses the employees, including their talents, skills and behavioural attributes, and that can also help them to analyse how human resources affect their profitability. One tool of accounting that is relevant to the management and measurement of human assets is human resource accounting (Sackmann et al., 1989; Flamholtz, 1999; Flamholtz et al., 2002; Roslender, 2009; Roslender and Stevenson, 2009).

According to Flamholtz (1971) human resource accounting describes people as an organisation's valuable assets. He also explains that any cost incurred in the development of human capital is an investment that will offer long-term benefits to an organisation. Human resource accounting provides a foundation for enhancing the usefulness of existing financial information either to managers in their effort to manage human capital efficiently and effectively (Flamholtz, 1985),

or to investors, who evaluate human resource management as part of their decision-making process (Bullen, 2007; Bullen and Eyler, 2010). Human resource accounting may be thought of as the process of identifying, measuring and communicating the necessary information to quantify the impact of human resource development strategies on the cost and value of people as organisational assets (Newell, 1972; Flamholtz et al., 2004). In so doing, it will help management to identify and evaluate those human resource attributes that will underpin an organisation's sustainable development (Mirvis and Lawlere, 1983). Planning an organisation's use of its intellectual and manual abilities will contribute significantly to its sustainability – a contribution that is in the best interests of all the organisation's stakeholders (Ferguson and Berger, 1985; Bullen, 2007; Flamholtz and Randle, 2012).

Human Capital development is a costly investment that offers rich financial benefits in the long-run, and its importance must be accepted at all levels (Khan and Khan, 2010). Today, an organisation's potential success lies in its intellectual capital instead of its physical properties (Flamholtz et al., 2003; Bullen and Eyler, 2010). Accordingly, organisations must pay particular attention to the human capital development programmes. These activities not only build the capacity of human resources, but also strengthen the human capital of an organisation (Bras and Rodrigues, 2007; Zula and Chermack, 2007).

Human capital is a key to the success of an organisation, which is why decisions about investments in its development are critical for enterprises. Enterprises in the

industrial sector of Pakistan or in other developing countries are still following the principles of an industrial economy. They are still investing more in physical property. Pakistan's manufacturing enterprises are more profit-oriented and want to ensure their returns before they invest in human resource development programmes. That is why; this study uses the contingency theory approach in investigating the impact of various factors on the decision making regarding investing in HCD in the Pakistani manufacturing organisations.

One focus of the contingency theory is to examine the effect of different contingent factors on the extent of managerial decisions regarding investing in human capital development programs. Previous studies (Otley, 1980, 1999; Otley and Fakiolas, 2000; Flamholtz et al., 2003; Cadez and Guilding, 2008; Islam and Hu, 2012) argued that the using of different tools of HRA for the appraising investment made in HCD and its impact on organisational performance is generally appears to be a contextually defined phenomenon. They should adapt by taking into consideration the internal and external factors in order to help managers to achieve business goals. In this context, Kaplan and Norton (1992) suggested the need to use the both financial and non-financial performance measures and this may well be contingent upon organisational circumstances. Furthermore, contingency theory suggests that the suitability, effectiveness and using of different tools HRA for appraising investment made in human capital development are affected by the circumstances or contexts in which an organisation operates (Flamholtz, 1980; Flamholtz et al., 2003; Flamholtz and Randle, 2012; Islam and Hu, 2012).

Unfortunately, none of the empirical studies on contingency theory have examined the impact of using tools of human resource accounting for appraisal of investment and factors affecting HR sophistication on the managerial decision making regarding investing in HCD in the context of Pakistani manufacturing organisations. Thus, this is the first study that utilises the contingency theory approach for investigating the impact of investing in human capital development on organisational performance in the context of Pakistan.

Finally, this research study focuses on the intersection between two important fields of management studies: management accounting and human resource management. Its purpose is to develop a framework for assessing the impact of investing in HCD on the organisational performance. The results of this study may help enterprises to understand whether an investment in human resource development is financially viable or not. They will also help to the decision makers to determine whether they should invest in their organisations' human capital or not.

1.3   Aim and Objectives

This thesis aims to examine empirically the impact of investing in HCD on performance of the Pakistani manufacturing enterprises. In order to achieve this aim, it has the following objectives:

1. To conduct a detailed review of literature in the domains of HRA and HCD from different methodological standards, and to synthesize the findings within a new framework for appraising of investment in HCD;

2. To find out major difficulties faced by the management in evaluating IHCD and organisational performance within the Pakistani manufacturing sector;

3. To investigate empirically whether appraising of investment has any impact on the managerial decision making regarding investing in HCD in the context of Pakistani manufacturing enterprises;

4. To investigate empirically the impact of HR sophistication on the managerial decision making regarding investing in HCD in the Pakistani manufacturing sector; and

5. To assess whether or not investments in HCD made by the Pakistani manufacturing enterprises are financially viable.

1.4   Research Questions

To achieve the study's aim and objectives, the following research questions have been designed;

1. What are the main practices of human resource accounting followed by the Pakistani manufacturing organisations for appraising investments in human capital development?

2. What major difficulties are faced by the management of the Pakistani manufacturing organisations in appraising investments made in HCD and measuring their impact on organisational performance?

3. What is the impact of appraisal of investment on the managerial decision making regarding investing in HCD within the Pakistani manufacturing organisations?

4. What is the impact of HR sophistication on the managerial decision making regarding investing in HCD in the Pakistani manufacturing sector?

5. Whether investing in HCD is financially viable for the Pakistani manufacturing organisations?

1.5   Significance of the Study

The study's justification comes from an increasing interest in human resource accounting, around the world in general and in Pakistan in particular. According to the researcher's best knowledge, no empirical research into HRA and HCD in the Pakistani context existed at the time this study was conducted. That is why the present study thus adds evidence from a new country to the existing knowledge on human resource accounting.

First, this study contributes to two main streams of literature – management accounting and human resource management – by collecting up to date empirical evidence on the association between investments made in HCD and the monetary benefits that can be reaped by the manufacturing enterprises. Second, it provides empirical evidence of the long-term impact on the Pakistani manufacturing enterprises of their investments in HCD. In spite of its importance for the Pakistani economy, the manufacturing sector remains under-researched, especially in the fields of human resource management and accounting. Third, the thesis empirically investigates what type of impact such an investment in HCD has on enterprises' bottom lines. Furthermore, it provides a framework that may help enterprises to understand whether an investment in HCD is financially viable or not. It will also help decision making around investments in human resource development programmes.

A central proposition to this thesis is that, as separate and distinct concepts human resource accounting and human resource development will wither and fade into

obscurity. Yet together they may form a propitious partnership that can strengthen the human capital of any organisation. Indeed, the intention of this thesis is to propose and evaluate a rigorous but flexible framework for human resource accounting that focuses on the appraisal and internal reporting of investments made to improve the performance of human resources. The ultimate objective of this thesis is to act as a catalyst in the development of an acceptable framework. This framework can provide to all the decision makers of an organisation with useful information regarding the management and utilisation of human resources.

Additionally, a strong contribution of current research is related to the fact that it collects empirical data from a relatively new cultural context. Most of the previous studies in this area have been conducted in the USA, Sweden, Canada, Australia and the UK. This research study is the first of its kind reported in the context of Pakistan about using of various tools of HRA for assessing the impact of investing in human capital development on the organisational performance. This study is significant as it permits a test of the wider validity of the findings derived from the research conducted in developed economies.

This thesis contributes to the wealth of literature on using of contingency theory in management accounting research by investigating the impact of several contingent factors on the managerial decision making with reference to investing in human capital development programmes. The thesis also supports the assumption of contingency theory which indicates that the using of different tools

of accounting is affected by the overall circumstances of an organisation by collecting empirical data from the Pakistani manufacturing organisations.

The study helps to fill the gap in the literature in relation to human resource accounting in Pakistan. It contributes to knowledge by providing the perspective of human resource managers about investing in HCD. It will help decision makers to understand the role of investing in HCD in the Pakistani manufacturing sector, in terms of its current practices, obstacles, and any possible improvements that might be made. Another primary reason is to highlight the intrinsic role of this investment in increasing the productivity of firms and industries. The study will contribute to an understanding of human resource accounting across the developing world, and in particular in Pakistan.

In conclusion, the study will also enable policy makers and top management in the Pakistani manufacturing sector to apply a systematic approach to the appraisal of investments in HCD. The findings can be used to redesign human resource development policies and practices for their more effective implementation.

1.6   Overall Research Methodology

The thesis examines the relevant literature on human resource accounting and human resource development from different methodological strands and synthesises a new theoretical framework. The framework borrows tools from human resource accounting to check the financial viability of investments made in HCD. These tools are: investment in HCD (IHCD), benefits of HCD (BIHCD),

benefit to cost ratio (BCR), payback period (PP), bottom line evaluation (BLE), return on investment (ROI), and weighted average cost of capital (WACC). The proposed framework also takes into account the various contextual contingent factors – organisational size (OS), provisions of specialist HR department (PSHRD), policies for human capital development (PHCD), methods of human resource development (MHRD) and use of technology (UT) that lead to a higher level of HR sophistication and consequently which could affect the decisions of management regarding investing in human capital development in Pakistan. A list of hypotheses based on the predicted relationships between the key constructs of the theoretical framework is developed in order to answer the research questions.

The research methodology that is adopted is based on the ideology of objectivism. It adopts a functionalist paradigm and a set of philosophical assumptions related to realism, positivism, determinism and nomotheticism. It employs deductive approach in terms of theory testing, employs the survey as its primary research strategy and uses mainly quantitative and partially qualitative methods for collecting of empirical data. It adopts a cross-sectional time horizon and seeks to be exploratory and explanatory in nature. The main instrument used for data collection is a self-administered questionnaire. The sample comprises 320 leading manufacturing organisations in Pakistan. Questionnaire was developed in order to collect data from human resource managers or individuals dealing with human resource development within the Pakistani manufacturing enterprises. Variables are measured and hypotheses are tested against the questionnaire data in order to draw the final conclusions.

SPSS-19 and SmartPLS packages are used for the quantitative analysis. The Partial Least Squares method of Structural Equation Modelling (PLS-SEM) is adopted for hypotheses testing. This thesis also partially applied a qualitative approach to collect more data and to complement the quantitative findings. The qualitative research was applied by conducting semi-structured interview with ten respondents selected from the main study's sample. In particular, semi-structured interviews were conducted to identify the major problems faced by the management of the Pakistani manufacturing organisation in evaluating investments in HCD and their impact on organisational performance.

1.7 Structure of the Thesis

The thesis is structured into ten chapters (Figure 1.1); a brief description of each as follows;

Chapter 1: Introduction and Context of the Study

This chapter provides the basis for the later chapters of the thesis. It introduces the reasons why this study is being carried out and its overall definitional landscape. The background context and the rationale behind the study, both are covered. The aims, objectives, research questions, methodology and significance of the study are also laid out.

Chapter 2: Study Setting

Chapter 2 discusses the nature of the Pakistani manufacturing organisations surveyed, their importance, their characteristics, their strengths, and weaknesses with respect to HCD.

Figure 1.1: Structure of the Thesis

Introduction

Literature Review

**Gap Identification
and Data Collection**

Data Analysis

Conclusion

Introduction and Context of the Study

Study Setting → Literature Review

Theoretical Framework → Research Methodology

Quantitative Survey Results → Testing of Hypotheses

Qualitative Results → Discussion on Results

Conclusion
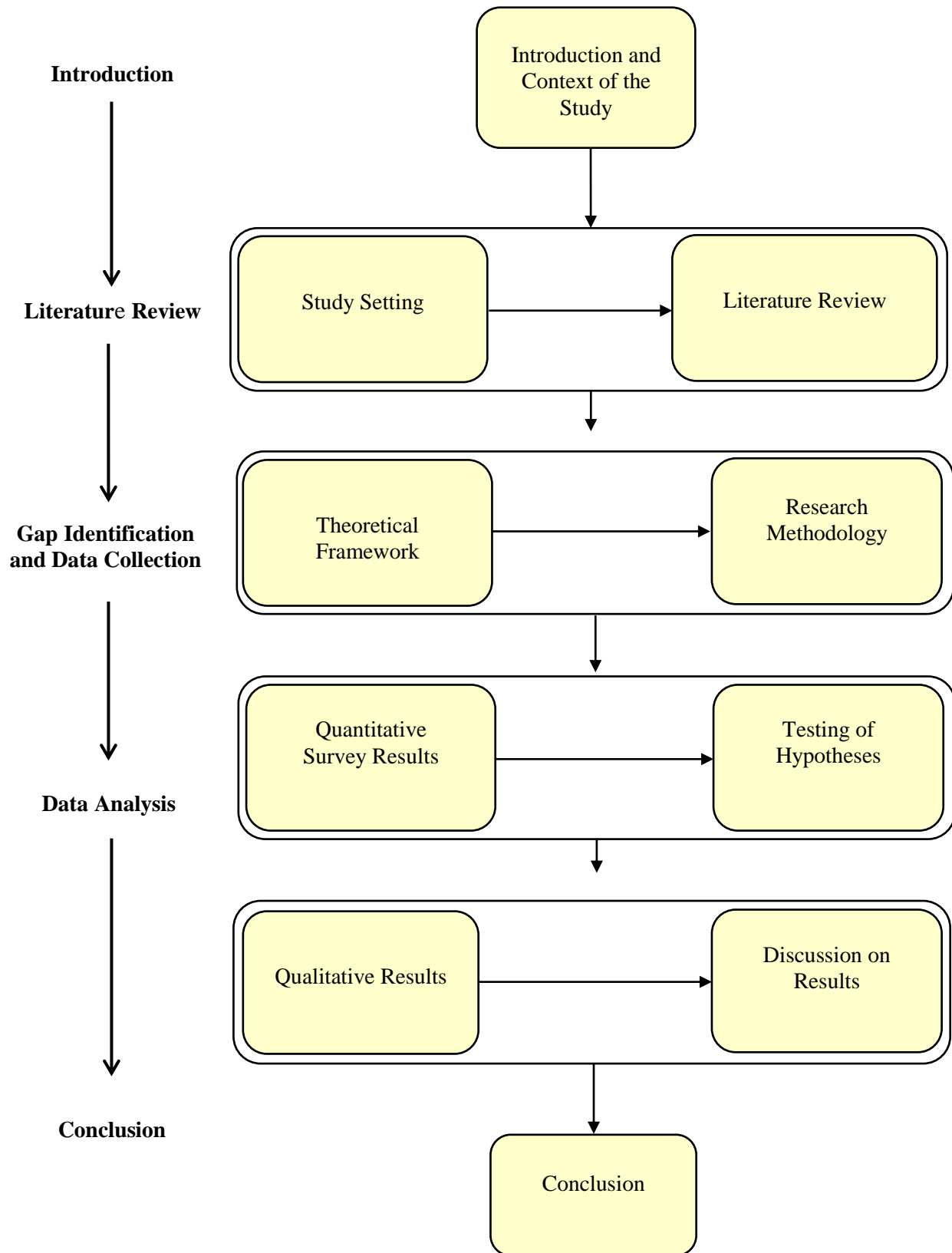
Chapter 3: Literature Review

This chapter examines the relevant literature on human resource accounting and HCD from different methodological strands and from these develops a new theoretical framework. Detailed critical reviews of the existing literature are presented on the effectiveness of human capital, training and HCD, the evaluation of human resource development programmes, human resource accounting, assessment of the impact of investing in human resources on organisations' performance and using of contingency theory in management accounting research. In this chapter, gaps in the existing body of knowledge are also revealed in order to identify the contributions of present research.

Chapter 4: Theoretical Framework

The literature review suggests paths towards a theoretical framework for the present study. Chapter 4 outlines this theoretical framework, which provides the deductive basis for the study. Hypotheses are derived on the basis of relationships among the variables under study.

Chapter 5: Research Methodology

In this chapter, research methods and procedures used to carry out the empirical section of the study are presented systematically. These include research philosophy, research approach, research methodology, research strategy, research design, sampling design, data collection methods, questionnaire development, pilot testing, main questionnaire survey, semi-structured interviews, data analysis techniques, issues of reliability and validity, and ethical issues. It identifies the overall research plan for answering the research questions. The empirical study's

overall methodological approach is not only defined by the nature of the research questions, but also informed by previous studies carried out in the same area.

Chapter 6: Quantitative Survey Results

This chapter has been designed to cover the first objective and to answer the first research question of the thesis. It describes the results obtained through the main study instrument, the questionnaire. It provides detailed results regarding the human resource development practices and investment appraisal techniques of human resource accounting used in the Pakistani manufacturing sector. It also discusses a wide range of other contextual organisational variables, which are considered contingent variables in the study.

Chapter 7: Testing of Hypotheses

This chapter aims to test the hypotheses of the study as defined in Chapter 4, answer the major research questions, present and explain the results obtained through different statistical techniques. Statistical techniques are used in this chapter to test hypotheses of the research, and to help in drawing the final conclusions regarding research questions and study objectives.

Chapter 8: Qualitative Results

This chapter presents the results derived from the face-to-face interviews with human resource managers from the Pakistani manufacturing organisations. The chapter provides additional information about the current managerial decision making practices and usage of different tools of HRA among the Pakistani manufacturing organisations. Finally, the objective of conducting semi-structured

interviews was to verify, explore and explain the quantitative results of the study and to support in accomplishing the first two objectives of the study.

Chapter 9: Discussion

This chapter discusses the both quantitative and qualitative results in relation to the existing literature on management accounting in general and human resource accounting in specific. The discussion leads to a building of recommendations and an understanding of their implications for theory and practice.

Chapter 10: Conclusion

The final chapter presents a summary of findings of the research and its contributions to the body of knowledge. It also discusses the study's limitations and opportunities for the future research.

1.8 Summary

This chapter serves as a road map for the research reported in this thesis. It provides background information that locates this thesis precisely within the domain of management accounting. It introduces the study's aim, objectives, research questions and significance, and the methodology used to draw its conclusions. Finally, the chapter ends with an outline of the thesis.

The next chapter is about the study setting, and provides information about the manufacturing sectors of Pakistan.

Chapter 2   Study Setting

2.1   Introduction

The present era of globalisation and competition has put a spotlight on effective human resource development practices for both service and industrial economies (Budhwar and Debrah, 2001). With a less costly work force, non-interventionist privatization, a specific geographical significance and different investment policies, Pakistan's industrial sector is still underdeveloped (Khilji, 2001). For 30 years, Pakistani industry has had no policy on accounting and human resource management (Ahmed et al., 2010). In spite of its importance for the Pakistani economy, the manufacturing sector remains under-researched, especially in the areas of accounting and human resource management. This indicates another important contribution of this research.

This chapter aims to provide background information about the environment being investigated. This background information is important because it clarifies the reader about the context of study. This chapter discusses the nature of the Pakistani manufacturing organisations that were surveyed for this research, their importance, their characteristics, and their strengths and weaknesses with respect to HCD practices.

2.2   Pakistani Manufacturing Sector: General Background

Pakistan is located in the region of South Asia bordering the Arabian Sea, between India to the East, Iran and Afghanistan to the West, and China to the North. It became independent on 14th August 1947. With more than 181 million people (as of November 2012) it is the world's sixth most populous country and the second most populous in the South Asia region (World Bank, 2006). Pakistan has a high proportion of young people; about 85 million below the age of 19, are 54 percent of the total population of the country. Pakistan is divided into four provinces: Punjab, Sindh, North West Frontier Province (NWFP) and Baluchistan. It also consists of four territories, namely: Islamabad capital territory, Azad Jammu and Kashmir (AJK), Federal Administered Northern Areas (FANA) and Federally Administered Tribal Areas (FATA) (World Bank, 2006). Its gross national income per capita was US$2700 in 2008, ranking it the 156th in the world (World Bank, 2009).

In Pakistan, there are no consistent links between overall human development and wealth, gender or education (Oxfam, 2006). Politics, culture, society and governmental structures all affect the development of the country, and especially its education system. In the twenty-first century, with the emergence of increasing global competition, education has come to play a leading role in human development, and is becoming a defining enterprise. In a fast-changing and competitive world, education and technology are important to the respectable survival and progress of Pakistan (Shami and Hussain, 2005). The functions of educational institutions are to develop people physically, mentally,

psychologically, socially and spiritually. However, the education sector in Pakistan suffers from insufficient financial input, low levels of efficiency for implementing its programmes, and poor quality of management, monitoring, supervision and teaching. As a result, Pakistan has one of the lowest rates of literacy in the world, and the lowest among countries of comparative resources and social or economic situations (Memon, 2007). The government of Pakistan has therefore initiated reforms to the education sector to improve the development of society's human resources and reduce poverty.

Of Pakistan's total population, 113.16 million are rural. The population's growth rate is 2.03 percent. Table 2.1 summarises several demographic features by year from 1981 to 2012. The table shows that Pakistan's total population is growing constantly and it provides information about how many of the population are participating as an effective labour force. It also presents the crude birth rate, crude death rate and infant mortality rates (number of deaths before first birthday) per 1,000 individuals.

This comparison shows the possible human resources available for employment. Table 2.2 gives forecasts for the total population of different age groups (Ministry of Finance, 2012). It also gives an idea of the total dependent human population of the country. According to the table, in 2011 there were 62 million people younger than 15, with 104 million aged between 15 and 59. This reflects Pakistan's very young population. Without proper planning in the sector of human resource development this youth could become a burden and liability for the nation in the form of more and more dependent individuals.

Table 2.1: Demographic Highlights

Mid Year	Popu-lation (mln)	Labour Force Participation Rate(%)	Civilian Labour Force (mln)	Employed Total (mln)	Crude Birth Rate	Crude Death Rate	Infant Mortality Rate
					(per 1000 persons)		
1981 *	85.09	30.30	25.78	24.70	..	..	..
1991	112.61	27.97	31.50	29.52	39.50	9.80	102.40
1992	115.54	28.11	32.48	30.58	39.30	10.10	100.90
1993	118.50	27.86	33.01	31.45	38.90	10.10	101.80
1994	121.48	27.88	33.87	32.23	37.60	9.90	100.40
1995	124.49	27.46	34.18	32.35	36.60	9.20	94.60
1996	127.51	28.69	35.01	33.13	35.20	8.80	85.50
1997	130.56	29.38	37.45	35.16	33.80	8.90	84.40
1998 *	133.32	29.38	39.17	36.86	..	..	..
1999	136.41	28.97	40.08	37.70	30.50	8.60	82.90
2000	139.41	28.97	40.38	37.22	..	..	..
2001	142.35	28.48	41.23	38.00	..	..	..
2002	145.28	29.61	43.01	39.45	27.03	8.20	85.00
2003	148.21	29.61	43.88	40.25	27.30	8.00	83.00
2004	151.09	30.41	45.95	42.42	27.80	8.70	79.90
2005	153.96	30.41	46.82	43.22	..	..	..
2006	156.77	32.22	50.50	47.37	26.10	7.10	76.70
2007	162.91	31.82	50.78	48.07	25.50	7.90	72.40
2008	166.41	32.17	52.23	49.52	25.00	7.70	70.20
2009	169.94	32.81	55.76	52.71	28.40	7.60	73.50
2010	173.51	32.98	57.22	54.05	28.00	7.40	72.00
2011	177.10	32.98	58.14	54.68	27.50	7.30	70.50
2012	180.71	32.83	59.33	55.80	27.20	7.20	69.00

Source: Economic Survey of Pakistan 2011–2012 (2012)

Table 2.2: Population and Age Groups

Age Group	1998	2011	2015	2020	2025	2030
00-04	19.59	22.02	22.76	23.28	22.44	20.35
05-09	20.72	20.40	21.33	22.35	22.95	22.18
10-14	17.14	19.94	20.07	21.24	22.28	22.88
15-19	13.73	20.27	20.12	20.01	21.19	22.24
20-24	11.88	17.72	19.8	20.05	19.95	21.14
25-29	9.76	15.25	17.13	19.71	19.98	19.89
30-34	8.24	12.95	14.72	17.04	19.62	19.91
35-39	6.32	10.83	12.4	14.62	16.94	19.53
40-44	5.89	8.90	10.36	12.27	14.49	16.81
45-49	4.68	7.32	8.49	10.2	12.01	14.31
50-54	4.26	6.01	6.88	8.26	9.95	11.84
55-59	2.86	4.83	5.53	6.57	7.93	9.60
60-64	2.72	3.78	4.31	5.13	6.14	7.45
65+	4.64	6.81	7.82	9.39	11.39	13.93
Total	132.43	177.03	191.72	210.12	227.26	242.06

Source: Economic Survey of Pakistan 2011–2012 (Ministry of Finance, 2012)

2.3   Growth of Pakistan's Manufacturing Sector

According to the Economic Survey of Pakistan 2011–2012, Pakistan's manufacturing sector grew at a rate of 3.6 percent in 2011–12, of which large scale manufacturing grew at a rate of 1.1 percent and small scale manufacturing at a rate of 7.5 percent (Figure 2.1).

Figure 2.1: Monthly Large Scale Manufacturing Growth Rate
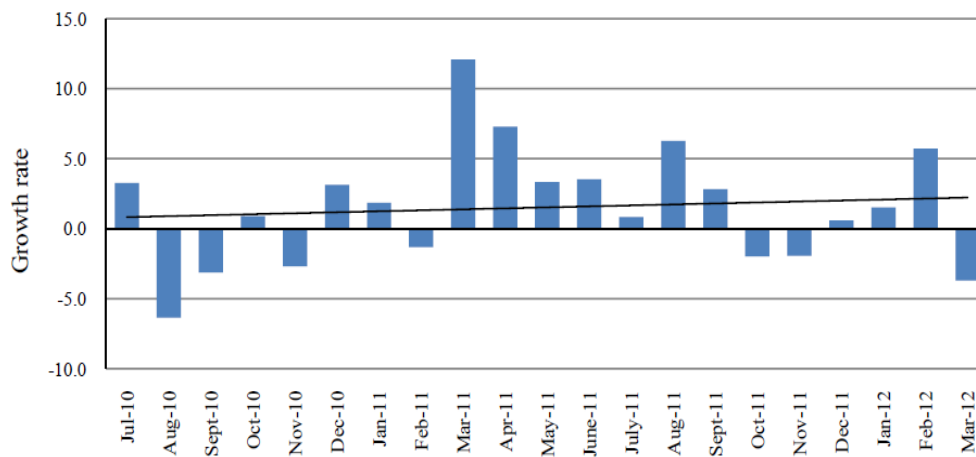
Source: Economic Survey of Pakistan (Ministry of Finance, 2011, 2012)

The gently sloping line represents the overall growth rate of large scale manufacturing in Pakistan, and shows a steady increase across the period. The figure shows that in the first 9 months of fiscal year 2011–12 large scale manufacturing showed a positive trend and achieved growth of 1.05 percent, which is higher than the previous year's 0.98 percent (Ministry of Finance, 2012).

Different factors affect the rate of growth. At the start of the fiscal year 2011–12 (i.e. July 2011 to March 2012), export orders boosted production and made the large scale manufacturing growth rate positive (see Figure 2.1). A shortage of natural gas accounted for negative growth in the period from October 2011 to December 2011. As presented in Table 2.3, several industries and sub-industries recuperated their growth in this fiscal year, including leather products, paper and board, food and beverages, tobacco, pharmaceuticals, and non-metallic minerals (Ministry of Finance, 2011, 2012).

Table 2.3: Growth Rate of Main Manufacturing Industries

Sr#	Manufacturing Industry	Growth Rate
1	Automobile	18.2%
2	Leather Products	14.9%
3	Paper & Board	4.5%
4	Pharmaceuticals	3.9%
5	Chemical	3.0%
6	Engineering	2.5%
7	Electronics	2.2%
8	Textiles	1.0%
9	Non-metallic Minerals	-10.7%
10	Metallic Industries	-8.7%
11	Fertilizers	-6.8%
12	Food & Beverages	-2.3%

Source: Economic Survey of Pakistan 2010–2011 (Ministry of Finance, 2011)

As well as energy crises, the manufacturing sector has been affected by poor law and order conditions, and natural disasters, all of which have affected the whole economy of Pakistan. Nevertheless, the sector's contribution to growth has

increased from 17.7 percent in 2001–02 to 18.6 percent in 2011–12 (Figure 2.2 and 2.3).

Figure 2.2: Annual Large Scale Manufacturing Growth Rate
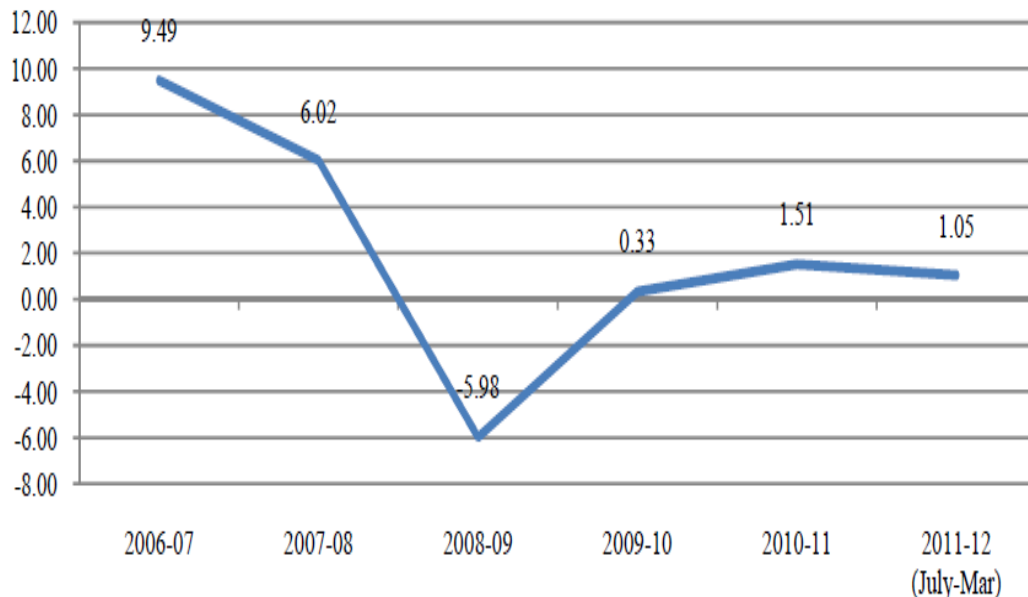
Source: Economic Survey of Pakistan 2011–2012 (Ministry of Finance, 2012)

2.3.1 Contribution of Manufacturing Sector to Overall Growth

Manufacturing is the second largest sector of the Pakistani economy after agriculture, and presently accounts for approximately 18–19 percent of GDP (Figure 2.3). In 2006 its contribution was 10 percent, but in 2007 it increased by 8.4 percentage points. In discussing the manufacturing sector we will see that large scale manufacturing plays an essential role, contributing around 70 percent to the overall manufacturing sector (Ministry of Finance, 2006). In 2009 the manufacturing sector contributed steady growth of 7.5 percent, and in the last three years it has raised its share of GDP from 18.2 percent to 18.7 percent.

Figure 2.3: Sector-wise Contribution to GDP 2001–02 & 2011–12
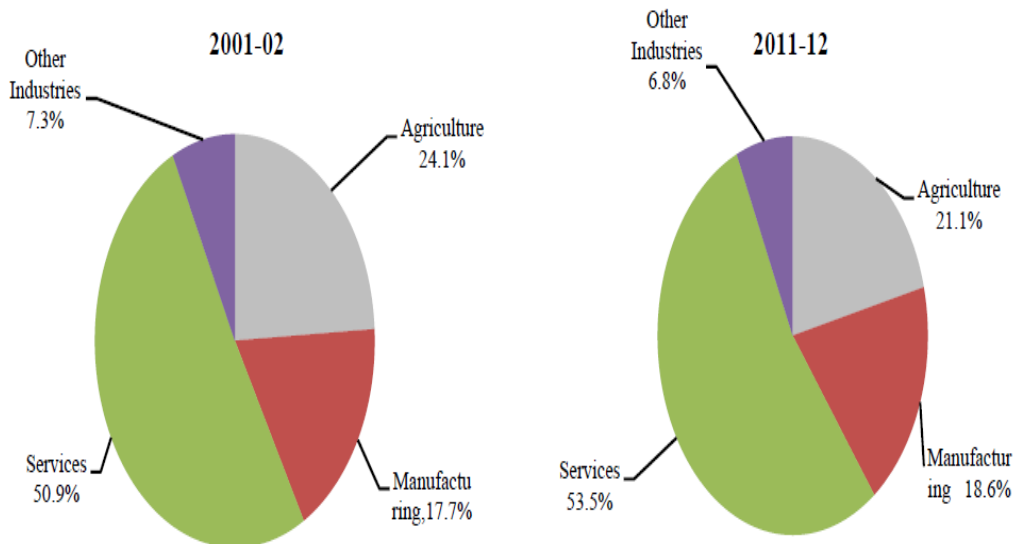
Source: Economic Survey of Pakistan 2011–2012 (Ministry of Finance, 2012)

Figure 2.4: Growth Rate of Small and Large Scale Manufacturing Sectors

Manufacturing,   Large Scale,   Small Scale
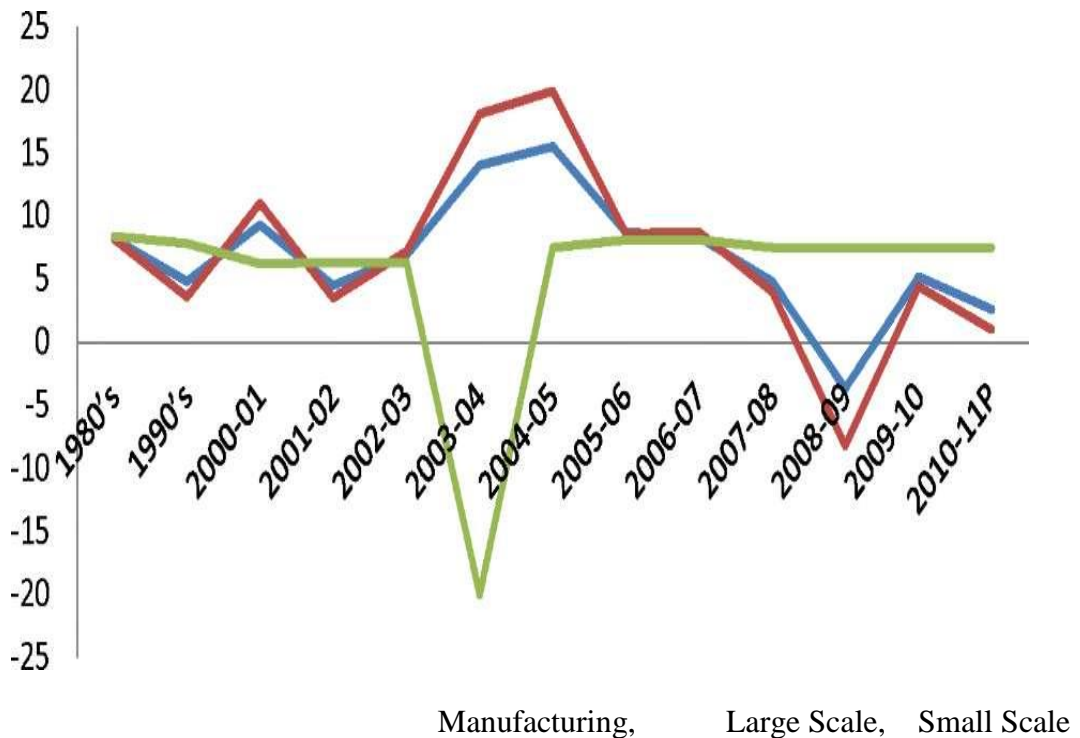
Source: Economic Survey of Pakistan 2011–2012 (Ministry of Finance, 2012)

However, this remains lower than its high of 19.2 percent in 2007–08. The sector's output expanded by 3 percent in 2010–11 due to growth in small and medium size manufacturing; however, large scale manufacturing has suffered in the last few years (Figure 2.4) due to ongoing energy crises. Between July 2010 and February 2011, it saw only marginal growth of 0.98 percent. This is compared to 4.7 percent for the same period in the previous year. Important contributors to this modest growth are shown in Table 2.3.

Over the last two years the small scale manufacturing sector has shown level growth of 7.51 percent, but large scale manufacturing has increased its rate of growth, from 1.15 percent in 2011–12 to 1.78 percent in 2011–12 (see Figure 2.4). Average growth has been estimated at 4.46 percent this year, higher than the previous year's figure of 4.38 percent (Ministry of Finance, 2012).

2.3.2 Sector-wise Performance of Manufacturing Organisations

The modest growth in the overall manufacturing sector in 2011–12 was thanks to the textile, food and beverages, pharmaceutical, paper and board, tobacco, wood products and leather products sectors (Table 2.4)

The following section will discuss the contribution of these and other large scale manufacturing sectors to the Pakistani economy.

2.4   The Main Large Scale Manufacturing Sectors in Pakistan

The classification of the large scale manufacturing sector used below follows that of the Economic Survey of Pakistan: textiles, automobiles, cement, fertilizer, food and beverages, health care products, oil and gas, pharmaceuticals, sugar, paper and board, tobacco and miscellaneous.

Table 2.4: Extended Sector Growth and Contribution of LSM

Sr#	Groups	Weights	% Change July–March		Point Contribution July–March	
			2010–11	2011–12	2010–11	2011–12
01	Textiles	20.91	0.70	0.80	0.15	0.16
02	Food & Beverages	12.37	14.0	6.5	1.73	0.81
03	Oil and Petroleum	5.51	-4.6	-5.7	-0.25	-0.31
04	Pharmaceuticals	3.62	1.3	10.9	0.05	0.39
05	Chemicals	1.72	-2.5	-4.7	-0.04	-0.08
06	Automobiles	4.61	11.19	-0.80	0.55	-0.04
07	Iron and Steel	5.39	-10.3	-28.5	-0.56	-1.53
08	Fertilizers	4.44	-9.20	-0.40	-0.41	-0.02
09	Electronics	1.96	-14.4	-7.9	-0.28	-0.15
10	Leather Products	0.86	17.4	-1.8	0.15	0.02
11	Paper & Board	2.31	-2.3	8.4	-0.05	0.19
12	Engineering Products	0.40	-9.5	-10.2	-0.04	-0.04
13	Non-metallic Minerals	5.36	-9.6	2.9	-0.51	0.15
14	Wood Products	0.59	6.9	6.9	0.04	0.04
15	Rubber Products	0.26	9.2	-24.6	0.02	-0.06

Source: Economic Survey of Pakistan (Ministry of Finance, 2011, 2012)

2.4.1   Textile Sector

This is the most important sector of the Pakistani economy. It has three sub-sectors, namely textile spinning, textile weaving and textile composite. In 1947, following independence from the British rule, Pakistan was divided into East and

West Pakistan. East Pakistan was prominent in jute production, and West was famous for cotton. East Pakistan received 90 cotton mills and West 389. In the 1950s more land was cultivated for cotton; to process this raw cotton further textile plants and machinery were imported. This was the era in which the major textile firms were established. In 1970 the central cotton research institute was established in Multan. In the late 1970s Pakistan began exporting printed fabrics to Africa, and in the 1980s various products began to be exported to Europe.

The challenges faced by Pakistan's textile industry are research and development, technological advancement, human resource development and supply chain management (PACRA, 2011). Pakistan's textile industry is among the world's leaders: the country is the world's fourth largest producer and third largest user of cotton and cotton products. Textiles are of major importance to the economy − 58 percent of the country's exports are related to textiles. The overall growth of the textile sector was 2.1 percent in 2009–10 (MOTI, 2010). Pakistani clothing and textile exports have also shown positive signs, increasing from US$9.9bn in 2009 to US$111.8bn in 2010, an increase of about 20 percent (Ministry of Finance, 2011, 2012).

Yet even in this sector growth opportunities have been slow. Companies have to grasp them firmly and channel funds appropriately. Funds have been retained instead of invested in HCD. Managers may have preferred to take advantage of market opportunities by investing in the number of physical properties.

2.4.2   Automobile Sector

Pakistan is considered one of the few countries in the world to manufacture a full range of means of transportation; that is, prime-movers, trucks, buses, heavy wheelers, motorcars, tractors, etc. The Pakistani automobile industry produced its first vehicle in 1953 (assembled by Bedford trucks), at National Motors Limited. It is followed by HINO Trucks (1984), Suzuki Cars and Mazda Trucks (1993) Toyota and Honda (1994) in particular. Assembly of Daihatsu and Hyundai cars and a range of brands of LCVs and mini-trucks began in 1999. The establishment of Pakistan's automobile industry can be divided into a "Preparation Phase" (1985–2005) and a "Development Phase" (2005–12). The auto industry in recent years has been a star performer and remained the leading sector in large scale manufacturing. This has helped to increase its share of manufacturing in the country's GDP. It plays numerous roles within the sector (Ministry of Industries, 2012). Directly and indirectly it provides jobs for 150,000 to 200,000 people, its contribution towards GDP is Rs.30bn, and its tax contribution is Rs.8 billion annually (Zareen et al., 2012).

2.4.3   Cement Industry

At the time of independence cement production in Pakistan was less than half a million tons per annum, coming from just four cement plants. Current production is approximately 45 million tons, from 29 factories. The main opportunity for this sector is exports, in particular to Afghanistan and Central Asia. The fourth quarter of the fiscal year 2012 shows that two cement mills located by the sea and using the opportunity to export have made a combined profit of Rs.4bn, while all the

other cement mills that are not taking advantage of the export opportunity have made a combined loss of more than Rs.10bn.

The cement industry is among the largest industrial sectors in Pakistan, with 21 companies listed on the stock exchange. It is divided into two regions: the northern region has 80 percent production of the total, while the southern region has the remainder. Twenty-six cement mills are located in the mountainous regions of the country, where there are huge quantities of clay (Anadil et al., 2012). The cement industry creates around 150,000 job opportunities directly or indirectly (Rohail, 2008). Because of its relationship to infrastructure, the sector plays an important role in socio-economic development. Cement for export is exempt from sales tax and federal excise duty, while 16 percent sales tax and Rs.500 per ton are charged for cement that is used domestically (Ministry of Finance, 2012).

There is an aggressively negative connection between investment policy and HCD programmes in this sector, which places more focus on market capitalisation through investment in physical properties. Although the opportunities for growth in this way have not been very attractive they are nevertheless preferred. An immense surge in market capitalisation and size prove that investment decisions were not good for the time being. The manufacturing organisations in this sector have no investment plans for human resource development programmes.

2.4.4   Fertilizer Sector

Fertilizer is one of the most essential tools for agricultural growth, for the preservation of soil productivity and for food security. It can increase yields from 30 to 60 percent in different crops across diverse areas. One kg of fertilizer can feed 8 kg of wheat, 2.5 kg of cotton and 114 kg of sugarcane. Between July 2011 and March 2012 domestic fertilizer production decreased by 1.4 percent on the previous year. The main reason for this was a shortage of natural gas. Consumption of fertilizer and phosphate is decreased by 4.9 percent and 22.3 percent respectively over the same period. Two main reasons for this reduced consumption were the heavy rains and flood in Sindh, and the increased price of fertilizer. In 2012 the price of urea was increased by 81.4 percent of the previous year (Ministry of Finance, 2012). Pakistan currently has the capacity to produce approximately 7 million tons of urea fertilizer annually (Kazmi, 2012). This leading manufacturing sector in Pakistan has no investment plans for human capital development.

2.4.5   Food and Beverages Sector

The beverages industry is the third largest large scale sector in Pakistan. Two main multinational brands hold a 95 percent share of the Pakistan market: Coca Cola and Pepsi. The other 5 percent is held by local and other foreign brands. The industry's growth rate is between 10 and 15 percent, but this may double in the next 3 to 5 years with corrections to the government's taxation policies. There are 34 beverages plants in the country, and the sector directly or indirectly employs a total of 500,000 people (Bashar, 2001). The food and beverages sector plays an

important role in boosting the economy of the country. This sector is directly and indirectly linked with many sectors of the economy. Large firms in the food and beverages sector provide advantages to the population by improving the lifestyles of those who work for them. These firms have large supply chain networks, and gain advantage by focusing on three factors: knowledge of market demand, span across value, and resources and credibility of the firm. Government and other agencies support this sector by issuing finance and allocating major portions of their budgets for the development of this sector.

Of the $5 million spent by the United Nations Development Programme (UNDP) in Pakistan, 80 percent was spent on women livestock caretakers to develop the food and beverages sector. Local government and other public institutions can also play a vital role in boosting this sector by issuing licenses and aiding the communication process. Nestlé Pakistan Ltd is the UNDP's major partner for the development of this sector in Pakistan. That is why manufacturing organisations in this sector have proper investment plans for human resource development.

2.4.6   Health Care Products

Pakistan has a 100-year history of producing health care equipment, since British doctors first sought help from local communities in the West Pakistani region of Sialkot (MEDPK, 2012). In 1930 Sialkot began exporting surgical instruments to the foreign market. In 1941 the British government established a development centre to provide manufacturers with better skills and opportunities. Pakistan inherited 17 firms after independence in 1947. In 1958 an association was

established to boost the health care manufacturing industry. The US Food and Drug Administration (FDA) restricted imports from Pakistan in 1994 to force an improvement in its standards. Pakistan became an emerging manufacturer of conventional surgical instruments in the last quarter of the twentieth century. The country exports 95 percent of its total production. The world market for surgical instruments is worth more than US$30bn, of which Pakistan's contribution is US$250mn (2008–9). The export growth of this sector in 2011–12 is 34 percent compared with the previous year. Pakistan has 2,500 small, medium and large firms in this sector (Ahmed, 2010).

2.4.7 Oil and Gas Sector

Oil, natural gas, coal and hydropower are the energy resources that Pakistan exploits commercially (MPNR, 2009). Twenty-seven public and private companies are currently engaged in oil and gas production and exploration (Ministry of Finance, 2012). Oil has been produced in Pakistan since the early 1920s (Mbendi, 2012). Since independence the oil and gas sector has seen tremendous growth and expansion. At first Pakistan faced a lack of oil and gas resources, but over time local exploration helped to boost this sector. Now, 15 percent of Pakistan's oil demand is met by native resources. Oil and gas play a major part in the country's energy mix, fulfilling 79 percent of its energy needs. Pakistan's governments have successively reformed polices on this sector since independence, including allowing foreign exploration with the promise of high returns to investors.

2.4.8   Pharmaceutical Sector

At the time of independence in 1947, there was hardly any pharmaceutical industry in Pakistan. Today, there are around 400 pharmaceutical manufacturing units, including those operated by 25 multinationals. Pakistan's pharmaceutical industry is very energetic and forward looking. It supplies 70 percent of the country's demand for finished medicine. This is a comparatively juvenile industry on the international market, but with a large population and clear economic progress, Pakistan is a developing pharmaceutical market. Its export turnover in 2007 was more than US$100mn. The value of pharmaceuticals sold in this year exceeded US$1.4bn; however, this equates to a relatively low per capita drug spend of around US$9.30. By 2012 the value of medicines sold is expected to exceed US$2.3bn. The pharmaceutical industry is focusing on an export vision of US$500mn by 2013 (PPMA, 2012). The manufacturing organisations in this sector have formal investment plans for investing in human resource development programmes.

2.4.9   Sugar and Allied Sector

In 1947, West Pakistan had only two sugar mills – Frontier sugar mills and Rahwali sugar mills – with a capacity of 5,000 tons each. In 1954–6 three mills were incorporated with a capacity of 10,000–15,000 tons each. The demand for sugar increased daily due to the growth of related industries: beverages, food and bakery products. In 1980 Pakistan's sugar producing capacity was 1 million tons, from 35 sugar mills, and by 1990 increased demand had seen this production double. Pakistan is now the sixth largest sugar producer in the world, with 86

sugar mills and an annual capacity of 7 million tons of sugar. Present annual consumption for the country has passed 4 million tons, to a value of US$1.8bn (PSMA, 2012). Sugarcane production for 2011–12 is estimated at 58.0 million tons, compared to 55.3 million tons for the previous year – a 4.9 percent increase in production (Ministry of Finance, 2012). That is why in future management of this sector believe to have proper plans for IHCD.

2.4.10 Paper and Board Sector

Paper and board is a moderately capitalised sector. It comprises 10 listed companies, of which four pay regular dividends. Between 2002 and 2008 there was a marked surge in market capitalisation and a decline in the rate of dividends. Market capitalisation and dividends paid remained opposed to one other until the end of the period. Normally, earnings are retained to finance growth opportunities at the expense of dividends, but downhill figures in the growth opportunities in this sector made dividend cuts less attractive. Expansions in size and market capitalisation were used to justify the lack of investment in human resources, which is why the opportunities for growth were low. In future more investments may be made in HCD by this sector.

2.4.11 Tobacco Sector

Pakistan is the world's fifth largest tobacco producer. Two percent of its cultivation area is given over to the crop, and there are a total of 26 tobacco factories in the country. The government earns 12 percent of its total revenue and 45 percent of its excise taxes from the tobacco industry. The industry provides

100,000 jobs directly and indirectly to the population, and 70,000 families are involved in its cultivation. In foreign exchange earnings its contribution was US$19.26mn in 2009–10 (Ministry of Finance, 2006, 2011). Managers of these enterprises often look to invest in human resource development projects. They may believe that shareholders will make long term returns in the future after retaining well-developed employees today.

2.4.12 Miscellaneous Sector

This is a gigantic sector of the Pakistan with respect to its listings and numerous sub-sectors. It comprises five sub-sectors, namely: the jute, the vanaspati and allied products, glass and ceramics, personal care, and others. The total number of listed companies is 85, of which 37 are dividend payers. The earning potential of the companies remained positive throughout the period but investment plans for human resource development remained under pressure from top management. The companies had earned handsomely but the dazzling potential for growth, particularly in the first few years, led management to insist that funds should be directed towards investing in physical properties. This investment policy was preferred to dividend disbursement as the companies had sound opportunities to invest their funds, and a glittering market-to-book value ratio demanded it. As a result, massive growth was observed in the companies' size and their market equities, particularly in the last five years.

During the last five years, size and market capitalisation doubled. Having achieved a certain level of growth, companies increased their rates of dividend in

2008. This meant that investors in this sector would have expectations of large returns in the future. The companies instead preferred to invest more in physical properties than human resources, but thanks to under-developed human resources they have not achieved a certain level of growth.

2.5   Investment in HCD

As the economy passes through its developing stage it creates enough space for the augmentation of human resource management activities. However, the contemporary political state of affairs or the economic environment can have a negative effect. In Pakistan, human resource management promises a superior outlook with a positive contemporary state of affairs (Khilji, 2001). Informal HR practices without an appraisal system are being followed by almost all the manufacturing firms in Pakistan (Rana et al., 2005). Compared to other developing countries, lower employees are poorly paid in Pakistan, and employees are more anxious about those practices that may increase their earnings. Results indicate that promotion and compensation improve the performance of public sector employees. There is a weak relationship between perceived and actual performance because of centralised, top-tier decision making that does not involve lower-level staff (Bashir and Khattak, 2008). A dynamic business environment needs superior human resource management practices. To gain a competitive advantage in both substantial and insubstantial dimensions, organisations need to invest in such practices and proactively follow a strategic approach to human resource development (Khan, 2010).

A competitive analysis of the high performance management practices of manufacturing and service-based organisations in Pakistan has revealed that in comparison to the service sector, manufacturing sector focuses less on formal recruitment, selection, training, compensation, and performance appraisal. Instead, it focuses only on consultation (Raziq, 2011).

Empirical evidence on the human resource development practices and challenges faced by the manufacturing organisations in Pakistan reveals that they occasionally evaluate their HR activities but are not using techniques such as cost benefit analysis or ROI. The challenges for organisations are to determine a source for investment evaluation and devote time to it (Ahmed et al., 2010). Systems for evaluating investment in human resources are considered crucial for manufacturing organisations to achieve the desired efficacy of HCD. Without predefined criteria on how to conduct the analysis of such investments, there will be a gap between actual and desired performances in Pakistani manufacturing organisations (Bashir and Khattak, 2008).

Investment in HCD provides benefits to organisations, but the problem remains how to measure these (Johnson, 1998; Yadapadithaya, 2001; Taylor and Garrett, 2005). According to Campbell (1994; 1995) there is an urgent need for an accounting framework for the evaluation of human capital investment. Empirical research has been conducted by Chaudry and Roomi (2010) to account for the impact of HCD on Pakistani organisations. This research has exposed a positive relationship between the investments made in HCD and the benefits that can be

gained. They also argue that most organisations in Pakistan do not consider any cost incurred on human resource development as an investment. They also neglect to evaluate such investments. That is why there is great deal of scope for the present research because it provides a tool for evaluating human capital investment and converting its benefits into financial terms.

2.6   Accounting Practices in the Manufacturing Sector of Pakistan

According to Gladwin (1970), there is a long history of accounting in Indo-Pakistan. In 1583 the Indians used a Hindu method before adopting the Persian method of accounting. The accounting system in Pakistan came from India in the nineteenth century under British rule, through the Companies Act of 1850 and 1857. This Act required companies to submit their accounts as well as an auditor's report. The Act was followed by the Companies Act 1913, which included a complete roadmap for appointing employees, remuneration policy and the responsibility of an auditor (Saeed, 1993). The Companies Act 1913 required every company have to maintain accounts with reference to sales and purchase, receipts and payments of money, and assets and liabilities.

The Companies Act 1913 remained in place after independence until 1970. At this time a semi-autonomous Securities and Exchange Authority was created to monitor reporting practices in Pakistan. Its rules were defined in 1971 and came into force in 1972. It was now essential for listed companies to issue semi-annual reports. Pakistan became a member of the International Accounting Standard Committee (IASC) in 1974. Before this time Pakistan had no

accounting standard of its own. Members of the Institute of Chartered Accountants of Pakistan (ICAP) were asked to encourage their corporate clients to prepare their accounts according to International Accounting Standards. The Company's Ordinance of 1984 made this necessary for listed companies.

The Companies Ordinance 1984 also included critical accounting requirements, such as: the disclosure of remuneration, the passing of resolutions before funds are transferred to another company, and a limit on the amount of advances or commissions to an associated company of 20 percent of paid up capital plus the free reserves of the lender company. The Ordinance also forced the corporate sector to include the following in their reports: disclosure of material changes if they are changing the financial position of a company within a financial year, the name and country of incorporation and of its holding company if the company is outside Pakistan, earnings per share, and reasons for loss and further prospects for profit.

The Securities and Exchange Commission of Pakistan (SECP) is currently very effective in the implementation of accounting systems. The major improvement instigated by the SECP for financial reporting is the introduction of a new Code of Corporate Governance. As the accounting profession gains influence and independence it is good for accounting standards to be effectively enforced (Ball et al., 2003). Family-owned businesses in Pakistan once posed a threat to the independence of auditors, but since the creation of the SECP in 1999 this threat has been minimized. According to the SECP's annual report 2012:

The enforcement and monitoring division (EMD) of the SECP during the year under review identified several cases of negligence of statutory auditors where they had failed to act in conformity with the statutory requirements. The audit reports issued by such auditors failed to report material facts about the affairs of companies or otherwise contained untrue statements (SECP, 2012).

To minimize this negligence the SECP refers cases to ICAP for disciplinary action. ICAP, with the assistance of SECP, has become more effective in controlling the member firms to act according to statuary requirements (Ashraf and Khalid, 2005). It is claimed that these actions will help to improve the quality of Pakistan's financial reporting system. Another programme to improve the operation of audits is the Quality Control Review Programme, started by ICAP. The Code of Corporate Governance is also contributing effective participation.

ICAP advises its clients to adopt International Accounting Standards, but companies are hesitant to adopt these in the absence of any relevant law. However, an addition (Section 234) to the Companies Ordinance 1984 required listed companies to comply with these standards. In 1986 a notification was issued by SECP to adopt, following International Accounting Standards 1–2, 4–14 and 16–21. Pakistan later adopted almost all the accounting standards issued by IASC or IASB. These standards were issued by Britain and adopted everywhere in the world where Britain had an influence, even the United States (Gernon and Meek, 2001). The model was not necessarily the best for Pakistan

but was adopted because the country had been under Britain's influence for several decades. According to Hove (1986) the adoption of International Accounting Standards without change or attention is reasonably common in less developed countries.

On the wishes of ICAP, the SECP has now adopted the new standards, alongside some old standards that were not previously in effect in Pakistan. The following is a list of International Accounting Standards which, under the Companies Ordinance 1984, should be followed by listed companies in Pakistan:

- IAS 1: Presentation of Financial Statements
- IAS 2: Inventories
- IAS 7: Cash Flow Statements
- IAS 8: Net Profits or Loss for the Period, Fundamental Errors and Changes in Accounting Policies
- IAS 10: Contingencies and Events Occurring After the Balance Sheet
- IAS 11: Construction Contracts
- IAS 12: Income Taxes
- IAS 14: Segment Reporting
- IAS 16: Property, Plant and Equipment
- IAS 17: Leases
- IAS 18: Revenue Recognition
- IAS 19: Employee Benefits
- IAS 20: Accounting for Government Grants and Disclosure of Government Assistance
- IAS 21: The Effects of Changes in Foreign Exchange Rates
- IAS 22: Business Combinations
- IAS 23: Borrowing Costs
- IAS 24: Related Party Disclosures
- IAS 25: Accounting for Investments
- IAS 26: Accounting and Reporting for Retirement Benefit Plans.

However, there are some issues that can affect the implementation of accounting standards in developing countries such as Pakistan. As Mueller (1968) argues,

economy type, economic development stages and pattern of growth can influence a particular country's accounting practices. Furthermore, Doupnik and Salter (1995) suggest that types of business transaction will be affected by economic development stages, with the nature of the economy determining what types of transactions are dominant. Level of education may also have an effect on the accounting profession and accounting practices (Radebaugh, 1975), and Doupnik and Salter (1995) hold that the expansion of sophisticated accounting practices is influenced by the level of education in a country. As elaborated by Saudagaran and Diga (1997), the developing countries of South Asia adopted International Accounting Standards so readily because of their limited research resources. It is reasonable for a country to adopt these standards and so acquire credibility among international users of a qualitative reporting system in a short period of time (Ball et al., 2003).

Working under the approach that "Something is better than nothing", Pakistan adopted these standards early and when they were still not popular among member countries of the International Accounting Standards Board (IASB) (Khalid et al., 2012). When the IASB issued new standards in the 1990s, those companies which were listed set out to improve their financial statements by adopting these newly established standards.

2.6.1   Accounting for Investments in HCD

A plethora of literature proves that for manufacturing organisations their most powerful asset is not the limited property or capital resources at their disposal, but

the knowledge and skills of their employees and the ability of the organisation to control them effectively. When contractual arrangements provided for reward based on the level of corporate investment, it became clear that organisations were at disadvantage because the value of the knowledge and skills of their human resources appeared nowhere in the traditional accounting system. Management tools are dominated by accounting data and the discipline of management is, among other things, the skill of translating accounting information into behaviour.

Despite the development of new tools, such as the value chain and the balanced scorecard, the accounting profession has failed to broaden its scope sufficiently. The current operational framework is derived from the needs of business during the industrial revolution, when wealth was created through a combination of capital, commodities and labour, all of which had to be controlled and accounted for. Where an organisation's principal asset is the knowledge and skills of its employees, the performance measurement information currently produced by the accounting professional rarely provides appropriate or relevant information and indeed may be misleading to management. Since managing the knowledge and skills of employees is the current organisational challenge (Handy, 1996) it is now time to rethink the presentation of accounting information to management.

This thesis is, in part, a search for ways to meet this challenge. For this reason, it will be necessary to consider whether it is possible for accounting and human resource professionals to work effectively together to facilitate the creation, and nurture the growth, of organisational wealth and competitive advantage. The

judicious management of the talent and accumulated knowledge of an organisation's human resources will require the existence or development of an information chain between these two concepts. Such a chain should not only enable managers to monitor the performance of their human resources, but also enable others to assess an organisation's ability to manage its human resources effectively. In many respects, it could be considered the beginning of a long search for a planning, control and performance measurement system that accounts for the human element of an organisation's human assets in a manufacturing organisation.

As discussed in this chapter, the development of the concept of human resource accounting has been hampered and remains under-researched due to three issues, a trilogy of excuses that are made by the Pakistani manufacturing organisations. First, most organisations are reluctant to account publicly for the management of their human resources. Second, there is a widely held view in the manufacturing sector that human resources cannot possibly be assets because they are not owned by the organisation. Third, the accounting profession seems unable to determine an acceptable methodology for calculating an objective and meaningful value of investments in human resources. These underlying issues are reflected in the aim and objectives of this thesis as set out in Chapter 1.

2.7   Summary

This chapter has attempted to review the context of the study setting. Its main body has focused on the background of the country in which this research was

conducted, the structure of the Pakistani manufacturing sector, policies for investing in HCD, and the accounting practices adopted by manufacturing organisations for the appraisal of this investment.

The chapter has revealed the development of prevailing human resource practices and accounting systems in the manufacturing sector of Pakistan. In these organisations there are no proper policies for human resource development. Such profit-oriented organisations prefer to invest in physical properties over human assets. A framework is required to help these enterprises in calculating their financial returns, and so encourage them to invest in human resource development programmes. Therefore, there is an urgent need for the current study in the context of Pakistan.

The next chapter explores and reviews the existing literature in order to develop the study's theoretical framework.

Chapter 3   Literature Review

3.1   Introduction

It is important for researchers to familiarise themselves with existing research prior to collecting their own data (Easterby-Smith et al., 2009). This chapter therefore provides a detailed review of the literature on HCD and human resource accounting. In addition, an analysis of previous work relevant to this research served three further purposes. First, by providing direction on the construction of data collection instruments, it guarded against the risk of overload in the primary data collection stages of the study. Second, working the findings from the extent literature into a formal review helped to maintain throughout the research a sense of the topic's perspective. Finally, it raised opportunities for articulating a critical analysis of the data collected.

Previous research conducted in different countries has focused on exploring the effectiveness of human capital (Becker, 1993; Zula and Chermack, 2007), training and human resource development (Campbell, 1994; Athari and Zairi, 2002), the evaluation of training and development programmes (Phillips and Phillips, 2001; Kirkpatrick, 2004; Phillips and Whalen, 2004; Phillips, 2006), human resource accounting (Flamholtz, 1971, 1985; Sackmann et al., 1989; Roslender et al., 2006; Roslender and Stevenson, 2009), and the measurement of human resources in an

organisation (Flamholtz et al., 2003; Bullen, 2007; Roslender and Stevenson, 2009; Bullen and Eyler, 2010; Chaudhry and Roomi, 2010). The review of these studies has guided the construction of the theoretical framework of said study.

The chapter begins by defining human capital. Then, in its subsequent sections, it explains HCD, the evaluation of investment in HCD, human resource accounting, models of human resource accounting, the historical development of human resource accounting, and the place of human resource accounting in financial reporting and managerial accounting. It elaborates on how contingency theory and the use of various practices in human resource accounting lead organisations to investigate the financial returns and the likely consequences of investing in HCD. It also identifies gaps in the literature and justifies the study's contributions on the basis of a critical analysis of existing literature. Finally, the chapter concludes with a summary.

3.2   Human Capital

Human capital is the unique abilities, capabilities and expertise of an organisation's employees (Becker, 1962; 1995; Roslender et al., 2006). It recognises the fact that people in organisations and businesses are essential assets which, like physical and financial assets, contribute to the organisation's development and growth. The collective attitudes, skills and abilities of an organisation's employees contribute to its performance and productivity (Becker, 1964; Zula and Chermack, 2007).

Schultz (1961) proposed that human capital has increased at a rate greater than the capital of non-human or physical assets. For this reason, the effective management of human capital creates a source of sustained competitive advantage: employees' skills and commitments are key components in the value creation process (Wright and McMahan, 1992; Pfeffer, 1994). The human resource management practices that are effective, such as investment in HCD, are those that are associated with lower employee turnover, greater productivity and financial performance (Cascio, 1991; Huselid, 1995; 1998). Bontis and Fitz-enz (2002) argue that human capital antecedents and the consequents developed thereof show that human capital investment has a positive influence on the effectiveness of human resource management and firms' financial performance (Zula and Chermack, 2007).

According to previous studies (Riordan and Williamson, 1985; Barney, 1991; Becker, 1993; Chen and Lin, 2004; Samudhram et al., 2010; Tollington and Tawy, 2010), human capital has been defined by three different approaches: the transaction cost economy theory, the resource-based view of the firm and human capital theory. These are outlined below.

3.2.1   Transaction Cost Economy Theory

The transaction cost economy theory assumes that companies choose to hire employees in the most efficient way. At the time of hiring, enterprises can recruit new staff from outside or develop their existing staff. The former approach may involve a hiring cost and the latter will trigger a development cost. Enterprises compare all the relevant costs to choose the most economical of these two

alternatives. Within the context of this theory human capital possesses the dual properties of asset specificity and asset uncertainty (Riordan and Williamson, 1985; Chen and Lin, 2004).

3.2.2 The Resource-Based View

The resource-based view of the firm states that core skills are central to an organisation's competitive advantage. They must be acquired from internal development within the organisation itself; general technology can be acquired by outsourcing. This theory focuses on the fact that those employees capable of core skills are assets who deserve attention and investment (Wernerfelt, 1984; Barney, 1991; Chen and Lin, 2004; Samudhram et al., 2010). The value of human resources can be shown by the following test. Suppose that tomorrow morning a firm still had all of its physical assets – plants, offices, laboratories, warehouse, stores and equipment – but no personnel except for its president. How much cost and time would be required to rebuild the organisation's human resources so that it was back to its previous level of effectiveness? To grow or even to survive, an organisation must manage its people properly. They are the most important key to success and profitability (Eggers, 1971; Abhayawansa and Abeysekera, 2008).

3.2.3 Human Capital Theory

Human capital theory argues that enterprises decide how much human capital investment to make by comparing it with the potential future benefits, such as improvements in production controls. Human capital in this context is referred to as the investment made in employees' technical training and knowledge build-up

(Becker, 1993; Chen and Lin, 2004). This theory also considers human capital to possess the dual properties of asset specialized skills and non-transferability (Zula and Chermack, 2007; Tollington and Tawy, 2010).

Under this theory, human capital also refers to the investments made by an organisation to develop the core competencies of employees in order to gain a competitive edge. Those employees with core skills are the foundation for any organisation to raise its profits and to achieve its strategic goals (Chen and Lin, 2004). For this reason the HCD function must be considered a business partner like any other. It provides capital in the form of human skills and efforts and demands a return in the form of reward (Becker, 1962; Parry, 2004; Murthy and Abeysekera, 2007). That is why; the following section presents an overview of human capital development.

3.3   Human Capital Development (HCD)

The process of learning that prepares employees to keep pace with the changes and growth of an organisation is known as HCD (Kirkpatrick, 2004). Activities in HCD not only increase the capacity of human resources but also strengthen the human capital of an organisation (Bras and Rodrigues, 2007; Zula and Chermack, 2007). They may thus help companies to face the challenges of today's market and to achieve their long-term objectives.

Simply, HCD is any activity that improves workers' productivity (Stiles and Kulvisaechana, 2003; Zula and Chermack, 2007). More specifically, it means the

skilful provision and organisation of learning experiences in the workplace. The development of human resources involves a set of continuous activities that are designed to improve employee competency and organisational performance (Becker, 1993; Flamholtz et al., 2003; Zula and Chermack, 2007).

Enhancing the skills, knowledge, learning ability and enthusiasm of human resources at every level will bring continuous individual and organisational growth (Harrison, 1992). In today's world, every organisation has to develop its human resources on a regular basis so as to maintain its competitive edge (Kirkpatrick, 2004). HCD programmes provide a basis for this competitive advantage (Subedi, 2006). Organisations must use these programmes to improve their performance, achieve better organisational goals, reward good performance, and to achieve a higher position in the market. For these reasons human resource development programmes have become an essential feature of organisational life (Zula and Chermack, 2007; Kouhy et al., 2009).

There are numerous ways to improve human capital, including formal education, on-the-job learning or training provided by the firm. An important component of HCD is the knowledge and training acquired by a person that increases their ability to perform activities of economic value (Becker, 1993; Barcala et al., 1999). Under human capital theory training is assumed to be pivotal because it enhances the quality of human capital (Bras and Rodrigues, 2007). Great attention has therefore been paid to it, and the next section elaborates the role of training in HCD in the workplace.

3.3.1   Training and HCD

Human resource development is a major function of human resource management. It consists not only of training and development but also individual career planning and development activities, organisational development, and performance appraisal (Bras and Rodrigues, 2007; Mahapatro, 2010). Training and development lies at the heart of any continuous effort to improve employee competency and organisational performance. Training is the process of providing employees with the knowledge, skills and abilities to perform their present jobs; and development refers to their growth and preparation for higher-level jobs. Development is the process of learning that enables employees to keep pace with organisational growth and change (Kirkpatrick, 2004). Some managers, however, use these terms interchangeably.

Human capital theory defines any expenditure on the training and development of human resources as an investment (Becker, 1962; Bras and Rodrigues, 2007). Human resource development assumes a direct connection between training and performance outcomes: learning, behavioural change and performance improvement (Becker and Gerhart, 1996; Santos and Stuart, 2003). Training and development programmes are equally important for an organisation and its employees (Wagar, 1997; Ballot et al., 2006). Effective programmes bring positive changes in behaviour, which lead to positive changes in the overall performance of the organisation (Bedingham, 1997; Bras and Rodrigues, 2007; Mahapatro, 2010).

According to Becker (1993), the rationale for investing in employee training and development programmes is that they reap benefits for the enterprise through higher productivity, and for employees through higher incomes. According to Subedi (2006), training is a source for improving performance, achieving better organisational goals, rewarding good performance and gaining promotion to higher positions. For these reasons training has become essential to the development of an organisation's human resources (Bras and Rodrigues, 2007).

There are two main types of training programme directly related to HCD: on-the-job training and schooling, and off-the-job training. On-the-job training means learning new skills and perfecting old ones while on the job (Becker, 1993; Dessler, 2009). This training occurs when employees work alongside experienced members of staff (Bras and Rodrigues, 2007). It is particularly beneficial for new employees. To begin with, incoming employees may simply observe their colleagues. They are often also given instruction manuals or interactive training programmes to work through (Dessler, 2009). From the point of view of employee development, on-the-job training can be further split into two sub-categories: general training and specific training.

General training transmits knowledge that has a productive value across many different firms. It provides employees with skills that are useful in many firms besides the one providing it (Zula and Chermack, 2007). Controlling the benefit of general training should an individual leave the firm is therefore a problem (Becker, 1993; Bras and Rodrigues, 2007; Zula and Chermack, 2007). Specific

training transmits knowledge that is relevant only to the firm in question, and would not be useful in other firms (Becker, 1993; Becker and Gerhart, 1996; Bras and Rodrigues, 2007; Zula and Chermack, 2007).

For this type of training employees are taken away from their place of work (Becker, 1993; Zula and Chermack, 2007). The training may take place at an agency or local college, although many larger firms also have their own training centres or colleges (Dessler, 2009). This type of training may be given in the form of lectures or self-study and can be used to develop employees' general skills and knowledge (Zula and Chermack, 2007).

According to Becker (1993), education, training and development-related programmes have a positive effect on productivity. Individuals and enterprises will also benefit economically from investments in people. Managers and organisational leaders should think of training expenditure as a source of competitive advantage (Bras and Rodrigues, 2007). An organisation's success is associated with the quality of its human capital and well-performed practices of human resource management (Zula and Chermack, 2007).

It is therefore suggested that organisations must develop policies for retaining human resources. In other words, the risk of losing the benefit from an organisation's training investment is minimal if it knows how to attract and retain qualified human resources (Becker, 1993; Becker and Gerhart, 1996; Zula and Chermack, 2007). Organisation should develop ways to distinguish productive

human resources from others (i.e., performance evaluation) and ways to be effective in their training programmes (Bras and Rodrigues, 2007). The training and development of human resources is a costly investment but it will yield rich dividends in the long run. Its role and importance should therefore be recognised at all levels (Yadapadithaya, 2001; Brinkerhoff, 2006).

3.3.2 Training Outcomes

There are many potential benefits of training for enterprises. These may include increased sales, greater market share, reduced operating costs, lower rates of absenteeism or other objectives (Daniels, 2003). Training and development also has the potential to align an organisation's employees with its corporate strategies. Competitive advantage can be achieved by developing the sophistication of the workforce and creating "winning" companies (Sloman, 1996). The considerable gains of training programmes outweigh their cost (Stout, 2005; Hansson, 2007).

Virtually, in every market customers now demand for higher quality, lower costs and faster cycle time. To meet these requirements, organisations must continually improve their overall performance (Mahapatro, 2010). Rapid advances in technology and improved processes have helped businesses to meet these challenges. However, the most important competitive advantage for any organisation is its workforce. This must be kept competent through continuous training and development efforts. Well-structured and valuable training and development of employees correlates strongly with the long-term organisational success.

Global competition has further made training programmes a competitive tool (Yadapadithaya, 2001). Those organisations that invest more heavily in training and developing their employees, will have higher productivity and be better able to compete globally (Wagar, 1997; Bras and Rodrigues, 2007). Training also has benefits within the organisation. It can expand an organisation's knowledge data base and support the implementation of better technology (Bras and Rodrigues, 2007). Training and development programmes help in the adoption of innovations and outside knowledge about better organisational operations, advancement and business growth of organisations (Kurosawa, 2001; Action and Golden, 2003).

As well as improving workers' skills and knowledge, training also improves their standard of working life and personal satisfaction. Interpersonal communication of employees is improved (Kirkpatrick, 2004) and rates of absenteeism and turnover are reduced (Pollitt, 2006). Many factors may affect the outcome of training. They may be internal or external to the organisation. In order to control them, line managers should be involved at every stage, from training identification to training evaluation (Daniels, 2003), and trainers should work in a partnership role (Rabey, 2001). Training is considered an investment (Becker, 1993) and, as with any other investment, entails costs and benefits which must be evaluated properly for effective decision making (Zula and Chermack, 2007).

3.4   Evaluating Training and Development Programmes

Every training and development programme must be judged according to its impact on the organisation. Training can be considered effective if it has well-

defined objectives, is geared to individual abilities, is regularly assessed, and is incorporated into an ongoing business plan (Rabey, 2001; Bras and Rodrigues, 2007). Evaluation is concerned with assessing the benefits of training in financial terms to the organisation; this includes training costs and the influence of improved job performance on profitability (Stout, 2005; Brinkerhoff, 2006; Bras and Rodrigues, 2007). The evaluation of training and development programmes has two main purposes: to improve the training and development process, and to decide whether or not to continue these programmes.

Although most training and development programmes clearly improve overall organisational performance yet organisations devote little attention to evaluating their training programmes in true terms (Santos and Stuart, 2003). Various deficiencies have been identified. Evaluating development programmes is difficult, time-consuming and costly (Motwani et al., 1994; Bedingham, 1997; Cifalino and Baraldi, 2009). Evaluation processes are normally carried out on the basis of unclear or inappropriate criteria (Yadapadithaya, 2001). Hashim (2001) identified two basic reasons for not evaluating training: training is always considered to give a productive return, and trainers are not encouraged to conduct evaluations. Phillips (2006) has mentioned a list of common myths regarding the evaluation of training: there is a lack of information, evaluation programmes are not useful, evaluation programmes lack applicability, top management is not interested, other variables have an impact, evaluation means negative criticism, there is no learning environment, there is no way of proving one's worth, and evaluation is costly.

Organisations most often conduct evaluations to find out whether or not their training and development programme have met their objectives (Yadapadithaya, 2001). Hashim (2001) argues that evaluation is important because it helps to the decision makers in improving the training process and facilitate participants' job performance. According to Phillips and Phillips (2001), evaluation can help an organisation to understand its strengths and weaknesses, the impact of training on individuals, the impact of training on the organisation, any remaining deficiencies, the cost versus benefits of training, and areas of focus for future development. It can also improve a organisation's public image.

Evaluation has taken on even greater significance for managers in today's business world. The more quickly you evaluate, the more you learn, and the more quickly the business will benefit and your skills will develop (Thorne and Mackey, 2004). Training and development is not cheap. Organisations spend large sums of money on such programmes. It is understandable, therefore, that managers should be asked for a justification for these costs (Hashim, 2001) to ascertain whether training meets the organisation's objectives (Motwani et al., 1994), and whether there are any deficiencies in training modules and how they can be improved (Kirkpatrick, 2004). Phillips and Phillips (2001) found that an increase in training budgets led to an increasing interest in the evaluation of training. They also described that managers have to justify this investment in terms of cost, number of beneficiaries and outcomes in terms of learning, performance, productivity and return on investment.

Evaluation can add value to the training itself (Hui Lien et al., 2007). Phillips and Whalen (2004) report that as expenditure grows, accountability increases. The purpose of any evaluation is to examine the training provided and to determine how effective it has been (Leigh, 2005). Evaluation should be a meaningful measurement that tracks real values and whose results will improve the bottom line (Goldmann and Hart, 2002). Organisations or departments that hope to get results from training will always take an interest in measuring its effectiveness (Motwani et al., 1994; Bedingham, 1997; Athari and Zairi, 2002; Bras and Rodrigues, 2007; Cifalino and Baraldi, 2009).

3.4.1 Techniques for Evaluating Programmes

There are different methods for measuring the effectiveness of training and development programmes. Which one an enterprise chooses will depend upon circumstances (Leigh, 2005) and what it wants to assess (Taylor and Garrett, 2005; Phillips, 2006). The measurement of learning has shifted from programme-level or activity-based evaluation (number of participants, number of programmes offered, use of equipment) to organisational-level or outcome-based evaluation (value of the programme to an organisation). This covers the investments made in learning and the value that they create for the organisation (Teixeira, 2002; Phillips and Whalen, 2004; Youndt et al., 2004; Murray and Efendioglu, 2007).

According to Thorne and Mackey (2004), two types of information may be evaluated: qualitative and quantitative. Similarly, Bambrough (2003) has described two approaches for measuring the effects of training: qualitative

methods (interviewing, observation, focus groups, self reflection, case study, and attitude survey) and quantitative methods (tests before and after, quantifying the effects of organisational outcome, cost/benefit analysis).

Often a test is used after a training and development programme for the purpose of evaluation. Such a test examines the effect of training on a trainee's job performance. What training researchers call for – the transfer of skills to the workforce – is rarely or never done (Mahapatra and Lai, 2007). Phillips (2006) has referred to the CIRO (context, input, reaction and outcome) model, developed in 1976 by Warr, Bird and Rackham, for evaluating a programme. Kirkpatrick (2004) describes a similar set of four criteria for evaluating training: reaction, learning, behaviour, and outcome. This model is widely used by organisations but it falls short in ascertaining the financial results of the training cost (Goldmann and Hart, 2002; Phillips, 2006).

The real measures for evaluating training are productivity, efficiency and usefulness. Training can be evaluated by customer satisfaction, market share and employee performance, but the whole training programme must be looked at in order to properly measure its effectiveness (Motwani et al., 1994; Bedingham, 1997; Cifalino and Baraldi, 2009). Thorne and Mackey (2004) state that an evaluation should cover perceptions of the worth of training, the overall views of stakeholders regarding the training, effectiveness before and after training, the commitment and competence of staff, and the usefulness of the training. Swanson (1999) introduced five variables to his performance model: mission, systems

design, capacity, motivation and expertise. Santos and Stuart (2003) suggest that training should be evaluated through the three layers of immediate, intermediate and final evaluation.

Among the various methods of evaluation that have been devised, some, especially those that measure reactions or satisfaction are more widely used than others. However, the benefits of collecting data at each level are uncertain. For this reason organisations may not succeed in measuring the impact of training (Mann and Robertson, 2007). Learning has no precise value, as it is impossible to predict how long employees will be able to use it. Likewise, attitudes and reaction measures are not predictors of future performance. Such measures should be therefore be used with care. One of the main obstacles in employing effective evaluation procedures for training programmes is knowing how and what to evaluate (Mann and Robertson, 2007).

The model proposed by Phillips and Phillips (2001) is essentially a more comprehensive extension of Kirkpatrick's four-level model (2004; see above), with the addition of a fifth level − return on investment (ROI). ROI is a measurement of the financial impact of training and development on an organisation (Brinkerhoff, 2006). By using Flamholtz's work on the measurement of human resources (1999), Flamholtz, Bullen and Hua introduced in 2003 a practical method for calculating the ROI of employee development and organisational management.

Campbell (1994; 1995) believes that emphasis should be given to translating training benefits into monetary terms, and then comparing those benefits with costs using capital investment appraisal techniques. He found that most enterprises will only calculate the ROI. This value probably appeals most to higher management, since managers are accustomed to thinking in such monetary terms. Campbell defines the ROI of training as "the rate at which training returns in terms of its investment (its cost)" (Campbell, 1995). He outlines three steps to calculating the ROI of training: first add the direct and indirect costs of training to arrive at the total training cost; second, gather baseline measures for which benefits are to be calculated; and finally analyse the benefits of training in the shape of the outcomes calculated on the baseline.

According to Goldmann and Hart (2002), a better way to measure the impact of training is to divide the training process into the stages of goal setting, identification of evaluation method, estimation of ROI and measurement of its baseline impact. They also refer to the fact that ROI justifies the financial returns to the organisation, and ensures that the benefits of training are in balance with the cost of training. They further found that it is not possible to measure ROI without measuring all four levels of Kirkpatrick's evaluation model (reaction, learning, behaviour and outcome). ROI should be calculated because budgets can be justified, objectives can be measured, trainers and trainees will be more committed, and weaknesses can be identified (Parry, 2004). The ROI of human resource development depends on how enterprises make use of training; how it is

organised, planned and implemented; and above all followed-up and supported (Brinkerhoff, 2006).

In spite of the best efforts of organisations and professionals, significant problems still exist in evaluating the true financial impact of investment made in HCD (Wagar, 1997; Bras and Rodrigues, 2007; Abhayawansa and Abeysekera, 2008). In order to estimate and measure the worth of investment in HCD programmes, there is a need for methods to quantify the cost and value of developing knowledge, skills and abilities for the organisation. It is this need that gave birth to "human resource accounting".

3.5   Human Resource Accounting

In the literal sense, human resource accounting means accounting for people as organisational resources (Roslender and Stevenson, 2009). Flamholtz (1971) describes human resource accounting as the process of measuring and reporting the cost and value of people in organisational resources. In 1973, a committee of the American Accounting Association (AAA) prepared a report on human resource accounting after empirically collecting and analysing data on the various problems of organisations regarding human resources. The committee defined human resource accounting as:

> *"A process of identifying and measuring the data about human resources and communicating this information to interested parties (AAA, 1973: 169)"*

Human resource accounting is intended as a managerial tool. Ultimately it may be desirable to furnish present and potential investors with information about the firm's human capital (Flamholtz, 1974; 1999; Glautier, 1976). Human resource accounting provides potential investors with better information about the present state of the organisation and its possibilities for growth. To managers it provides information about the cost of their personnel policies and feedback on their own management styles (Caplan and Landekich, 1974; Sue, 1981; Bullen, 2007). Human resource accounting thus measures not only all the costs or investments associated with the recruitment, placement, training and development of employees, but also the economic value of the people in an organisation (Flamholtz, 1999; Flamholtz et al., 2004; Bullen and Eyler, 2010).

The next section discusses the development of various models of human resource accounting for the evaluation of human resources as an organisation's assets.

3.6   Human Resource Accounting Measurement Models

Human resources may be measured in terms of human resource cost or in terms of human resource value (Flamholtz, 1971). According to Flamholtz (1973), the measurement of original human resource cost may be explained in terms of the two major categories of acquisition costs and learning costs. Acquisition costs include the direct costs of recruitment, selection, hiring and placement, and the indirect costs of promotion or hiring from within the firm. Learning costs include the direct costs of formal training and orientation and on-the-job training. In a human resource accounting system, these costs are reported as assets rather than

as expenses because of the future economic benefits they will bring (Flamholtz, 1973; Flamholtz et al., 2003; Flamholtz, 2005; Bullen, 2007).

Flamholtz (1999) explained that the concept of human resource value is derived from general economic value theory, and, like all resources, people possess value because they are capable of rendering future service. Thus he argues that an individual's value to an organisation can be defined as the present value of the future services the individual is expected to provide over the period of time that the individual is expected to remain in the organisation (Flamholtz, 1999, 2005).

The Stochastic Rewards Valuation Model, originally developed in 1971 by Flamholtz for human resource valuation, and further explained by him in 1999, is a five-step process that begins with defining the various service states or positions that an individual may occupy in the organisation. It next determines the value of each state to the organisation – the service state values – which can be calculated either by using a number of methods such as the price-quantity method or the income method. Then the person's expected tenure or service life in the organisation is calculated and the person's mobility probability or the probability that a person will occupy each possible state at specified future times is derived from archival data. Finally the expected future cash flows that the person generates are discounted and their present value is determined. According to Flamholtz (1999), there is a dual aspect to an individual's value. First, the person's "expected conditional value" is the amount that the organisation could potentially realise from a person's services if he or she maintains organisational

membership during the period of his or her productive service life. Second, the person's "expected realizable value" is the amount actually expected to be derived, taking into account the person's likelihood of turnover.

In (1971) Lev and Schwartz developed a similar model to that of Flamholtz. They argued that human resource value measures human capital by calculating the present value of a person's future earnings. Dobija (1998) proposes an alternativee model for capitalisation, in which the rate of capitalisation is determined through the natural and the social conditions of the environment. Utilising a compound interest approach, this method takes into account the three factors for valuing the human capital embodied in a person. These include the capitalised value of cost of living, the capitalised value of the cost of professional education, and the value gained through experience.

Turner (1996) refers to the framework issued by the International Accounting Standards Committee and recommends the use of the present value of the value added by enterprise. He measures assets by the four methods of historical cost, current cost, realizable value and present value. Cascio (1998) proposed a method for measuring human capital based on indicators of human capital of innovation, employee attitudes and the inventory of knowledgeable employees. According to this method, innovation commands a premium and therefore needs to be measured, for example by comparing gross profit margins from new products to the profit margins from old products. Employee attitudes predicting customer satisfaction and retention are an important indicator of human capital and

therefore also need to be measured, as well as measures of tenure, turnover, experience and learning.

Using Flamholtz's Stochastic Rewards Valuation model, Flamholtz, Bullen and Hua (2003) presented a practical method for calculating ROI on management development, and demonstrated the incremental cash flows that an organisation will receive through investing in development programmes. They concluded that the use of human resource accounting as a tool to measure the value of management development enhances not only the value of human capital but also the value of managerial decisions regarding the management of human resources.

Although academic research on human resource accounting has been conducted since the 1970s, specific methods of measuring human resource costs and values still remain largely undeveloped. The next section elaborates the detailed historical developments in the area of human resource accounting.

3.7 Historical Development of Human Resource Accounting

Accounting for human resources is not a modern day phenomenon. In the fifteenth century ownership of slaves was recorded in the ledgers of traders. In this instance, humans – in the form of slaves – were part of the owner's trading stock and their value was included in the balance sheet alongside all other commodities that were for sale (Pergallo, 1981). The Romans introduced accounting practices for recording the ownership of slaves. The value of humans, in the form of slaves for sale, was included in their owners' statements of wealth (Glautier and

Underdown, 1973). Pre-Civil War accounting records in the United States of America reveal an account entitled "Negroes, Carts, Mules, etc" (Flesher and Flesher, 1980).

In these eras slavery abounded and most business organisations really did own humans who were rightly, in organisational terms, classified as long-term or non-current assets. These examples were more akin to the present challenge for researchers to evaluate the need to account for human resources. Human resource accounting gained the attention of researchers in the early 1960s and is now an issue of interest to areas of management accounting and human resource management. Flamholtz (1999) argues that the development of human resource accounting has passed through five stages, and these are described below.

3.7.1   Derivation of Basic HRA Concepts (1960–1966)

Early interest in human resource accounting came from a variety of sources. Some early researchers in the field of accounting (Scott, 1925; Paton, 1962) provided theoretical support for treating people as assets of an enterprise and for their value to be recorded in financial statements. Early organisational psychologists such as Likert (1961) were concerned with leadership effectiveness and the "human resource perspective", which was based on the premise that people were valuable organisational resources. In his pioneering book *Accounting for Human Assets*, Roger Hermanson (1964) described a model for measuring the value of human resources in external financial reports. His work inspired the next phase in the development of human resource accounting.

3.7.2   Basic Academic Research on Developing Models (1966–1971)

This stage saw the development of basic academic models for measuring human resource cost and value. Research at this time sought to formulate the present and potential uses of human resource accounting as a tool for human resource professionals, line managers and external users of corporate financial information. Few experimental applications of human resource accounting in actual organisations were seen at this stage (Flamholtz, 1969, 1971).

In 1967, a research team that included the late Rensis Likert, R. Lee Brummet, William C. Pyle and Eric Flamholtz carried out a series of projects designed to develop concepts and methods of accounting for human resources. The outcomes of this research included an article that represents one of the earliest works in the area of human resource measurement (Brummet et al., 1968), and the one in which the term "human resource accounting" was used for the first time. The authors highlighted the deficiency of treating employees' costs as expenses rather than as assets. In another article published in same year, "Accounting for human resources" (Brummet et al., 1968), the same authors assess the impact that human resource accounting could have on management.

Flamholtz's (1969) PhD dissertation formulated a theory of an individual's value to an organisation. In the same year, Brummet et al. (1969) emphasised human resource accounting as a tool for increasing managerial effectiveness in the acquisition, development, allocation, maintenance and utilisation of human resources. One of the first attempts to develop a system of accounting for a firm's

investments, it studied the application of human resource accounting in R. G. Barry Corporation, an entrepreneurial public company.

3.7.3   Significant Academic Research and Growth (1971–1976)

The third stage in the development of human resource accounting was a period of rapidly increasing interest. It involved a significant amount of academic research and also saw some early attempts to apply the theory to actual business organisations. The R. G. Barry experiment, begun in 1969, continued during this stage. The experiment received considerable recognition because, at least for a few years, the company included human assets in its published financial statements. This, in turn, increased interest in human resource accounting. Because it was dramatic and innovative, "putting people on the balance-sheet" became for many people their dominant impression of human resource accounting (Flamholtz, 1971). Another indication of the practical dissemination of academic theory was the establishment by the AAA of committees on human resource accounting in 1971–1972 and 1972–1973; both committees published reports on its development. The AAA's involvement proved a catalyst for research during this period.

3.7.4   Declining Interest in Human Resource Accounting (1976–1980)

The fourth stage in the evolution of human resource accounting was characterised by a decrease in interest, although it did not die out completely and some worthwhile activity took place.

One reason for this decline was that most of the relatively easy preliminary research had been accomplished. The research required to develop human resource accounting was complex, could only be accomplished by a few scholars, and required the cooperation of organisations willing to serve as research sites for applied research studies. Since relatively few individuals had either the skills to conduct such research or the qualifications required to obtain the necessary corporate participation, few major studies were performed. Furthermore, the research required involved the application of human resource accounting. The cost of subsidising such research was significant, and the benefits were either uncertain or would add to the field as a whole and not necessarily to the sponsoring firm.

Human resource accounting seemed at this time to have been a promising and interesting idea for organisations but not worthy of large investments of money, time and energy in its research (Flamholtz, 1976; Oliver and Flamholtz, 1978).

3.7.5   Revival of Interest in Human Resource Accounting (1980–)

The most recent stage has seen a revival of interest in human resource accounting. The first sparks of renewal occurred in 1980, and since then there have been an increasing number of significant new research studies (Flamholtz and Geis, 1984; Flamholtz, 1985). There was an emerging need for some practical models that could measure the cost, investment and value of human resources. Different models to suit the specific requirements of different organisations have been developed, incorporating both tangible and intangible aspects of human resources.

Today human resources are perceived as strategic resources. It has therefore become important to gain a clear estimation of their value (Roslender et al., 2006; Khan and Khan, 2010). The additional pressures of corporate governance and the corporate codes of conduct that require transparency in accounting have further supported the need to develop methods that measure the value of human resources (Flamholtz et al., 2004; Bullen, 2007; Roslender, 2009). There is a broad consensus that human resources are essential to firms, but this reflects an economic perspective, which is at odds with accounting (Hunter et al., 2010).

The following section elaborates why human resources have failed to gain a position as assets in enterprises' published financial statements.

3.7.6 Human Resource Accounting and Financial Reporting

Although most economists treat human resources on a par with other forms of earning assets, accountants do not generally consider them as such (Lev and Schwartz, 1971; Flamholtz, 1974; Flamholtz and Lacey, 1981; Hunter et al., 2010). Economists view expenditures in HCD as an investment made in the expectation of future or long-term benefits (Fisher, 1930; Flamholtz and Lacey, 1981; Flamholtz, 2005). Flamholtz (1971) argued that human resource accounting treats any cost of human capital as an investment that will provide future benefits to the company, and that must be reported as assets on a balance sheet. This approach contrasts with traditional accounting, which treats the costs of human resources only as expenses (Flamholtz et al., 2002; 2004; Bullen, 2007; Roslender, 2009; Bullen and Eyler, 2010).

Accountants have maintained their traditional focus on accounting for the organisation's *observable* assets. Prudence and the avoidance of overstating assets and earnings motivates this traditional approach, since accounting numbers are used to write and complete contracts for debt and compensation (Hunter et al., 2005). The concern is that reporting all of an organisation's investments as assets, without regard to their reliability, overstates the book value of net assets and overstates the reported earnings. If earnings are overstated, the dividends paid to shareholders and the bonuses paid under management compensation contracts linked to earnings are likely to be too high (Hunter et al., 2010). The proprietary and entity concepts of accounting also insist that enterprises must have specific rights to the future benefits accrued from their assets and the right to dispose of them at any time. At present, organisations have no exclusive rights to human assets and no assurance of their future control and benefits accrued (Flamholtz et al., 2004). Under these terms humans cannot be treated as assets.

Under Generally Accepted Accounting Principles (GAAP), it is impossible to treat human beings as assets in financial statements due to the concepts of objectivity, reliability, conservatism, uniformity and materiality (Roslender, 2009; Bullen and Eyler, 2010). Assets are also traditionally owned by organisations. Outside professional sports employers cannot legally own personnel; they therefore do not qualify as assets (Powell et al., 1977; Roslender and Stevenson, 2009).

The Financial Accounting Standards Board (FASB) requires that information about human resources must be presented in supplementary statements or

schedules, or as end notes to the financial reports. This has made it easier for the external users of financial reports to get information about how much investment organisations have made in their human capital (Roslender, 2009; Bullen and Eyler, 2010; Khan and Khan, 2010).

Critics of HRA assert that measuring an individual's value is an elusive goal, and that it would be misleading and inappropriate to include human capital on financial statements (Liao, 1974; Roslender, 1997, 2009). Others counter that human resources can be accounted for, but that this information must used only for the purposes of management and internal control and not for external financial reporting (Jauch and Skigen, 1974; Roslender and Dyson, 1992; Flamholtz et al., 2004; Flamholtz and Randle, 2012). These critics also argue that HRA finds its place within managerial rather than financial accountancy.

3.8   Managerial Functions of Human Resource Accounting

The most important role of HRA is to measure the cost and value of human assets. Management is thus better placed to understand the long-term implications and hidden costs of such decisions as rehiring qualified employees, making layoffs, retaining employees and so on. This is why human resource accounting is more suited to managerial rather than financial accountancy. Its inclinations are therefore rather more skewed towards the management of people than finances (Brummet et al., 1968; Flamholtz, 1985, 1999; Flamholtz et al., 2003; Bullen, 2007; Bullen and Eyler, 2010).

Management may be regarded as the process of acquiring, developing, maintaining and utilising a mix of resources in pursuit of long- and short-term organisational objectives (Brummet et al., 1968; Flamholtz, 1999). Human resource accounting serves as an additional managerial tool because it provides numerical information about the cost and value of people as organisational resources, it provides an analytical framework to facilitate decision making, it provides a sound and effective basis for the control of human assets, and it can encourage managers to adopt a human resource perspective in their decisions involving people (Flamholtz, 1971; Likert and Pyle, 1971; Flamholtz et al., 2004).

3.8.1   The Continuing Value of Human Resource Accounting

Management accounting has seen a number of exciting developments since the mid-1980s. Yet human resource accounting (HRA) has remained largely outside its domain, with the exception of those contributions by Lynn (1998), Mouritsen (1998), Tayles et al. (2002), Mouritsen and Larsen (2005), and Cleary et al. (2007). Because much of the literature equates human resources with human capital, human resources have generally been considered as a component of intellectual capital.

HRA originally meant describing human resources in terms of their financial value on a balance sheet. However, an agreed-upon method of valuation proved hard to find, meaning that attempts to account financially for the human capital component of intellectual capital have been unsuccessful (Roslender, 2011).

3.8.2 Human Capital Accounting

Instead of accounting metrics, some theorists turned to the 'hard' numbers of finance. An early example is the Intellectual Capital Index (Roos et al., 1997) which was quickly followed by a succession of technically sophisticated exercises (Abeysekera and Guthrie, 2004; Andriessen, 2004; Roslender, 2011) that were much in the manner of HRA. However, such exercises were soon abandoned for scorecard approaches, which were themselves quickly complemented by narrative approaches.

3.8.2.1 Scorecard Approaches

In principle, a balanced scorecard can be used to report on intellectual capital. Whether knowingly or by accident many researchers had imitated it as intellectual capital accounting. The best known example, the Skandia Navigator, was developed by Edvinsson (Edvinsson and Malone, 1997). It evolved from Skandia's use of supplementary biannual intellectual reports, and has much in common with Kaplan and Norton's approach (Kaplan and Norton, 1992: 2001). The Navigator is modelled on the shape of a house, each part of which represents a different business focus: the roof = finance; two walls = customer and process, respectively; and the floor = renewal and development. Edvinsson states that these should be indicators of *growth* among the stocks of intellectual capital that the organisation considers critical. This places an emphasis on the success of managers in continually advancing the organisation and furthers the principles of the balanced scorecard. Improving indicators are axiomatically linked to future superior performance. Although the Skandia Navigator is simpler than the second

iteration of the balanced scorecard in 1996, which identifies objectives, measures, targets and initiatives within each perspective, in practice managers would probably work within a similar regime.

Lev's Value Chain Scorecard (2001) incorporates a matrix informed by his three-stage model of the value chain: discovery and learning; implementation; and commercialisation. Lev identifies three dimensions at each stage, for which relevant quantitative metrics should be developed. Every cell should not be slavishly populated: the goal is to identify 10–12 relevant indicators that best represent performance. The Cockpit Communicator, developed by the Swedish telecommunications firm Ericsson, combines aspects of the Navigator and the balanced scorecard. It incorporates five perspectives (Lovingsson et al., 2000): innovation; the customer; the employee; internal efficiency; and finance. Each perspective gauges performance, from excellent to warning, as in an aircraft's cockpit. Sveiby's (1997) Intangible Assets Monitor distinguishes tangible assets from three intangible ones: competence ('our people'), internal structure ('our organisation'), and external structure ('our customers'). Each element uses indicators of growth, innovation, efficiency and stability to report performance on a comparable basis. The Monitor visualisation used in 1999 by Celemi, a Swedish consultancy company, also incorporated colour coding.

Each of these approaches accounts for human resources using indicators that are relevant to overall organisational performance. As such they reflect the qualities advocated over the past 25 years by the new management accounting. Among

them all, however, the Intangible Assets Monitor is unique in complementing the scoreboard with an explanatory narrative.

3.8.2.2 Narrative Approaches

Between 1996 and 2002 scoreboard approaches were complemented by more ambitious innovations that emphasised narrative over numbers. That is, they replaced 'counting' with 'recounting'. Interest in narrative approaches to financial accounting was catalysed by texts such as the Jenkins Committee report of 1994, which provocatively called for the development of a narrative-rich approach to business reporting to replace what was perceived as an ailing financial model (AICPA, 1994).

The most influential narrative approach was developed in Denmark between 1998 and 2003. This was the Intellectual Capital Statement approach, supported by the Danish Agency for Trade and Industry (DATI, 1999, 2000). It was first proposed in 2000 with three elements, but soon developed into a four-element formulation (DMSTI, 2003). The project's preference for narrative over numbers may be due to the role played by both the intellectual capital and knowledge management fields in its development. An Intellectual Capital Statement relies upon a 'knowledge narrative'. This sets out how the enterprise proposes to deliver products or services to its customers, and how it intends to organise its resources to achieve this. Other features include the enterprise's mission towards its customers and a statement on the use value of its products or services. This narrative is continually shared between all employees to ensure maximum buy-in.

It can help management identify critical challenges. When combined, the narrative and challenges are similar in purpose, if not formulation, to a strategy map.

The third element of an Intellectual Capital Statement, designated initiatives, is concerned with knowledge containers (employees, customers, processes or technologies) and how these might be enhanced in order to meet the challenges that have been identified. Indicators make up the final element. These change according to whether the statement is being used externally or internally. For external reporting, numbers are combined with text and illustrations. Internal reporting can incorporate more radical visualisations, such as those used by Danish companies like Coloplast, Systematic and Carl Bro. A second narrative approach is the Meritum Project's Intellectual Capital Report. This was developed in parallel with the Intellectual Capital Statement, with which it shared some personnel (Meritum, 2002). The three elements of an Intellectual Capital Report each rely upon narrative: a statement of the firm's strategic objectives and critical intangibles; a review of the firm's stocks of intangibles (or intellectual capital), identifying any absent resources and how to address them; and a system of indicators to how well the enterprise is meeting its objectives (Bukh and Johanson, 2003).

A further variant of narrative reporting can be seen in the Extended Performance Measurement approach. This was introduced in Australia in 2005 (Guthrie et al., 2007). This approach is informed by recent discussions of intellectual capital, intangibles and knowledge management. It promises to improve employee

performance and stakeholder understanding of how the wider stocks of intangible resources are strategically managed.

3.8.2.3 Self-accounts

Roslender and Fincham (2001) present self-accounting as a possible alternative approach. While welcoming the concept of intellectual capital is to be welcomed and the visibility it gives to human capital, they are critical of how intellectual capital accounting continues to imprison individuals within other people's accounts. Unlike other theorists, they regard human capital as the most important component of intellectual capital, describing it as *primary* intellectual capital to distinguish it from relational and organisational capital, or *secondary* intellectual capital (Roslender and Fincham, 2004; Roslender, 2009).

For Roslender and Fincham (2004), people are able to provide their own narratives about their status and activities. Such self-accounting frees people from scorecard or narrative accounts that have been provided by accountants or managers. Company intranets were first identified as a forum for such accounts, and the subsequent growth of social networking is also an enabling technology. There is a risk of individuals using such forums to promote a negative dialogue, but Roslender and Fincham argue that this only indicates a lack of opportunities for creativity, and should be addressed by management. On balance, however, they believe that such opportunities will promote better understanding and cooperation across the organisation. Mechanisms are also needed to capture a representative prospectus of self-accounts that might be combined with other

approaches to accounting for intellectual capital. This in turn would form a subset of any comprehensive business reporting package (Roslender, 2011).

Scorecard approaches to HRA have a close affinity with the development of the new management accounting over the last 25 years. This suggests that HRA continues to be pursued in an adjacent space that merits some exploration. Narrative and self-accounting approaches are further potentially valuable pathways whose wider applicability deserves further research. This theme is central to the development of a framework of HRA that will help enterprises in assess the financial returns from investing in human capital development.

The following section presents an overview of the role of human resource accounting regarding management and financial apprising of investment in human capital development.

3.9   HRA and Human Capital Development

Human resource management means a process of acquiring, developing, allocating, converting, utilising, evaluating and compensating employees (Flamholtz et al., 2004; Bullen, 2007). Perhaps its most important function is to add value to the available human resources by designing and implementing effective and competitive human capital development plans (Bullen, 2007; Bullen and Eyler, 2010). HCD involves enhancing the knowledge, skills and abilities of employees through formal and informal programmes. Thus, human resource accounting supports human resource management in calculating the costs of

recruiting, selecting, hiring, appraising, rewarding, training and developing an organisation's human assets (Brummet et al., 1969; Flamholtz, 1971; Flamholtz et al., 2002; Bullen, 2007; Bullen and Eyler, 2010).

The early work on human resource accounting conducted by Flamholtz, Brummet and others has inspired researchers to develop models for measuring human assets (Flamholtz, 1974: 1985: 1999). The International Financial Reporting Standards Committee has also moved towards the adoption of more complex methods of measurement in financial reporting compared to the traditional historical cost approach. These include a focus on the value of time versus the present value of money (American Accounting Association, 1973).

In conclusion, investment in HCD may be measured in terms of both costs and benefits (Brummet et al., 1968; Flamholtz, 1999). Both of these are discussed in the next two sections.

3.9.1 Measuring the Cost of Human Resource Development

Organisations can use human resource accounting to measure the costs of human resource development. This approach proposes three different elements to such a measurement: original cost, replacement cost and opportunity cost. Original cost is the actual, historical outlay incurred as an investment in human resources. Replacement cost is the sacrifice cost that would have to be incurred to replace an organisation's human resources. Opportunity cost is the maximum amount that human resources might earn if employed differently (Flamholtz, 1974).

Many costs can be associated directly or indirectly with training and human resource development. All of them should be included in evaluations (Garavan et al., 2006). Dale (2004) states that the full costs of training are seldom calculated accurately; there are many hidden costs, and these are very difficult to monetize. Yet there are many different opinions regarding measurement costs. The full cost of training comprises matters of fixed capital (cost of training equipment, building, etc.), the depreciation of equipment, working capital, personnel or administrative costs, the cost of trainers, the cost of training delivery, training development costs, and travelling costs (Newly, 2005).

Phillips and Whalen (2004) list the following costs: cost of designing training; equipment costs; instructor/facilitator cost; travelling, lodging and meal costs; employee benefits and salaries; and administrative and overhead costs. During training, employees are partly or fully removed from productive activities, while still receiving wages for this duration. Some authors argue that this cost should also be included (Collier et al., 2005). For Leigh (2005), as well as accounting for any time spent "off-the-job" and the cost of providing the training, miscellaneous expenditures such as accommodation and other expenses should also be included. Campbell (1994) argues that expenses that are only for an overall organisational purpose should not be included in training estimates.

Goldmann and Hart (2002) divide the costs of training into three categories: training consulting fee, direct expenses and indirect expenses. The costs associated with training should include the total employment cost (wages,

insurance, pension, holidays and so on), fall in output, trainer cost, salary of trainee during training, time wasted and output lost due to time wastage (Phillips, 2006). Indirect costs include the learning cost of unsystematic and unplanned learning practices, training costs of systematic and planned learning, and opportunity costs through sacrificing alternate opportunities (Garavan et al., 2006). Bramley (2005) spreads the cost of training across three phases: design phase, delivery phase and evaluation phase. Finally, Bambrough (2003) divides the potential costs into four major categories: cost of training material, cost of equipment and other facilities, cost of trainees and trainers' fees.

3.9.2   Measuring the Benefits of Human Resource Development

Many firms calculate their training expenditure, but evaluating its benefits in terms of productivity gains, revenue streams or profits rises is typically very difficult. However, knowledge of the link between training and company performance is helpful for decision making (Collier et al., 2005).

According to Flamholtz (1999) enterprises can apply the economic value approach of human resource accounting to measure the benefits of investing in training and developing employees. According to this approach, human resources are treated as enterprise assets. The approach also identifies the stream of benefits that flows from the assets after investment. Once the trainer or training manager knows how to calculate the costs and measure the results of training then he or she can begin to measure the impact of training in financial terms (Campbell, 1995). Attention has been given to cost calculation, but because quantifying the benefits

of training is difficult very little has been done to help managers in estimating the benefits of engaging in development activities (Leigh, 2005).

In order to measure the benefits of investing on the training and development of human resources, the following steps should be taken: define the units of measurement, define the value of each unit, improve the calculation and improve the valuation (Goldmann and Hart, 2002; Bambrough, 2003). Training benefits may be measured in terms of improved sales, improved profitability, enhanced customer care, greater safety of the work environment and a more confident and positive employee attitude (Stout, 2005). Furthermore, training should be evaluated in terms of its benefits to trainees, line managers and customers (Bramley, (2005). The impact of HCD on the business should be measured in terms of both tangible and intangible benefits (Garavan et al., 2006; Murray and Efendioglu, 2007).

Tangible benefits can be translated into monetary terms. Phillips and Whalen (2004) describe these as including all or any of the following: increased output, improved quality, savings of time, savings of cost and enhanced sales. They may also include reduced wastage, less absenteeism, and fewer inaccuracies, grievances and accidents. Intangible benefits are those results of training that cannot be directly converted into monetary terms (Garavan et al., 2006). They include better morale, flexibility and behaviour; increased job satisfaction and organisational commitment; improved teamwork; improved customer service; fewer complaints and fewer conflicts (Phillips, 2002; Garavan et al., 2006).

According to Johnson (1998) the benefits should include increased speed and accuracy of output. Others argue that training should be evaluated with reference to changes in business outcomes, improved job performance, higher profits and ROI (Tobin, 1998; Kirkpatrick, 2004). Dale (2004) claims that training outcomes should be measured in the form of better morale, increased attendance, lower turnover and better retention of staff, improved customer service, reduced waste, fewer mistakes, reduced grievances and disputes, less time wasting, and increased quality, while Chang (2003) suggests that for employees directly involved in producing sales, change in revenue is the most suitable measure.

Farrell (2005) recommends a shift in focus from employee turnover to the measurement of wider organisational benefits. Thus the benefits of the training must be measured in respect to changes in operating activities that lead to organisational goals and outcomes. These outcomes include employee morale, workforce stability, lower absenteeism, job satisfaction, supervisory skill development, improved customer relation, organisational commitment and customer complaints (Lengermann, 1996; Tobin, 1998; Phillips, 2006). The next section will elaborate the role of human resource accounting in the appraisal of investment in HCD.

3.9.3   Appraising Investments Made in HCD

The human resource accounting literature states that investments in HCD may result in long-term profits (Bullen, 2007; Bullen and Eyler, 2010). Flamholtz, Bullen and Hua (2003) have used models from human resource accounting to

measure these returns. Unfortunately no single method is yet accepted for appraising the value of investments in training.

Murray and Efendioglu (2007) suggest using investment measurement tools such internal rate of return and the time value of money to measure the effectiveness of training in financial terms. However, four other techniques are normally used. These have the advantage of being both practicable and familiar to top management. They are: benefit cost ratio (BCR), payback period (PP), Bottom line evaluation (BLE), return on investment (ROI), and weighted average cost of capital (WACC) (Dale, 2004). McLinden and Perkins (1998) found that although the results given by these methods might differ, they are all significant for the purposes of evaluation. Two groups benefit from the measurement of investment in HCD: one is from within the organisation, and includes senior managers, sponsors and clients; the other is from outside the organisation, and includes competitors, practitioners and researchers (Phillips and Whalen, 2004; Phillips, 2006). Phillips (2006) argues that organisations will choose which method they use according to the needs of what they intend to measure. Flamholtz (2005) further adds that the use of different tools of human resource accounting depends upon the context and nature of organisation.

Thus, previous research calls for further studies to investigate the relationship between the use of different types of investment appraisal measures and organisational performance. This thesis extends that research by investigating the effect of the investment appraisal practices of HRA and factors of HR

sophistication on decision making with reference to investing in HCD.programmes.

The choice of using investment appraisal measures from human resource accounting is contextually bounded. Contingency theory therefore provides a framework for this research study. The next section talks about the use of contingency theory and the effect of various contextual variables on the extent of managerial decision making regarding investing in human capital development and organisational performance in Pakistan.

3.10 Contingency Theory

The contingency approach emerged in the organisation theory literature in the early to mid-1960s. Accounting researchers started to use the contingency framework in their research before the mid-1970s (Otley, 1980). The initial emphasis was on the effect of some common factors on the organisational structure (Otley, 1980; Otley and Fakiolas, 2000; Zuriekat, 2005).

Contingency theory hypothesises that organisational structure is a function of its context. Organisational context is simultaneously determined by contextual factors such as the external environment, history, and other organisational factors. This is why the accounting system of any organisation is an important component of organisational structure; the particular features of this system are affected by the circumstances that an organisation faces. In order to achieve its business goals, management must consider its internal and external factors when it develops an

accounting system for decision making (Otley, 1980; Anderson and Lanen, 1999; Abdel-Kader and Luther, 2008).

The initial aim of contingency theory is to examine the effect of different contingent factors on the extent of performance measurement and decision making. Some studies use organisational performance as a dependent variable in this relationship, while other studies do not (Chenhall, 2003). Fisher (1995, 1998) has argued for the use of contingency theory in management accounting related studies, which are concerned with the relationship between contingent factors, organisational control and organisational performance. Consistent with this work, the present study investigates the impact of investing in HCD on organisational performance in Pakistan.

Flamholtz et al. (1985) reviewed the contingency literature that was concerned with the issues of managerial control and the application of various model for evaluating human resources. They argued that the use of different tools from human resource accounting to evaluate human assets depends upon the context and nature of organisation. In this sector of the contingency literature, the issue of managerial control is studied along three main perspectives: the sociological, the administrative and the psychological. The sociological perspective focuses on the entire organisation and the larger groups within it. In this view, structural mechanisms of rules, policies, hierarchy of authority or coordinative units obtain control (Flamholtz, 1980; Bullen, 2007; Flamholtz and Randle, 2012). The administrative perspective focuses on the individuals or departments within an

organisation. The control mechanisms employed by the administrative theorists are plans, measurement, supervision, evaluation and feedback. The psychological perspective emphasises goal and standard setting, extrinsic and intrinsic rewards, feedback or interpersonal influence (Flamholtz, 1985, 2005).

Contingency theory has also been applied to the subunit level of organisational behaviour. Hayes (1997) investigated the appropriateness of management accounting in order to measure the effectiveness of different departments in large organisations and found that contingency factors were the major predictors of effectiveness for the different departments of an organisation. Hayes (1977) also advocated the use of contingency theory in studies of organisational assessment and investment evaluation of different departments. Hayes' study hypothesised three major contingencies affecting decision making: internal factors, interdependency factors and environmental factors. The results of the study suggest that the underlying causal variables should be studied rather than just narrowly examining surrogates. The results also implied that a contingency approach should be taken to managerial and the relevant investment appraisal methods should be determined by the departments. Shank (1989) applied contingency theory to investigate the impact of various investment appraisal tools on managerial decision making. Huselid (1995) applied contingency theory to study the impact of HR sophistication on managerial decision making regarding investing in HCD and the resulting impact on organisational performance.

Firstly, previous research on management accounting uses the contingency model to examine performance evaluation measures and analyse factors that may affect

the selection and usage of those measures (Ittner et al., 2003; Ismail, 2007). These management accounting studies on contingency theory focus on financial measures and ignore non-financial measures for appraising investment made in human capital development (Fisher, 1998; Otley and Fakiolas, 2000; Ittner and Larcker, 2001; Kaplan and Norton, 2001). Researchers had also used the combination of financial and non-financial measures for the measurement of organisational performance (Ittner and Larcker, 1998; Hoque et al., 2001; Haldma and Laats, 2002; Hoque, 2004; Zuriekat, 2005; Cadez and Guilding, 2008; Islam and Hu, 2012). In the current study researcher had applied both financial and non-financial measures to measure the organisational performance as a main dependent variable.

Secondly, many of the empirical studies on contingency theory have examined the impact of contingent variables on managerial decision making regarding investing in human capital development in the context of Western countries. None of the empirical studies on contingency theory so far have used the investment appraisal tools of human resource accounting to examine the appraisal of investments in human capital development in the context of Pakistani manufacturing organisations. That is why there is a great deal of scope for this study in using contingency theory.

To sum up, there is strong theoretical and empirical support for the use of contingency theory in the current study. It has become one of the dominant paradigms for research on management accounting in general (Chapman, 1997; Ittner and Larcker, 2001; Haldma and Laats, 2002; Chenhall, 2003; Islam and Hu,

2012), and human resource accounting in particular (Teixeira, 2002; Flamholtz et al., 2004; Flamholtz, 2005; Flamholtz and Randle, 2012). That is why; contingency theory had been adopted to develop an appropriate theoretical framework for this research, and is discussed in detail in the next chapter.

3.11 Gaps in the Literature

The current section deals with gaps in the literature related to the theories of human capital development and the concepts of human resource accounting that are applicable to the appraisal of investments in HCD. This critical review of the available literature on human capital development and HRA yields key findings beyond the existing theoretical perspectives and supports the study's research objectives and research questions. The gaps found have led the researcher to propose the study's framework. This framework has guided the empirical aspects of the research.

Investments in HCD can be evaluated financially by using investment appraisal tools such as return on investment (ROI), benefit–cost ratio (BCR), weighted average cost of capital (WACC), payback period (PP) and time value of money. However, no single method is accepted by trainers and researchers for evaluating investments in human resource development. The few researchers who have conducted studies on evaluating training and development programmes (Schulz and Carnevale, 1990; Phillips and Phillips, 2001; Phillips, 2002: 2006; Kirkpatrick, 2004; Parry, 2004; Phillips and Whalen, 2004; Kline and Harris, 2008) have focused only on measuring the ROI of human resource development.

The present study aims to develop a wider framework for appraising investment in human resources.

Despite a promising outlook in the 1970s, it has been claimed that the development of human resource costing and accounting has progressed at something less than snail's pace over the past two decades. Researchers around the world have tried their best to speed up work on this area (Edvinsson and Malone, 1997), but have been prevented by difficulties in the application of the concept (Ulf, 1999). This thesis provides a comprehensive literature review of previous research work related to human resource accounting.

Although academic research on human resource accounting has been conducted for several decades now (Table 3.1 & 3.2), specific methods of measuring human resource costs and values still remain largely undeveloped. In order to achieve greater progress, more needs to be done at both the theoretical and practical levels. Also needed is more research into valuation methods and models, and the practical implication of these, with the engagement of both HR and accounting professionals (Shraddha and Philip, 2004). Therefore, there is a great scope for the current research.

None of the existing research has properly described how different accounting tools can be applied empirically to appraise investments made in human assets by organisations. This leads to two important questions: how to assess the value of human capital in addition to an enterprise's physical assets, and how to improve

decisions regarding the development of human capital in enterprises. The present research aims to find answers to these questions by empirically collecting data from the Pakistani manufacturing organisations.

Most of the currently published research on HRA and the use of contingency theory in management accounting research have been conducted in developed countries such as the USA, Australia, Canada, UK and Sweden (see Table 3.3). The organisational culture, environment and human resource management approaches in these countries are different from those in developing countries such as Pakistan. The lack of studies conducted in Pakistan that focus on the use of accounting techniques in the appraisal of HCD investment shows the urgent need for such a study.

There is no research work available, at either the educational or organisational level, regarding HCD in the Pakistani industrial sector. So far, no empirical study has been conducted in Pakistan into calculating the financial returns of investing in HCD in the manufacturing sector, or how to use the various existing appraisal tools to evaluate investments made in human resource development. Enterprises in the Pakistani industrial sector or in other developing countries are still following the principles of an industrial economy, which place more emphasis on physical properties. Before they invest in human resource development programmes, these profit-oriented enterprises want to ensure their returns. Therefore, there is a crucial need for research into how Pakistani enterprises can assess the financial returns from their investments made in human assets.

Table 3.1: Main Findings from the Literature on HRA

Empirical Study	Findings
Hermanson, 1964	Humans are assets for enterprises. This is why any cost incurred on human resources is an investment and must be included in the balance sheet of enterprises.
Brummet, 1968	Measuring human resources as an asset is a challenge for accountants because of basic assumptions of accounting.
Brummet et al., 1969; Flamholtz, 1969	Human resource accounting can be applied to measure the cost and value of people to organisations. It will also increase managerial effectiveness regarding the control and management of human resources.
Flamholtz, 1971; Eggers, 1971	This study was carried out to develop a model for evaluating people for enterprises. This model was based on stochastic process with services rewarded to measure the benefits of human resource development in financial terms.
American Accounting Association , 1973	Human resource accounting is the process of identifying and measuring the data about human resources and communicating this information to interested parties.
Flamholtz, 1974; Jauch and Skigen, 1974	This study was based on an analysis of the literature Human Resource Accounting: A Review of Theory and Research
Liao,1974; Flamholtz, 1976; 1980; Glautier, 1976; Oliver and Flamholtz, 1978	Human resource valuation affects management decisions regarding the control and management of resources. For this reason HRA is a concept for measuring cost and value in managerial accounting.
Flamholtz, 1985; 1999; 2002; Sue, 1981;	This book concerns measurements of the cost and value of human resources to enterprises.
Caplan and Landekich, 1974; Flamholtz et al., 2004; Theeke, 2005; Roslender, 1997, 2009	These texts focus on contributions, controversies and conclusions, and the future of human resource accounting within organisations.

Table 3.2: Main Findings from the Literature on HRA and HCD

Empirical Study	Main Findings
Elias, 1972; Schwan, 1976; Spiceland et al., 1977	These empirical studies were conducted to find the effects of human assets statements on the investment decisions, and the usefulness of human accounting in personnel selection.
Kenneth A. Kiase, 1996.	Human resource accounting can be applied in the measurement of the cost of human resource development in the Public Sector.
Flamholtz et al., 2003	Human resource accounting can be applied in measuring the ROI of management and employee development programmes.
Flamholtz, 2005	Conceptualizing and measuring the economic value of HCD as the third kind of corporate culture.
Bullen, 2007	Human Resource Accounting is a useful tool for measuring and managing the investment made in HCD by organisations.
Theeke and Mitchell, 2008	Use of a liability model to assess the financial implications of recording human resources in financial statements.
Zula, and Chermack, 2007; Bullen and Eyler, 2010; Khan and Khan, 2010	Human resource accounting and international developments and implications for measuring human capital in the workplace.
Roslender and Dyson, 1992 Roslender and Fincham, 2001; 2004, Roslender and Stevenson, 2009	There must be a proper law of Accounting for People to record any investments made in human resource development by enterprises working in the UK.
Toulson and Philip, 2005; Tollington and Tawy, 2010	Explores the interface with human assets on the basis of human resource management or accounting.
Chaudhry and Roomi, 2010	Human resource accounting can be applied to appraise investments made in HCD by manufacturing organisations.

Table 3.3: Research Studies on HRA around the World

Authors & Year	Country	Methodology	Findings
Brummet et al. (1968)	USA	Exploratory study	Use of HRA has impact on the decision of management.
Flamholtz (1969)	USA	Exploratory study	Measurement of value of human resource for the organisations.
Flamholtz et al. (1969)	USA	Case Study	A system of accounting is needed for a firm's investments in human.
Sackmann, Flamholtz & Bullen (1989), Flamholtz, Bullen & Hua (2002), Flamholtz, Kannan-Narasimhan & Bullen (2004), Lev & Schwartz, (1971), Turner (1996), Dobija (1998) and Cascio (1998)	USA	Exploratory studies	Human resource measurement models because human resources are a primary component of intangible assets.
Meeting, Luecke & Garceau, (2001)	USA	Survey	Expected cash flow approach is a better measurement tool than traditional methods to report human resources.
Campbell, Owens, Jackson, & Robinson (2008)	USA	Survey	The present value of future cash flows associated with an asset or liability is better approach for reporting of human resources.
Johanson & Mabon (1998) and Bullen (2007)	USA	Exploratory studies	HRA can play a crucial role in internal managerial decision making, and HRA measures can be used to show that investments in a company's human resources may result in long-term profit for the company.
McKenzie & Melling (2001) and Toulson & Philips (2004) and Moore (2007)	USA	Survey	The measurement of human resources reflects the strategic and competitive importance of human assets, and suggests that to earn credibility, human resources must be expressed in financial terms.
Hansen (2007)	USA	Survey	Two thirds of the 250 largest companies in the world now issue sustainability reports along with their financial reports in order to capture the full value of the organisation.
Telia (1996), Roy (1999) and Vuontisjarvi (2006)	Sweden	Case study	The main financial statements include a profit & loss account and a balance sheet that includes investments in human resources.
Grojer (1997) and Olsson (1999)	Sweden	Survey	Human resource accounting measures can be successfully introduced only when it suits the social order in organisations.
Morrow (1996) and Wagner (2007)	UK	Survey	They investigated the concept of football players in the United Kingdom as human assets and the importance of measurement as the critical factor in asset recognition.

Roslender & Dyson, (1992), Roslender , Stevenson & Khan (2006) and Roslender & Stevenson (2009)	UK	Exploratory	There is an urgent need of Accounting for People for the organisations to have true and fair information about the financial affairs.
Gusenrow & Tower (2006)	Australia	Survey	It is not surprising that the most valuable assets as regarded by Australian Football League (AFL) clubs and the AFL hierarchy are the players, the organization's biggest revenue drivers.
Hunter et al. (2005) and (2010)	Australia	Survey	The use of historical concept of HRA for measuring the intangible capital.
Whiting & Chapman (2003)	New Zealand	Survey	On an overall basis, the study shows that generally accountants will make the same investment decisions regardless of whether human resource information is expensed or capitalized.
Toulson & Dewe (2004)	New Zealand	Survey questionnaire	The measurement of human resource reflects that the strategic and competitive importance of human resources and also suggests that, to earn credibility, HRM must be expressed in financial terms.
Bras & Rodrigues (2007)	Portugal	Document analysis	Human assets should be recognized as generated by training expenditures.
Schmidt & Minssen (2007)	Germany	Quantitative survey	Human resource managers appreciate the positive effect of overseas assignments on personal development, but often underestimate the long-term benefits of an international assignment for the company.
Andrikopoulos (2005)	Greece	Survey	There is urgent need to bridge the gap between traditional financial theory and intellectual capital (IC) reporting by proposing a model where organizational priorities were set as the solution to a portfolio selection problem
Jones (2000)	Canada	Survey	Financial reporting systems need to account for people.
Ng (2004) and Tang (2005)	China	Survey	Human resource cost in developing a heuristic frame addressing the link between human resource replacement cost and decision-making, in a human resource replacement cost (HRRC) system.
Patra, Khatik & Kolhe (2003) and Bhat (2000)	India	Survey	The author refers to several measurement models including the Brummet et al. model (1968a, 1968b, 1969) based on historical cost method with provisions for appropriate depreciation and replacement cost of acquiring, training and developing the entire human resources, and competitive bidding proposing the capitalizing of the additional earning potential of each human resource in the organisation.

In brief, human resource accounting may contribute to more effective management by providing information that helps managers to choose between alternative investments in HCD and the evaluation of human resource maintenance and its utilisation programmes. Furthermore, human resource accounting tools for appraising investment in HCD can help businesses to understand whether an investment in training affects their bottom line. They may also help decision makers to decide whether or not they should invest in HCD at all. That is why there is therefore a great deal of scope for the current study.

3.12 Summary

Human capital makes a significant contribution to the success or failure of an organisation in achieving its strategic objectives (Sackmann et al., 1989). Accordingly, organisations must pay attention to its development and deployment (Flamholtz et al., 2002; Bullen, 2007). If human capital is the guarantor of robust organisational success then decisions about investment in HCD programmes become critical for the enterprises. There is a need for systems that permit enterprises continually to assess and re-assess the people they employ, including their skills, talents and behavioural attributes, while paying attention to how human resources affect their bottom lines.

One accounting tool, concerned with the measurement and management of human resources in an organisational process, is human resource accounting (Flamholtz, 1971, 1985). This provides a foundation for enhancing the usefulness of existing financial information either to managers in their effort to manage human resources

effectively and efficiently (Flamholtz, 1985) or to investors who evaluate management as part of their decision-making process (Sackmann et al., 1989). Human resource accounting may be thought of as the process of identifying, measuring and communicating the information necessary to quantify the cost and value of people as organisational resources. It is not just an interesting concept, however (Scarpello and Theeke, 1989). It also has the potential to enhance management and other stakeholder decision making (Edmonds and Rogow, 1986; Bullen and Eyler, 2010).

The literature on human resource accounting demonstrates a link between investments in developing human resources and the benefits that organisations can reap from such investments. This chapter has referred to the challenges that remain in quantifying and measuring the benefits of HCD. It has also taken into account those conceptual aspects of human resource accounting that show how investing in the development of human resources can be measured to determine the financial returns for enterprises. The review of the existing literature also provides strong theoretical and empirical support for the use of contingency theory in developing the theoretical framework for this thesis.

In conclusion, the motivation for the comprehensive literature review in this chapter is threefold. The first is to provide a background for the human resource accounting and its developments over a period of time. Second, to provide a selective overview of the key concepts, theory and empirical findings in the area of human capital development that might be useful for practitioners and

researchers interested in the area. But they are unfamiliar with the literature. Finally, to provide the basis of a framework that can help managers in analysing their investments in human resource development programmes and their impact on the organisational performance.

The next chapter concerns the development of the framework and hypotheses of the current research.

Chapter 4   Theoretical Framework

4.1   Introduction

This chapter develops the theoretical framework for the study based on the findings of literature review, as discussed in the preceding chapter. On the basis of relationships predicted between the key concepts of the theoretical framework, a set of hypotheses is formulated that explain tentative relationships between the variables. According to Sekaran and Bougie (2010), a hypothesis is a tentative, yet testable statement that predicts what the researcher expects to find out by collecting empirical data. The hypotheses for this research are derived from the literature on which the conceptual model is based. The variables are measured and hypotheses are tested by using empirical data collected during the research survey.

This chapter begins by discussing the development of the framework and then discuss the study's hypotheses.

4.2   Theoretical Framework of the Study

The most important role of human resource accounting is to measure the cost and value of human assets (Brummet et al., 1969; Flamholtz, 1974, 1985; Bullen, 2007; Roslender, 2009). Management is thus better placed to understand the long-

term implications and hidden costs of such decisions as rehiring qualified employees, making layoffs, retaining employees and so on. This is why the theory of human resource accounting is more suited to managerial rather than financial accountancy. Its inclinations are therefore rather more skewed towards the management of people than finances (Brummet et al., 1968; Flamholtz, 1985, 1999; Flamholtz et al., 2003; Bullen, 2007; Bullen and Eyler, 2010).

Management of human resources may be regarded as the process of acquiring, developing, maintaining and utilising a mix of resources in pursuit of long- and short-term organisational objectives (Brummet et al., 1968; Flamholtz, 1999; Dessler, 2009; Khan, 2010; Tollington and Tawy, 2010). Human resource accounting serves as an additional managerial tool because it provides numerical information about the cost and value of people as organisational resources, it provides an analytical framework to facilitate decision making, it provides a sound and effective basis for the control of human assets, and it can encourage managers to adopt a human resource perspective in their decisions involving investment in HCD (Flamholtz, 1971, 2005; Bras and Rodrigues, 2007; Khan and Khan, 2010; Flamholtz and Randle, 2012).

As discussed in the previous chapter, theories of human resource accounting and human capital development have suggested that there is an emergent need for discussion of human resource accounting tools for appraising investments made in HCD. This will help businesses to understand whether investments in HCD have had an effect on their bottom line. It will also help to convince decision makers

that they should invest in HCD. Thus, the present study proposes to develop and examine a theoretical framework that inter-relates these constructs, i.e. investment in HCD, human resource sophistication and appraisal of investment to discover the financial returns for enterprises which will help management to check the viability of an investment in HCD.

Although prior studies have contributed to the creation of the theoretical model of the present research, none of them empirically describes how such tools might be applied to appraising investments in human assets. This raises the need for a conceptual framework for evaluating investments in HCD. Based on the gaps in the literature as discussed in the previous chapter, a conceptual framework is developed into a theoretical model. This is shown in Figure 4.1.

The proposed framework takes into account those conceptual aspects of human resource accounting that show how investment in developing human resources can be measured to investigate the financial returns for enterprises. It also takes into account a set of five organisational contingent factors: organisational size, provisions of HR department, policies for HCD, methods of HRD, and use of technology. These factors contribute to increase the level of HR sophistication that could affect management decisions regarding investing in HCD programmes. Finally, the present framework creates a link with managerial decision making regarding investment in HCD, contemporary dimensions of human resource accounting and HR sophistication in relation to the performance of organisations. Details of the main constructs of this framework are as follows.

Figure 4.1: Theoretical Framework
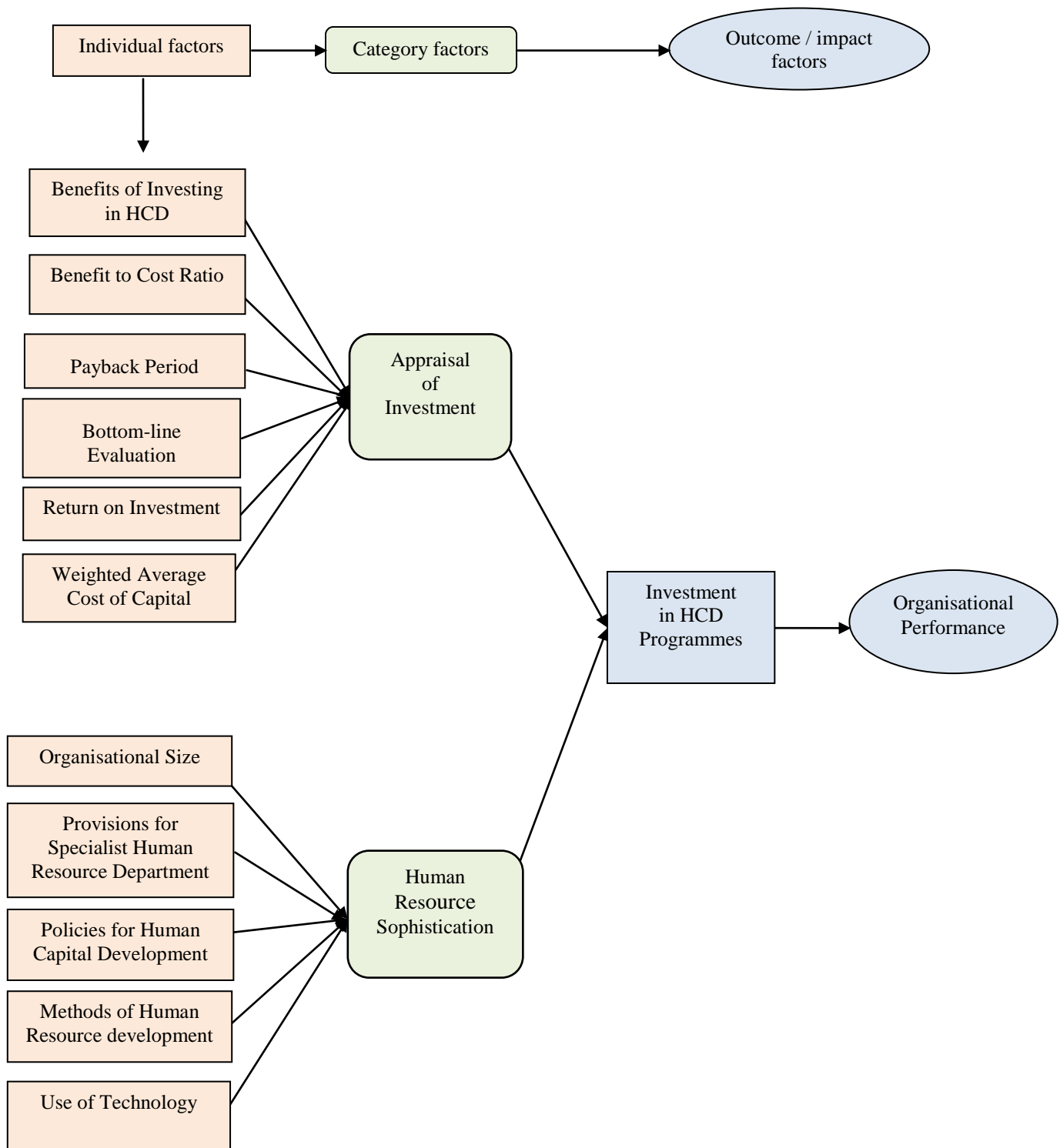
4.2.1 Investment in HCD Programmes

The purpose of this thesis is to assess both the monetary benefits and the valuation effect of a specific type of HCD investment – employee training. This study focuses on investment in employee training programmes because, according to HCD theory, this usually constitutes the major part of a firm's investment in HCD (Becker, 1962; Douthat, 1970; Becker, 1993; Liao et al., 2006; Bullen and Eyler, 2010). Under current accounting standards, financial statements do not recognise human resources as assets, nor do companies disclose separately their human capital related expenditures. Therefore, it has been difficult thus far to examine whether training investment does increase firms' operating performance and whether the capital markets can recognise this benefit (Liao et al., 2006; Murray and Efendioglu, 2007; Cifalino and Baraldi, 2009).

According to Kirkpatrick (2004) an organisation must conduct a need analysis before investing in any HCD programme. Need analysis refers to the analysis of those external and internal factors that may affect the human operations of an organisation. External factors may include technology, skill sets in the labour market, new laws and new initiatives by competitors. Internal factors may include absenteeism, turnover, accidents or employee grievances. Analysis of these factors helps to understand the mission and corporate goals of an organisation (Kirkpatrick, 2004). It also helps to identify any gaps between what employees should be doing and what they are actually doing (Dessler, 2009). In simple terms, need analysis means acquiring information about the deficiencies of the available human capital (Lingham et al., 2006). It helps management to understand what

type of training and development programme (knowledge, skills, behavioural) is required to develop the human capital in order to achieve the organisation's strategic goals (Kirkpatrick, 2004; Phillips, 2006; Dessler, 2009).

Human resource development programmes must be a good fit with the system of an organisation (Harrison, 1992; Cifalino and Baraldi, 2009). Therefore, at the time of their preparation and implementation, management must focus on how to utilise, manage and develop their human resources in order to move the organisation forward and to ensure the achievement of its corporate goals (Kirkpatrick, 2004; Lingham et al., 2006). After implementing these programmes, proper feedback (reaction, learning, behaviour and outcome) must be prepared to evaluate the results in terms of the organisation's objectives (Phillips and Phillips, 2001; Kirkpatrick, 2004; Phillips and Whalen, 2004; Phillips and Phillips, 2004).

4.2.2 Appraisal of Investments in HCD Programmes

Organisations normally incur huge costs through training programmes. That is why they prefer to conduct appraisals before investing in any HCD programme. The techniques of human resource accounting can be applied to measure quantitatively their costs and benefits (Flamholtz, 1971; 1985; 1999; Schulz and Carnevale, 1990; Phillips, 2006; Bullen and Eyler, 2010). Human resource accounting will play a vital role in measuring the cost and value of HCD.

The current study has considered only those components of costs and benefits which are agreed upon by the majority of researchers (Flamholtz, 1971; Schulz

and Carnevale, 1990; Phillips and Whalen, 2004). Normally the investment of a training and development programme involves the following costs: C_1 (cost of trainers), C_2 (cost of trainees or participants), C_3 (cost of facilities and training material), C_4 (travelling and daily costs) and C_5 (miscellaneous costs) (Schulz and Carnevale, 1990; Klase, 1996). Meanwhile, the total benefits of a training and development programme includes: B_1 (increase in revenues or production), B_2 (savings due to reduction in errors and customer complaints), B_3 (savings due to reduction in repair costs and wastage of materials), B_4 (savings due to reduction in hiring and firing issues) and B_5 (savings due to reduction in work-in-process time) (Schulz and Carnevale, 1990; Phillips and Whalen, 2004).

Quantitative information about the costs and benefits of training and development programmes can be further analysed by using capital investment appraisal tools such as: benefit to cost ratio (BCR), payback period (PP), bottom line evaluations (BLE), return on investment (ROI) and weighted average cost of capital (WACC). These tools have been operationalised, and their dimensions were applied to check the viability of organisations' investments. These techniques can play a crucial role in evaluating investments in HCD. They can help to make links among outcomes of investing in human resource development, managerial decision making and overall organisational performance.

4.2.3 Contingency Theory Perspective

In the last 30 years contingency theory has provided a convenient, theoretical framework for numerous studies of organisational structure and behaviour (Otley,

1980; Chenhall, 2003). Extensive research has led to a series of review articles providing an overall picture of contingency theory's contribution to management accounting research in general (Chapman, 1997; Ittner and Larcker, 2001; Chenhall, 2003; Islam and Hu, 2012) and human resource accounting in particular (Flamholtz et al., 2004; Flamholtz, 2005; Flamholtz and Randle, 2012).

Islam and Hu (2012) conducted a comprehensive review of literature on contingency theory in management accounting research. According to them, contingency theory is an approach to studying organisational behaviour that can explain how contingent factors such as technology, culture and external environment affect the function and design of an organisation. Contingency theory rests on the assumption that any single type of organisational structural is not appropriate for all organisations, and that organisational effectiveness depends on a match or fit between the technology, environmental volatility and size of an organisation, the features of an organisational structure, and the information system applied within an organisation. They also argued that according the plethora of literature contingency theory is applied in management accounting research mainly across three dimensions: the match or fit between organisational structure and organisational control; the impact of fit between the organisational structure and organisational control on organisational performance; and the examination of various contingencies and their effect on organisational design.

In an attempt to enable managers to make more effective decisions, previous studies in the area of management accounting research have investigated the role

of contextual variables in the design of Management Accounting Systems (MAS). Some studies have also addressed the concept of the 'MAS Information Adequacy Gap', a gap between the perceived useful information and its availability (Cadez and Guilding, 2008). In attempting to apply contingency theory to management research, Hofstede (1967) found that the functioning of budgeting systems of an organisation depends largely on three main contingencies, namely the economic, the technological and the sociological. According to Hofstede (1983) cultural considerations cast significant impact on the management control systems.

Gordon and Miller (1976) proposed a comprehensive framework for designing accounting information systems that adopted a contingency approach. The authors identified three main variables upon which organisational performance is significantly dependent: environment, organisational characteristics and decision-making style. An accounting information system that takes these into account, they argue, will improve organisational performance. In applying contingency theory to the sub-unit level of an organisation, Hayes (1997) found that it is the production departments that are affected most by contingencies. Contingency theory proved useful in evaluating sub units and assessing organisational performance. According to his study, the performance of sub units within an organisation is affected by internal factors, environmental factors and interdependency factors.

Gordon and Narayanan (1984) examined the relationship of organisational structure with accounting information systems. Their study revealed that

perceived environmental uncertainty (PEU) leads decision-makers to consider some characteristics of information more important than others. As a result, 'organisational structure' and 'characteristics of required information' become complementary strategies that are contingent largely upon the 'perceived environmental uncertainty'. On the same subject, Merchant (1981) maintained that organisational performance is influenced by the inter-relationships between various contingencies such as the size of an organisation, product diversity, degree of decentralization and the use of budgetary information. Chenhall (2005) found that decision-makers perceive MAS information that is broad in scope, timely, aggregated and integrated to be strategically useful. Their study also suggested that such desired characteristics also influence the design of MAS. A further important contribution in this area was made by Subramaniam (1993), who found that across various important industries it was manufacturing industry that had the most significant MAS information adequacy gap.

Gul and Chia (1994) have used contingency theory to study the perceived performance of MAS. They found that decision-makers' perception of the value of MAS in organisations depended significantly on their PEU. As well as highlighting these issues, the authors also provided an updated contingency framework, based on a holistic approach that could better address the effectiveness of MAS. Their research suggests that the correct application of contingency theory to management accounting systems is crucial to effective research outcomes.

A recent study by Cadez and Guilding (2008) applied a contingency approach to investigate if and how strategic management accounting is affected by the size of an organisation, the strategy adopted by an organisation and its market orientation. They found that both the size and the strategic choices adopted by an organisation significantly influence the application of strategic management accounting. Furthermore, organisational performance was found to be contingent upon the fit between organisational structure and context. Being consistent with all these studies, researcher had applied contingency theory in order to develop a framework for assessing the impact of investing in HCD on organisational performance in Pakistan.

Gerdin and Greve (2004) in their review provide a classificatory framework for mapping different forms of contingency fit. They argue that researchers should relate their empirical contingency-based studies to those using similar sets of contingencies. Chenhall (2003) reviews empirical contingency-based research developed since 1980s. His extensive review concludes that to maintain the relevance of management accounting with contingency-based research, researchers will need to pay attention to contemporary dimensions of accounting, organisational context and social outcomes (Zuriekat, 2005). The current study looks at contemporary dimensions of human resource accounting and HCD in the context of performance of manufacturing organisations in Pakistan.

The seminal work of Mark Huselid was used as a guide in this study to measuring the level of HR sophistication by using a set of contingencies: organisation size,

provisions for specialist HR department, policies for HCD, methods of HRD and use of technology (Huselid, 1995). Huselid evaluates the impact of a firm's overall investment in human resource development on the system and practices of human resource development. According to the theory of human capital, those organisations that are investing in human resource development have relatively high quality human capital at their workplace, which will enhance their overall productivity (Becker, 1962, 1993; Becker and Gerhart, 1996; Bassi et al., 2004; Aghazadeh, 2007). This theme is central to the current study's hypothesis that an investment in human resource development is positively associated with the level of HR sophistication, which in turn has a positive impact on the overall performance of an organisation (Kouhy et al., 2009). Further, it will help management to develop the organisation's strategy towards human resources.

The previous research suggests that larger organisations have more emphasis on investing in training and development and have more sophisticated HR departments than small or medium enterprises (Garavan et al., 2006; Cifalino and Baraldi, 2009; Kouhy et al., 2009). According to Tanriverdi and Venkatraman (2005), in most management related studies researchers consider organisations, especially large firms, as units of analysis. Organisational context is a key issue when dealing with HCD practices at an organisational level (Tsoukas and Vladimirou, 2001). Human resource development activities might vary according to the scale, sector, employment structure, geographical market, policies etc. For example, Lee and Choi (2003) state that their results are valid for large scale firms located in Korea but that they might differ in other contexts.

The present research will contribute a framework management accounting for appraising investments in HCD in the context of the Pakistani manufacturing sector. The fact that all the organisations targeted by this research as units of analysis belong to the same sector, carry out manufacturing activities, are large-scale listed organisations and are located within Pakistan gives a certain control to the external environment during the research. Their expected behaviour in relation to investment practices regarding HCD has been determined in view of theory of and previous research, as discussed in Chapter 2 and 3.

4.2.4   Organisational Performance

The final outcomes of this framework will help management and organisations in analysing the financial viability of investments made in human resource development programmes (Smith, 2004). In this research, IHCD is considered viable if it has positive impact on the organisational performance. Assessing of organisational performance is crucial to contingency-based studies. Organisational performance is a multidimensional construct and it is not an easy task to define or operationalise it as it can be viewed from different perspectives.

In this study, organisational performance is operationalised in terms of the benefits that investing in HCD programmes will bring to organisations. Being consistent with previous studies (Ittner and Larcker, 1998; Otley, 1999; Hoque and James, 2000; Otley and Fakiolas, 2000; Hoque et al., 2001; Ittner and Larcker, 2001; Ittner et al., 2003; Hoque, 2004, 2005; Dessler, 2009) in this research study, organisational performance was measured in terms of several

financial and non-financial dimensions: increase in job satisfaction, increase in customer satisfaction, increase in quality of products, increase in sales, decrease in cost of operations, increase in assets, increases in productivity, increase in market share etc.

HRA is a managerial tool that can be used to gain valuable information by measuring the costs of recruiting, hiring, compensating and training employees. It can be used to evaluate employee training programmes, increase in productivity, and improvement in managerial decision making regarding HRD practices (Flamholtz and Main, 1999; Kouhy et al., 2009). The proposed framework can help an organisation's human resource managers in designing investment plans for developing their human resources. They will be able to calculate the cost of recruiting, allocating, training and developing the skills of new and existing employees. They can also use various techniques of human resource accounting more precisely to make future decisions regarding human resource and management accountability. This framework can contribute to more effective management by providing information that facilitates choosing between alternative investments in human resource development, and evaluating human resource maintenance and its utilisation. Finally, the outcomes of this research will help HR management to manage and control human resources in the best interests of their organisations.

Based on the current framework a set of propositions was developed and operationalised into a set of hypotheses. These are described in the next section.

4.3 Hypotheses Development

This section takes the relationships predicted between the concepts presented in the conceptual model and develops a set of research hypotheses regarding the use of various concepts of human resource accounting for appraising investments in HCD and the impact of HR sophistication on managerial decision making regarding IHCD. It also aims to examine empirically the impact of investing in HCD on the performance of organisations (Figure 4.2).

4.3.1 Impact of Appraisal on Investing in HCD Programmes

The success or failure of any investment made in HCD programmes can only be established accurately through its proper appraisal or evaluation. It is therefore unsurprising that so many authors have described appraisal of investment as a vital and integral part of any systematic HCD process (Rose, 1964; Ralphs and Stephan, 1986; Taylor, 1986; Kirkpatrick, 2004; Bras and Rodrigues, 2007). This is because without it the overall impact of the human resource development programme would remain obscure and difficult to judge with any precision.

The purposes of appraisal were previously set out in detail in Chapter 2. Briefly, appraisal measures ensure the effectiveness of the programme after its completion, and determine whether the efforts and investments made were worthwhile for the organisation or not. Investment in human resources is a form of capital investment so it should be evaluated for its viability (Campbell, 1994, 1995; Dale, 2004; Bullen, 2007; Bullen and Eyler, 2010). These findings led to the development of the following hypotheses.

Figure 4.2: Hypothesised Theoretical Model
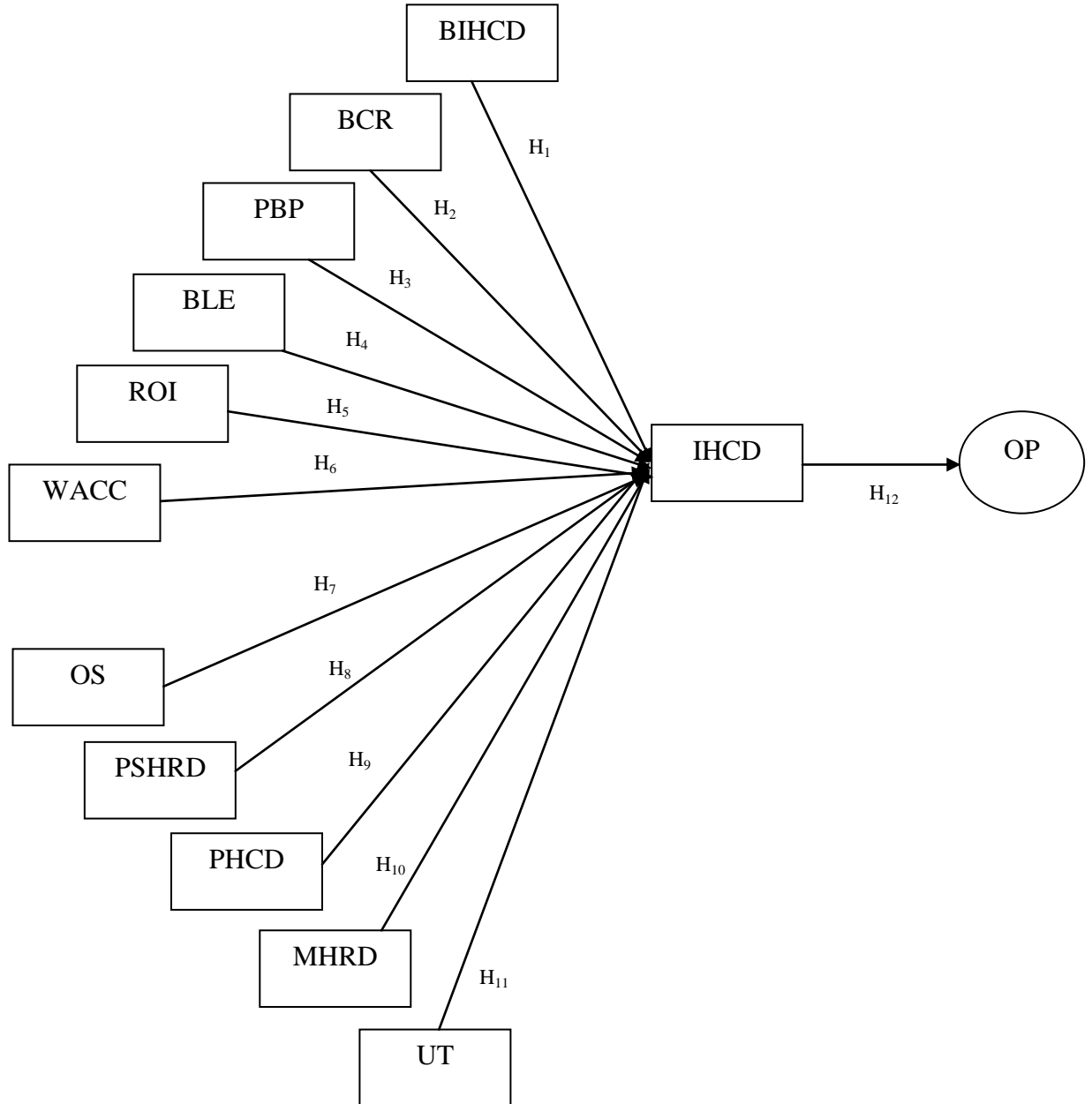
4.3.1.1 Investing in HCD and Financial Benefits for Enterprises

This study only considers those components of costs and benefits described in Section 4.2.2, which are confirmed by the previous studies. In order to measure the investment in HCD, the total costs associated with training were divided into four elements: trainer's fee cost of trainees during training time, training development and delivery cost, and trainees' scholarship during training time.

The total benefits of training were measured in financial terms across five elements: increase in production, reduction in errors and customer complaints, reduction in repair costs and wastage, savings due to reduction in hiring and firing issues, and benefits from reduction in work-in-process time. In order to calculate the benefits of investments, estimates were taken of the annual costs of errors and defective production, repair costs, absenteeism costs and down time costs that firms had to face prior to conducting training programmes. Reductions in these costs that resulted from training activities were taken in percentage form. Finally, these savings were converted into monetary terms. All the costs and benefits available were considered on a yearly basis. Previous studies provide evidence of the positive association between investments made in HCD and benefits that organisations can reap from this investment (Youndt et al., 2004; Bras and Rodrigues, 2007; Chaudhry and Roomi, 2010; Flamholtz and Randle, 2012). These findings led to the development of the following hypothesis:

H$_1$: *There is a positive association between investing in HCD and the total benefits derived from this investment.*

4.3.1.2 Investing in HCD and Benefit to Cost Ratio

According to human capital theory, any cost incurred in training is an investment that will enhance the quality of human capital (Campbell, 1994; Campbell, 1995; Becker and Gerhart, 1996). Revenues or production output will increase and savings will be made through a reduction in customer complaints, reduced repair costs and wastage of materials, a reduction in hiring and firing issues, and reduced work-in-process time. Management will be helped to control the overall cost of goods manufactured. Previous studies have also argued that if the predicted benefits of a human development programme exceed their cost then this investment may be judged worthwhile (Kim and Huang, 2000; Robert, 2001; Kirkpatrick, 2004; Phillips, 2006). The above discussion helps to generate the following hypothesis:

H$_2$: *IHCD has a positive association with the BCR of investment made in HCD.*

The above hypothesis is evaluated on a comparison of the total monetary benefits and the total costs incurred in developing human capital. This is so as to evaluate the ratio of the benefits to the total cost (investment) incurred by the human resource development programme (Campbell, 1994; Smith, 2004).

4.3.1.3 Investment in HCD and Term of Benefits

To gain a competitive edge and achieve their corporate goals, organisations have to make sound investment strategies in the development and satisfaction of their employees. These investments should provide benefits in the short period of time (Flamholtz et al., 2003; 2004; Bullen, 2007; Bullen and Eyler, 2010) that will

increase over the coming years (Brinkerhoff, 2006). So investments made in training will continue to offer higher returns in future (Bernthal, 2000; Devins et al., 2005). Enterprises that invest heavily in training and the development of their human resources will reap large returns in both ways as profits in the short-run and growth in the long-run (Smith, 2004; Aghazadeh, 2007). Training makes employees flexible, confident, thorough, motivated, committed and loyal. Adequately trained employees will help their management control the overall cost of their operations in the long run (Santos and Stuart, 2003; Finegold et al., 2005). Finally, investment in the training and development of human resources is undertaken with the goal of meeting future objectives and goals such as decreased cost of operations, increased productivity and higher profits in the short-run (Wagar, 1997; Brinkerhoff, 2006). Based on these arguments, it is proposed that:

H₃: *There is a negative association between investment in HCD and the payback period of this investment.*

Testing the above hypothesis will involve evaluating how long it takes to earn enough benefits to cover the investment (total cost) of training and developing the human capital of an enterprise (McLaney and Atrill, 2005; Aghazadeh, 2007; Hui Lien et al., 2007). The organisation wills prefer to make more investments in HCD, if such investments will start to generate financial returns in the less period of time (Santos and Stuart, 2003; Finegold et al., 2005). That is why it is proposed in this study that payback period is negatively associated with the level of investment in human capital development programmes. This will also help to

predict whether investing in human capital starts to provide benefits to organisations in the short-term or long-term.

4.3.1.4 Investing in HCD and Bottom line of Enterprises

Investing in HCD has a positive impact for both employees and firms (Hansson, 2007; Cifalino and Baraldi, 2009). From an employee's perspective, it leads to higher performance, skill development, career growth, increased job satisfaction and reduced stress (Roman et al., 2002; Action and Golden, 2003). Employees are less likely to quit their jobs if they are more marketable in the competitive job market (Devins et al., 2005; Flamholtz and Randle, 2012). A lack of investment in training leads to poor employee relationships, which causes a low motivational level, lack of interest in problem solving and decreased cooperation. This ultimately affects an organisations' productivity (Bedingham, 1997; Aghazadeh, 2007). Indeed organisations gain a large return from their training investment in the form of higher productivity (Bassi et al., 2004; Ballot et al., 2006).

The independent variable, namely IHCD, has a positive impact on the performance of individual employees and the overall organisation in the shape of improved outcomes over the long term. Enterprises that have made a large investment in developing human capital have reaped large returns in the form of both profits and growth (Bassi et al., 2004; Smith, 2004; Cifalino and Baraldi, 2009; Kouhy et al., 2009). Those organisations that invest in training and development programmes gain high employee productivity, which ultimately contributes to high organisational performance (Bramley, 2005; Brinkerhoff,

2006). Investments in the training and development of human resources will lead to increased learning and better job performance productivity, and will positively affect the profitability of an enterprise (Bras and Rodrigues, 2007). Finally, investments made in the development of human capital have a direct impact on the bottom line of enterprises (Kouhy et al., 2009; Chaudhry and Roomi, 2010; Flamholtz and Randle, 2012). Based on these arguments, it is proposed that:

H₄: *Investing in HCD programme is positively associated with the bottom line (overall profitability) of enterprises.*

This hypothesis is based on the concept of bottom-line evaluation for the appraisal of investments in human resource development. Bottom-line evaluation means assessing the impact of development programmes both at the level of individuals' work and then at the level of the organisation as a whole (Smith, 2004; Bras and Rodrigues, 2007). In brief, this hypothesis is based on a test of the association between IHCD and the overall profitability of an enterprise.

4.3.1.5 Investing in HCD and Return on Investment

When measuring the financial impact of human resource development programmes most researchers and practitioners have promoted the measurement of ROI (Phillips, 2002; Flamholtz et al., 2003; Smith, 2004). The ROI approach has been widely promoted and has achieved a high degree of acceptance among human resource development practitioners and researchers (Phillips, 2002). However, one significant drawback of this approach is that it measures the effectiveness of a HCD cost that has already been incurred. It is thus not usable as

a before-the-event tool (Smith, 2004; Kline and Harris, 2008). There are various deficiencies with this method (Murray and Efendioglu, 2007), and relying on it exclusively can cause poor decisions. For the purposes of investment appraisal, cash flow rather than accounting profits is important. Cash is the ultimate measure of the economic wealth generated, because it is used to acquire resources and distribute revenue to shareholders or owners.

Accounting for profit is more appropriate for recording achievements over the short-term (McLaney and Atrill, 2005). Before investing in any HCD programme, organisations prefer to calculate the ROI of such investment. Based on these arguments, it is proposed that:

H₅: *Investing in HCD has positive association with return on investment (ROI).*

4.3.1.6 Investing in HCD and Weighted Average Cost of Capital

WACC is the rate that an enterprise is expected to pay on average to all of its sources of capital (debt or equity) in order to finance its human assets. WACC is calculated by taking into account the relative weights of each component of the capital structure. It is used to see if an investment is worthwhile or not. WACC is the minimum average return that an enterprise must earn on an existing investment base to satisfy its cost of capital (McLaney and Atrill, 2005). So as to better appraise and check the potential viability of the amount invested in HCD, ROI must be compared with WACC. For an effective decision regarding any investment in HCD, its estimated ROI should be the maximum while its WACC

should be the minimum (McLaney and Atrill, 2005). These arguments provide the basis for the following hypothesis:

H$_6$: *There is a negative association between IHCD and the weighted average cost of capital (WACC) of an enterprise.*

The results of this study will help the management of an organisation to analyse whether investments in developing human resources are financially viable or not. They can also check whether investing in HCD has any impact on the bottom line of their organisations. Finally, appraising IHCD by using various tools of human resource accounting will leads towards effective decision making about investing in HCD programmes.

4.3.2   Impact of HR Sophistication on Investing in HCD

The second set of hypotheses relates to relationships between organisational size, provision for specialist HR department, policies of HCD, methods of HRD, use of technology and investing in HCD programmes (Figure 4.2).

4.3.2.1 Investing in HCD and Organisational size

The findings of the contingency-based studies indicate that organisational size is positively related to accounting and human resource systems sophistication. For instance, a large number of studies suggest that as an organisation increases in size, its accounting, human resource and control systems tend to be more sophisticated (Flamholtz, 1976; Merchant, 1981; Huselid, 1995; Libby and Waterhouse, 1996; Hoque and James, 2000; Haldma and Laats, 2002). Similarly, the findings of Hoque

and James (2000) support the proposed positive relationship between organisation size and balanced scorecard adoption as one of the sophisticated performance management systems. More recently, the findings of some studies suggest that large companies are more likely to adopt more sophisticated management accounting procedures (Abdel-Kader and Luther, 2008).

The HCD literature also suggests that the larger the company size, the more likely that financial performance will become more complicated. As a consequence, organisations tend to use more sophisticated procedures to provide information for decision making (Ryan and Trahan, 1999, 2007). In addition, the implementation of sophisticated HCD programmes is very costly and time consuming, and requires enormous senior managerial commitment.

Most companies that invest in HCD employ consultants and invest heavily in education and training that cover the majority of managers and employees (Huselid, 1995; Otley, 1999; Chenhall, 2003, 2005). Thus, HCD requires significant resources, which makes it only affordable for large companies. Moreover, the results of the empirical studies conducted by Ryan and Trahan (1999, 2007) support the claims of positive association between company size and investing in HCD programmes. Based on this prior reasoning, investing in HCD programmes is likely to take place in large companies. The following hypothesis can be derived:

H$_7$: *Investing in HCD programmes is positively associated with organisational size.*

4.3.2.2 Investing in HCD and Provisions for Specialist HR Department

The extant body of literature available on the area of HCD states that organisations with specialist and developed human resource department have sound investment plans for HCD. Mackay and Torrington (1986) in their UK-based study organisations, found that 66 percent of organisations had a strong human resource department and this department is fully responsible for developing plans for human resource development. On the same issue Athari and Ziari (2002) conducted a study on the Kuwaiti public sector organisations, finding that more than 50 percent of Kuwaiti enterprises have an independent human resource department.

In a similar context, Abu-Doleh (1996) found that 84.6 percent of Jordanian manufacturing organisations had human resource development units or departments and they have proper investment plans for HCD. These findings reveal that the provisions of human resource department affect decisions regarding investments in HCD programmes. Therefore it is proposed that:

H$_8$: *Investing in HCD is positively associated with provision for specialist HR departments.*

4.3.2.3 Investing in HCD and Policies of HCD

A formal human resource development plan is a practical document that takes into account identified employee training and development needs, and outlines specific training programmes, methods and resources to fulfil those needs (Stout, 1993, 2005). Its purpose is to raise the performance of the organisation as a whole and

contribute to the achievement of its goals. Those organisations that claimed to possess ongoing plans for investing in human resource development are also responsible for deciding whether their policies related to HCD were formal or informal. A written policy or plan, it has to be remembered, not only spells out how training and development programmes will achieve their objectives, but also delineates the focus of activities within the organisation. It also highlights the details of which staff are to be trained and why, how the programme is to be implemented (Stout, 1993, 2005; Kouhy et al., 2009; Flamholtz and Randle, 2012), and how investment in these programmes will be evaluated. These arguments provide the basis for the following hypothesis:

H9: *Investing in HCD has a positive association with human capital development policies of the organisations.*

4.3.2.4 Investing in HCD and Methods of HRD

Kerrigan and Luke (1987) found that lectures, management games, case study, special projects, brainstorming, field visits, audio-visual aids and computer-based methods are the most common methods used in formal training and development of human resources. These findings are in accord with the fact highlighted earlier, that in order to implement these methods organisations must have huge financial and personnel resources, and an independent specialist human resource department. The existing literature holds Kirkpatrick's four-level model (reaction, learning, behaviour and outcome) as the most widely used for qualitatively (non-financial) evaluation of investment in training and development. The second famous model is Warr et al.'s CIRO (cost, input, reaction and outcome) model

(1976). Only a little literature refers to the use of the 'investor in people' model and benchmarking to evaluate qualitatively investments made in HCD.

These models and methods will help management to draw accurate conclusions regarding the viability of investments made in the development of human resources. They also help decision makers to determine whether continue to invest in their organisation's HCD or not. Based on these arguments, the following hypothesis of the study is derived:

H$_{10}$: *Investing in HCD is positively associated with the use of multiple methods of human resource development by organisations.*

4.3.2.5 Investing in HCD and Use of Technology

Advances in manufacturing technology allow organisations to operate in highly dynamic and competitive industries to acquire manufacturing flexibility (Chenhall, 2003, 2005; Hutchison and Das, 2007). Currently, many organisations feel that their traditional methods are inhibiting the introduction of innovative processes and technologies (Abdel-Kader and Luther, 2008). It is in this context, Perera et al. (1997) argue that increasing advances in manufacturing technology requires companies to invest more in HCD programmes.

Furthermore, according to Haldma and Laats (2002) and Flamholtz, (2012), while technological progress continues, the human resource system itself may become more sophisticated. A study by Hoque et al. (2001) found that greater use of multiple measures of performance is associated with more frequent use of

computer-aided process, which requires more investments in developing human resources. Based on the above arguments and the results of the previous empirical studies as discussed in Chapter 3, it can be expected that organisations that use more advanced technology are more likely to need and invest in HCD. These arguments provide the basis for the following hypothesis:

H₁₁: *Investing in HCD programmes is positively associated with the use of technology.*

Managerial decisions regarding investments in HCD in general appear to be a contextually defined phenomenon in terms of level of HR sophistication (Otley, 1980; Flamholtz, 2005; Kouhy et al., 2009; Bullen and Eyler, 2010). These decisions should consider various factors, such as: size, technology, provisions for specialist HR department, policies for HCD and approaches or methods of HCD, which may lead to higher level of HR sophistication which may have effect on the managerial decision effectiveness regarding investing in HCD.

4.3.3 Investing in HCD is Financially Viable for Enterprises

It has been argued in the previous chapter that investing in HCD is potentially viable for enterprises because it brings a comprehensive positive change to organisational performance. Investments in HCD are linked together in a cause-and-effect relationship that covers different perspectives, such as customer satisfaction, employee satisfaction, product and service quality, market share, and productivity (Ittner and Larcker, 1998; Otley and Fakiolas, 2000; Ittner and Larcker, 2001; Chenhall, 2005). Davis and Albright (2004) found that

organisations that invest in the HCD programmes should experience better financial performance than those that do not invest in such programmes. However, Ittner et al. (2003) found that IHCD has no direct effect on organisational performance.

Hoque and James (2000) also found a positive relationship between investing in HCD and organisational performance. Similarly, Davis and Albright (2004) provide evidence that IHCD can be used to improve organisational performance in banking companies. In the context of Malaysian Manufacturing firms, Jusoh et al. (2008) found that firm performance is positively associated with IHCD. They found strong evidence that IHCD leads to improved financial returns for enterprises. Based on these research findings, it can be hypothesised that:

H_{12}: *Organisational performance is positively associated with investing in HCD.*

One day, it may be desirable to furnish potential investors with information about a firm's investment in HCD. The framework of human resource accounting described here will in these circumstances serve as a useful management tool. This would not only help to measure all the costs or investments associated with the recruitment, placement, training and development of employees, but also to quantify the economic value of those employees. The information provided to managers would not only assure them of the costs and benefits of specific personnel policies, but also provide feedback about their own management styles. Finally, the current framework may contribute to more effective management by providing information that helps managers to assess the value of human resources

and to choose between alternative investments in HCD in order to enhance the overall performance of their organisations.

4.4   Summary

There is growing recognition of the fact that the core economic resources of the current era are human rather than physical (Flamholtz et al., 2003; Bullen and Eyler, 2010). This leads to two important questions for enterprises: how to assess the value of human capital in addition to an enterprise's physical assets, and how to improve decisions regarding the development of human capital in enterprises. This raises the need for a conceptual framework for evaluating the impact of investments in HCD on the organisations. This theme is central to the current research.

The previous chapter examined the gaps in the relevant literature on human resource accounting and HCD from different methodological standards. This chapter has synthesised these findings into a new framework. The proposed framework links the main applicable tools of human resource accounting and HR sophistication with managerial decision making regarding investing in HCD programmes in order to check the financial viability of investments made in HCD. It has also presented the hypothesised relationships between the dependent and independent variables and has developed a set of hypotheses from which final conclusions may be drawn (Figure 4.2).

The research design and methods necessary to test empirically the hypotheses and to carry out this research are described in the next chapter.

Chapter 5   Research Methodology

5.1   Introduction

This chapter addresses the research methodology used in this thesis and also gives details about the selection of the research design's components for data collection. The research design has been developed from nature of the research questions, objectives of the study and different circumstances surrounding the researcher. These circumstances include: the availability of financial and other resources, the access to data that the researcher has in developing countries like Pakistan, the time constraint imposed of just four months for data collection, and the considerable distance between Pakistan and the United Kingdom.

In this chapter, the research methods and the procedures employed to carry out the empirical section of study are presented systematically (see Figure 5.1). They include research philosophy, research approach, research methodology, research strategy, research design, sampling design, data collection methods, questionnaire development, pilot testing, main survey, semi-structured interviewing, data analysis techniques, issues of reliability and validity and the research ethical considerations to ensure the data is unbiased and can support generalisability. Finally, the chapter concludes the whole research methodology with a summary.

Figure 5.1: Overall Research Methodology of the Thesis
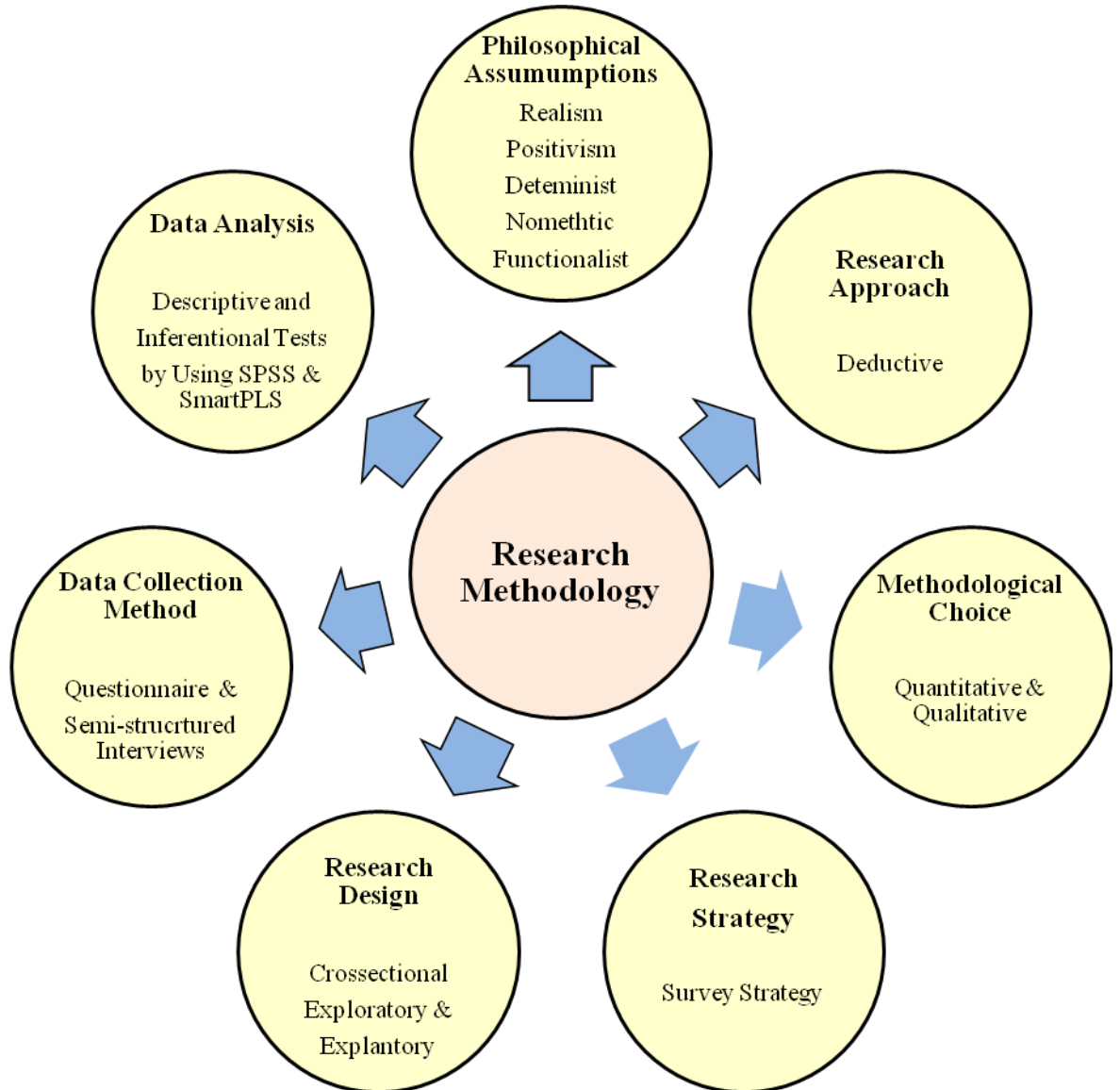
5.2 Research Philosophy

A research philosophy is concerned with what a researcher thinks about the development of knowledge (Saunders et al., 2009). As a preamble to describing the broad outline of the methodology used in this research, it is essential to describe the philosophical approach that will be followed.

What philosophy researchers adopt is based on important assumptions about how they view the world. Research in social science (Burrell and Morgan, 1979), including accounting (Riahi-Belkaoui, 2002; Smith, 2011), is based on two types of assumptions: the nature of social science and the nature of society. Assumptions about the nature of social science are related to the ontological perspective, the epistemological perspective, human nature and methodology (Burrell and Morgan, 1979; Hussey and Hussey, 2003; Saunders et al., 2009). Assumptions about the nature of society can be classified in terms of regulation and radical change (Burrell and Morgan, 1979; Saunders et al., 2009).

5.2.1 Assumptions about the Nature of Social Science

According to Burrel and Morgan (1979), there are four types of assumption about the nature of social science: ontology, epistemology, human nature and methodology. The subjective or objective spectrum can be used to distinguish the extreme positions of these assumptions, as shown in Figure 5.2. According to subjectivism (constructivism), social phenomena is nothing more than the results of social actors' actions, and they are in a constant state of revision (Easterby-Smith et al., 2009; Saunders et al., 2009).

On the other hand, objectivism reflects the perspective whereby social entities exist in a reality external to social actors (Saunders et al., 2009). The subjectivist believes in free will: people are free to make decisions that alter the course of their lives (Burrell and Morgan, 1979; May, 2005). Objectivists look at social phenomena as objective entities with a reality external to social actors, while subjectivists see them as social constructions built up from the social actors'perceptions and actions (Burrell and Morgan, 1979; Bryman, 2004; Bryman and Bell, 2007; Saunders et al., 2009).

The first assumption relates to *"ontology"*, which concerns the essence of phenomena under study or simply deals with the nature of reality (Burrell and Morgan, 1979; Hussey and Hussey, 2003; Collis and Hussey, 2009). Accordingly, ontology can be divided into two positions: realism and nominalism.

Realism considers that what the senses show us as reality is the truth; furthermore, objects have an existence independent of the human mind (Saunders et al., 2009). Realism has two types: direct (empirical) realism and critical realism. Direct realism can be described as "what you see is what you get"; in other words, the experience of the senses reproduces the world accurately. Within critical realism, however, experiences are mere sensations: what we see is not everything because we see just that which our senses can provide us (Easterby-Smith et al., 2009; Saunders et al., 2009). Critical realists point out two important steps in experiencing the world: the thing itself and the sensations it conveys, and the mental processing that follows. In the view of direct realists, the first step is

enough (Burrell and Morgan, 1979; Saunders et al., 2009). *Nominalism,* for its part, assumes that the social world has no real structure: it is nothing more than names, concepts and labels which are used to structure reality, because what is known about reality is generated from individual consciousness and cognition (Burrell and Morgan, 1979; Saunders et al., 2009).

Figure 5.2: Assumptions about the Nature of Social Science

The Subjective Approach		The Objective Approach
Nominalism	← Ontology →	Realism
Anti-Positivism	← Epistemology →	Positivism
Voluntarism	← Human Nature →	Determinism
Ideographic	← Methodology →	Nomothetic
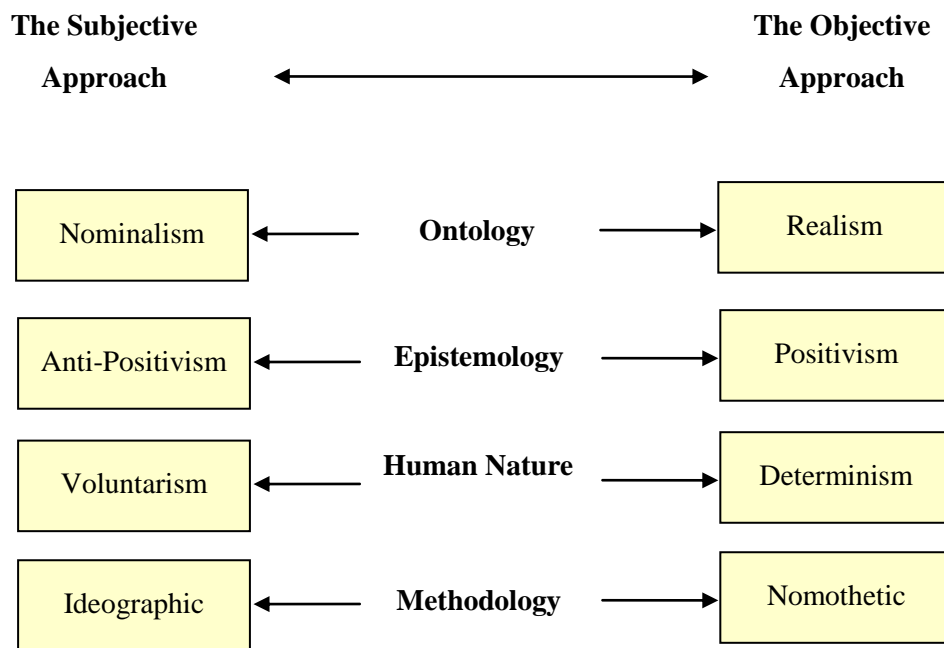
Source: Burrell and Morgan (1979: 3)

The second assumption relates to *"epistemology"*, which concerns what constitutes acceptable knowledge: the grounds and the nature of knowledge. *Epistemology* is especially concerned with identifying the constituents of knowledge (Easterby-Smith et al., 2009; Saunders et al., 2009) and asking what is or what should be known (Bryman, 2004). It is also concerned with the ways of collecting and obtaining knowledge. According to Ryan et al. (2002)

epistemology is the study of the nature of belief, the basis of truth and the problem of justification. Cooper argues further that:

"Many people have the impression that epistemology is the most central area of philosophy, or even that philosophy should really be identified with epistemology (Cooper, 1999: 3)."

The epistemological assumption has been divided in two extreme positions: positivism, and anti-positivism or interpretivisim. *Positivist epistemology* seeks to explain and predict what happens in the social world, based on the traditional approaches that dominate the natural sciences, by searching for regularities and causal relationships between its constituent elements (Burrell and Morgan, 1979; Easterby-Smith et al., 2009; Saunders et al., 2009). Positivism evaluates existing alternative practices to provide people with expected outcomes from each identified alternative (Watt and Zimmerman, 1986). On the other hand, *anti-positivism* advocates that it is necessary for the researcher to understand the differences between humans as social actors. It is concerned with providing ideas about what should be done. It provides options which people may evaluate before selecting the most appropriate for their particular circumstances (Collis and Hussey, 2009; Saunders et al., 2009).

The third assumption about the nature of social science relates to *"human nature"*. This is the relationship between human beings and their environment (Burrell and Morgan, 1979; Hussey and Hussey, 2003; Collis and Hussey, 2009; Saunders et al., 2009). The two extreme positions under this assumption are

determinism and voluntarism. From the *determinist viewpoint*, humans and their activities are completely determined by the situation or environment in which they are located. In contrast, under the position of *voluntarism*, humans are completely autonomous and free willed (Burrell and Morgan, 1979).

The last philosophical assumption relates to *"methodology"*, which concerns the methods used to investigate and learn about the social world. According to Saunders et al. (2009) methodology refers to the way of conducting and undertaking the research. Two contrasting positions in this debate are the nomothetic and ideographic. The *nomothetic approach* emphasises the importance of conducting research according to systematic protocols and techniques. It involves rigorous and scientific methods for testing hypotheses and use quantitative techniques to achieve its goals (Burrell and Morgan, 1979; Riahi-Belkaoui, 2002). In contrast, the *ideographic approach* assumes that one can only understand the social world by obtaining firsthand knowledge of the subjects under investigation. It implies an analysis of the subjective accounts generated by participating or getting inside the situations (Burrell and Morgan, 1979; Hussey and Hussey, 2003; Collis and Hussey, 2009).

The present research is based on the ideology of objectivism. The ontological approach used is direct realism and the epistemological approach is positivism. The research will attempt to reinforce "*what is*" rather than to establish "what *should be or how*". From a positivist perspective, this study undertakes the same position to that of the natural sciences, in which underlying causal laws are,

sought that explain the phenomenon under scrutiny. The determinist perspective was also adopted at the time of data collection, on the assumption that the respondent and their activities are completely determined by their environment.

The underlying methodological position of the thesis is nomothetic. This requires a highly structured methodological approach to the collection and analysis of empirical data. The research is designed so that mainly quantitative data are collected to examine the expected relationships described in Chapter 4. The hypotheses are tested by using various statistical tests in order to draw conclusions about the impact of investing in HCD on the Pakistani manufacturing organisations.

5.2.2   Assumptions about the Nature of Society

There are two contrasting positions about the nature of society: the sociology of radical change and the sociology of regulation. The former focuses on reasons for *radical change* to explain society: it looks towards potentiality as much as actuality, it is concerned with what is possible rather than with what is, and it is concerned with alternatives rather than acceptance of the status quo (Burrell and Morgan, 1979: 17). On the other hand, *the sociology of regulation* seeks to explain society in terms of its unity and cohesiveness. It is concerned with the need for regulation in human affairs and asks why society is maintained as an entity and tends to hold together with order and stability. In contrast, the sociology of regulation is concerned with actuality and the status quo (Burrell and Morgan, 1979; Saunders et al., 2009).

According to Saunders et al. (2009) the sociology of radical change in the area of business and management adopts a critical perspective on organisational life. It makes a judgment about how organisational affairs should be conducted and suggests ways in which fundamental changes may be made to the normal order of things. The regulatory perspective is less judgmental and critical. It seeks to explain how organisational affairs are regulated and offers suggestions as to how they may be improved within the framework of how things are done at present. In other words, the radical change dimension approaches organisational problems from the viewpoint of overturning the existing state of affairs, and the regulatory dimension seeks to work within it.

The current study aims to address the practices of human resource accounting adopted in appraising human capital investments made by the most active manufacturing companies in Pakistan. It attempts to provide an understanding and rational explanation of the status quo of such practices. Specifically, it investigates the association between investments made in HCD and the benefits that organisations can reap from such investments. Therefore, the study is based on the assumption of sociology of regulation as the researcher is seeking to work within the natural environment of the organisation without making any change to their existing state of affairs or structure.

5.2.3   Research Paradigms

The term 'paradigm' has been used in the social sciences since the 1960s. It refers to the perspective adopted by researchers to inspire and direct a given science

(Corbetta and Patrick, 2003). According to Saunders et al. (2009) a paradigm is a way of examining social phenomena from which a particular understanding of them can be gained and explanations attempted. The importance of paradigms for the sciences is that any science without a paradigm lacks orientation and criteria of choice, so that all problems, methods and techniques are equally legitimate (Corbetta and Patrick, 2003). Finally, a research paradigm is a cluster of beliefs and dictates that influence researchers in a given discipline as to what should be studied, how research should be done and how results should be interpreted (Bryman, 1988, 2004; Saunders et al., 2009).

In their book *Sociological Paradigms and Organisational Analysis* (1979), Burrell and Morgan take the two main dimensions – the subjective–objective dimension (horizontal axis) and the radical change–regulation dimension (vertical axis) – to identify four paradigms for the analysis of social theory: radical humanist, radical structuralist, interpretive and functionalist. These are shown in Figure 5.3.

There is no doubt that Burrell and Morgan's model has made a significant contribution to social science research (Jackson and Carter, 1991). It has proved a considerable instrumental guide to summarising and clarifying the various epistemological and ontological positions (Saunders et al., 2009). Burrell and Morgan affirm that a paradigm helps to clarify researchers' assumptions about the nature of science and society, provides a good understanding of how other researchers approach their work, and helps when designing and planning the research to make researchers aware of where they stand and help them to map out

further directions in relation to their attitudes and conceptions (Burrell and Morgan, 1979).

Figure 5.3: Social Research Paradigms

The Sociology of Radical Change
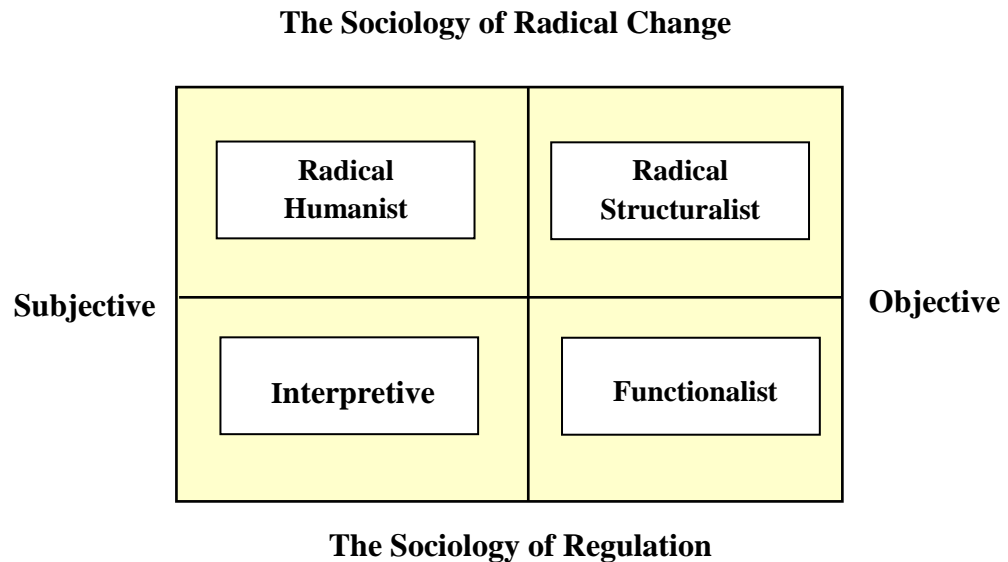
Source: Burrell and Morgan (1979: 22)

The radical humanist paradigm represents the subjective and radical change standpoints. It adopts a critical perspective on organisational life and is concerned with changing the status (Burrell and Morgan, 1979; Saunders et al., 2009). In addition it implies the subjectivist approach to social science: nominalism, anti-positivism, voluntarism and ideography. *The radical structuralist paradigm*, on the other hand, tends towards the objectivist approach to social science: realism, positivism, determinism and nomotheticism. However, it too seeks fundamental change in the existing order (Saunders et al., 2009).

The interpretive paradigm represents the regulatory approach, which seeks to explain the social order and offers suggestions for improvement by highlighting

irrationalities (Burrell and Morgan, 1979; Jackson and Carter, 1991). Its concern is to understand and explain what is going on, not to achieve change. However, this paradigm tends to the subjectivist approach of social science: the nominalist, anti-positivist, voluntarist and ideolographical positions (Saunders et al., 2009).

Finally, the interpretive paradigm aims to understand the subjective experience of individuals involved in the preparation, communication, verification or use of accounting information (Tinker and Puxty, 1995). However, it suffers from a number of limitations. It postulates that an observer can only understand social action through subjectivity and without interference, it fails to be an inquiry of change and it creates the illusion of pure theory by using a monological line of reasoning (Riahi-Belkaoui, 2002; Smith, 2011).

The functionalist paradigm represents the regulatory standpoint and the objectivist approach. It aims to explain the existing social order, and the facts and causes of social phenomena. The key assumption under this paradigm is that organisations are rational entities, in which rational explanations offer solutions to rational problems (Saunders et al., 2009). In this regard, the functionalist paradigm is often considered problem-oriented in approach, concerned with providing practical solutions to practical problems (Burrell and Morgan, 1979; Saunders et al., 2007).

The functionalist paradigm is dominant in business and management research (Saunders et al., 2009) and accounting (Popper, 1972; Watt and Zimmerman, 1986; Smith, 2011). In the context of accounting, Riahi-Belkaoui (2002) indicates that the functionalist view characterises what is generally considered mainstream

accounting research. Its main assumptions include the separation of theory and observations used to test the theory, adoption of the hypothetic–deductive approach, and quantitative methods to collect and analyse data. The functionalist view focuses on explaining the social order. In accounting it takes a realist, positivist, determinist and nomothetic standpoint. It is concerned with effective regulation on the basis of objective evidence.

This research study measures the relationship between independent and dependent variables. The procedure adopted for data collection and analysis follows mainly a quantitative approach. There are certain reasons for adopting this paradigm. First, this study will measure the relationships between the variables. Second, the ontological position suggests the realist position, which requires social facts. Third, the epistemological position allows for independent observable facts in society. The fourth assumption is human nature in relation to human beings according to their environment as determinism. Finally, there are methodological issues relating to the measurement and identification of underlying themes. In this approach the objectivist position is characterised by procedures and methods which may be designed to discover general laws. This is referred to as nomotheticism.

Finally, the current study is not concerned with achieving fundamental change in the Pakistani manufacturing sector. Therefore the radical humanist and radical structuralist paradigms are considered irrelevant. The interpretive paradigm is also irrelevant as the present research is not seeking to develop a new theory. In order

to achieve its objectives, the study will adopt a functionalist approach. It seeks to test a theory by employing the hypothetic–deductive approach and by using mainly quantitative techniques to collect and analyse data.

These philosophical assumptions have guided the researcher and helped to justify his research approach (Easterby-Smith et al., 2009; Saunders et al., 2009). Details about the research approach are given in the following section.

5.3 Research Approach

There are two main research approaches to thinking: the deductive and the inductive (Hussey and Hussey, 2003). In the case of deductive research, theory is tested by empirical observation and is referred to as moving from the general to the particular (Hussey and Hussey, 2003; Sekaran and Bougie, 2010). In inductive research theory is developed from the observation of empirical reality. Thus general inferences are induced from particular instances. This is the reverse of the deductive method since it involves moving from individual observation to statements of general patterns or laws (Hussey and Hussey, 2003; Collis and Hussey, 2009). According to Sekaran (2003) deduction is a process by which a researcher arrives at a reasoned conclusion by logical generalisation of known fact, while on the other hand induction is a process where a researcher observes certain phenomena and then arrives at conclusions.

In brief, the deductive approach starts from a theory, hypotheses are developed and a research strategy is designed to test these through the collection and analysis

of empirical data. In the inductive approach data is collected and analysed from which a theory is developed as a result of its analysis (Bryman and Bell, 2003; Sekaran, 2003; Saunders et al., 2009).

A few researchers have combined both inductive and deductive approaches, arguing that both can be used in the same study. According to these researchers the two approaches complement one another. Induction helps to develop a theory and deduction helps to test it. They describe a continuum from pure induction (theory-building) to pure deduction (theory-testing). They advocate taking a middle-ground between the two, a position that they call theory confirming or disconfirming (Creswell, 1994, 1998; Neuman, 2006; Collis and Hussey, 2009; Easterby-Smith et al., 2009).

Saunders et al. (2009) argue that deduction owes more to positivism and induction to interpretivisim. In addition, Bryman and Bell (2003) found that the deductive approach involves testing a theory and is related to the quantitative research that follows realism and positivism as its ontological and epistemological assumptions. In contrast, the inductive approach involves the generation of a theory and is related mainly to the qualitative research that follows nominalism and interpretivisim as its ontological and epistemological assumptions.

The present research describes a hypothetical method for answering its research question and justifies the hypotheses that were developed (John, 2004). The deductive method, which involves the development of hypotheses, divides research design into a chain of steps in order to answer research questions.

Figure 5.4: Deductive Research Process Adopted by the Researcher
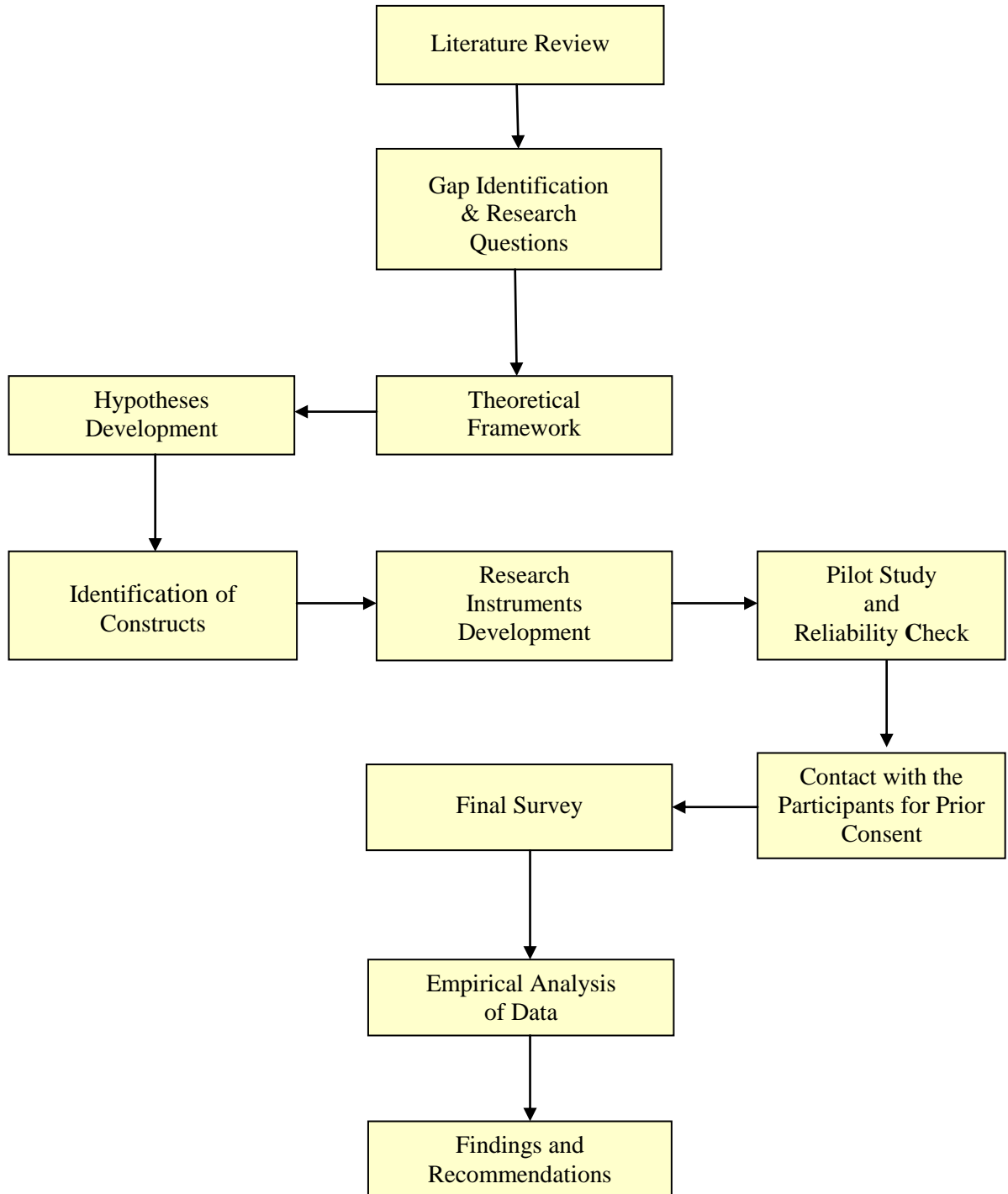
The current research process begins with a detailed review of literature in order to understand the research domain. On the basis of the reviewed literature, research gaps are identified and a conceptual model developed for this study. Hypotheses are developed. To test the hypotheses and to examine the model, data is necessary. The data type is ascertained mainly as quantitative, an epistemological stance is established, and the research scheme is recognised (see Figure 5.4).

The current study is based on the ideologies of objectivism and positivism and owes more to the deductive process of research. It aims to test a theory and not develop one. Therefore, its hypotheses were developed from the existing literature. Empirical data was collected and analysed to test these hypotheses and to prove the reliability and validity of the framework.

The next section provides details of the chosen methods of research.

5.4   Research Methodology

There are two main types of methodologies in research: quantitative and qualitative. Many researchers (Hussey and Hussey, 2003; Bryman and Bell, 2007; Collis and Hussey, 2009; Easterby-Smith et al., 2009; Saunders et al., 2009) had commented on the choice, or the mixing of these two type of methodologies. Quantitative research methodologies were originally developed in the natural sciences to study natural phenomena. They are also now well accepted in the social sciences. Quantitative methodologies include survey methods, laboratory experiments and numerical methods such as mathematical modelling. Qualitative

research methods were first developed in the social sciences to enable researchers to study social and cultural phenomena. These include: action research, grounded theory, case study research and ethnography (Bryman, 1988, 2004; Bryman and Bell, 2007; Saunders et al., 2009).

The main difference between quantitative and qualitative methodologies is the type of data collected. Quantitative research seeks to collect data in the form of numbers through experiments and surveys. Its aim is to enable statistical analysis that verifies or falsifies the pre-stated hypotheses. On the other hand, qualitative research aims to collect rich and in-depth data in the form of words. The objective is to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world (Van Maanen, 1983: 9).

Both quantitative and qualitative methods have their strengths and weaknesses, as summarised in Table 5.1. On the basis of these there have been a number of "paradigm wars" between qualitative and quantitative researchers (Easterby-Smith et al., 2009). Each camp has tended to concentrate on the inadequacies of the "opposing" methodology (Kelle, 2006: 294). However, an argument has been developed that methodology should be governed by substantive research questions at least as much as by epistemological and methodological considerations (Kelle, 2006). According to Myers (2000) qualitative research methods are aligned to the interpretive paradigm whereas quantitative research methods are aligned to the positivist paradigm.

According to Cooper and Schindler (2006) the choice of research method is not as complicated as might first appear. By comparing the research objectives with the strengths and weaknesses of each method, the researcher will be able to select what best suits his or her study. Such a choice is arguably one of the most important and perhaps most debated decisions in connection with the research design. When choosing a methodology, the researcher must realise that none is ideal, only that some are more or less useful, depending on the nature of the research questions (Al-Alwnah, 1996).

Table 5.1: Quantitative Versus Qualitative Methodologies

Methodology	Strengths	Weaknesses
Quantitative	• Higher level of accuracy • Provides factual information • Results more significant and focused, both as to information and target audience used • Margin of error can be calculated • Generalisation is possible	• Slower than qualitative research • Not so simple to undertake • Often requires computer based analysis techniques • Low response rate • Risk of bias
Qualitative	• Can be cheaper than quantitative • Simpler to undertake • Offers useful overview • Helpful as prelude to quantitative research	• Findings more subjective; call for high interpretive skills of respondents • Smaller sample size, reducing accuracy level • High level of bias • Difficult to generalise because of limited cases

Sources: Adapted from Kelle (2006); Easterby- Smith et al. (2009); Ghauri and Groqnhaug (2010)

Many other scholars, such as Simon (1969), Downey and Ireland (1983), Jankowicz (1995), Ghauri et al. (1995) and Ghauri and Gronhaug (2010) agree with this view, and emphasise that the selection of method ultimately depends upon the research problem, the research design, and the purpose of the research.

Before starting research, the researcher must find the proper approach, because there are many ways to tackle a problem – some good, some bad. The researcher will probably have to adopt several good methods (Bryman, 1988; Ghauri et al., 1995; Ghauri and Grqnhaug, 2010). According to Jankowicz (1995) several different methods are commonly used in the research of business and management. The choice of methodology varies according to the nature and scope of the topic and thesis, the sources of data used, the purposes of data gathering and the amount of control the researcher wishes to exercise during the analysis (Bryman and Bell, 2003; Bryman, 2004).

Management accounting is a dynamic field with no one school of theory dominating its research agenda. The nature of this field has always forced researchers to be open-minded and attentive to the evolution of research outside their domain. The diversity of different schools of thought and the increasing conversation between them make management accounting a very promising field going forward (Davila and Oyon, 2008). Thus, repeated calls for validating empirical research by combining quantitative and qualitative methods have recently been made in management accounting research conducted within the different research paradigms (Modell, 2005; Davila and Oyon, 2008).

This thesis utilises a mainly quantitative approach to data collection, with some qualitative aspects. The quantitative approach was based on a questionnaire that was used to collect data to achieve last three main research objectives. The first two objectives, which deal with identifying of main practices and difficulties in

using of different tools of human resource accounting to evaluate investment in HCD, were dealt with using a qualitative approach based on semi-structured interviews.

The next section presents an overview of the research strategy adopted by the researcher for data collection.

5.5 Research Strategy

"Research strategy" refers to the general plan of how the researcher wants to answer a set of research questions. It also allows third parties to evaluate how carefully the researcher has applied the particular strategy and assess the legitimacy of the proposed investigation (Saunders et al., 2009). After finalising the approach and methodology, the researcher must have a clear idea about research strategy, research design and research methods. According to Sekaran (2003), strategy is more concerned with the overall approach adopted by the researcher, whereas research design and research methods are more concerned with methods of data collection and analysis. The existing literature suggests many research strategies such as: experiment, survey, case study, grounded theory, ethnography, action research and archival research (Saunders et al., 2009; Yin, 2009).

According to Bell (1993) the pros and cons of each strategy, based on the circumstances surrounding the research, will help the researcher to choose the most appropriate one. Wilson (1996) mentions that choosing a strategy depends

on the nature of the research questions and therefore no single strategy can be considered the best. The success of the research depends on the strategy used for collecting and analysing the data.

5.5.1   The Chosen Strategy (Survey Research)

This research employs survey as a main research strategy. According to Fink (1995), surveys are a way of collecting information to describe, compare or explain knowledge, attitudes and behaviour. Survey research is an inexpensive way of collecting data from a large number of respondents. The results can be generalised to a large population. Gill and Johnson (1997) add that survey results can be generalised with a high degree of confidence if the method involves the careful and random selection of samples. The more highly structured methodology is used, the better the replication will be and, consequently the more reliable it will be.

The strategy for collecting data by survey is usually associated with the deductive approach and is also very popular in business and management research (Saunders et al., 2009; Yin, 2009). Surveys can normally be divided into two types according to their purpose: descriptive survey and analytical. Descriptive surveys provide a picture of the on-going process or phenomena, whereas relational or analytical surveys are developed for empirical analysis to prove a relationship between two or multiple variables (Collis and Hussey, 2009). The literature on human resource accounting presents that the most of studies are based on the

survey strategy of research (see Table 3.3). That is why researcher has decided to use the survey strategy for collection of data during the said research.

This research has developed a number of hypotheses. These will be tested by using a research survey. This is based on an analytical survey that explores the association between investment in human resource development and the benefits from such investment. In conclusion, in this research study, researcher adopted the strategy of survey and used both questionnaire and semi-structured interviews for the data collection.

The next section presents an overview of the research design for data collection.

5.6   The Research Design

All research must define its chosen design. Without this there is no clear direction as to what data are collected and why, costs will run high and the researcher may not be able to solve the problem under investigation. According to Davis and Cosenza (1985) research design is the road map for researchers. Nachmias and Nachmias (1996) similarly define research design as a programme that guides the investigator in the process of collecting, analysing and interpreting observations. Many definitions of research design have been suggested, but none embraces all important aspects of the concept (Cooper and Schindler, 1998). However, Zikmund (2003) concisely defines research design as:

> *"A master plan specifying the methods and procedures for collecting and analysing the needed information (Zikmund, 2003: 49)."*

In simple terms, a research design is a framework of the research in action. Churchill (1995) classified research designs into three types, based on their purpose: exploratory, descriptive and explanatory. Exploratory design is concerned with discovering ideas about and gaining insights into the research problem. It is undertaken when the researcher does not know much about the situation at hand, or when he has no information on how similar problems or research issues have been solved in the past (Sekaran, 2003; Sekaran and Bougie, 2010). Descriptive design concerns the frequency of an occurrence or the relationship between two variables. It is undertaken when we try to describe certain characteristics of the phenomena we are interested in (Sekaran and Bougie, 2010). Furthermore, descriptive research seeks to answer questions of who, what, when, where and how (Cooper and Schindler, 1998, 2006). Explanatory research (hypothesis testing) is undertaken when researchers try to explain the nature of certain relationships or the independence of two or more factors in a situation. This type of research is concerned with the study of cause and effect relationships (Sekaran, 2003; Sekaran and Bougie, 2010).

The present research is exploratory in nature. So far, no study has been conducted in Pakistan that analyses the financial returns associated with investing in the development of human resources in manufacturing organisations. The study will be conducted primarily through a hands-on approach as it is first of its type in the Pakistani manufacturing sector. Although it is primarily exploratory in nature, the study will also attempt to explain the relationship between financial returns and investments made in HCD. This makes it explanatory as well.

Based on the available time and other resources, the research design may either take the form of a cross-sectional or longitudinal study. Saunders et al. (2009) define cross-sectional studies as: "the study of a particular phenomenon at a particular time." In addition, they acknowledge that business studies are usually subject to time constraints, and may use both quantitative and qualitative techniques. Easterby-Smith et al. (2009) argue that cross-sectional design is an economical way of describing the features of a large number of populations. This type of research is the most common use of surveys (De Vaus, 1996; Babbie, 1998). Churchill adds that cross-sectional studies have two advantages: they give a snapshot of the variables at a specific point in time, and the sample will represent the known universe (Churchill, 1995). Longitudinal studies measure changes in a phenomenon over a period of time (Saunders et al., 2009), with data gathered at two or more points in time (Sekaran and Bougie, 2010). Collecting data for such studies requires more time, effort and cost.

A longitudinal study requires the presence of the researcher in the field for a longer period of time and more financial support (Sekaran and Bougie, 2010). Neither of these was available for this study. In addition, longitudinal research would be difficult in the present case because of the researcher's restricted access to the organisations. For these reasons a cross-sectional approach has been used, and the required data gathered within a fixed time period of three to four months.

The next section provides details about the research population and how the required sample was selected.

5.7   Research Population and Sampling

Sampling plays an important role in quantitative research. The researcher must use a sufficient number of units of analysis to have enough primary data for statistical analysis. Therefore, it is important to ensure that the sample is adequate for drawing conclusions about the population (Saunders et al., 2009). In this study, the research population consists of Pakistani manufacturing organisations listed on the Lahore, Islamabad or Karachi stock exchanges. The platforms that helped the researcher to select these organisations are the websites of the Stock Exchanges and Securities Exchange Commission of Pakistan. These websites contain all the necessary information about the population of interest.

Several sampling techniques may be grouped into two main categories: probability and non-probability sampling. These two sampling methods differ in terms of whether all elements in the population have the equal chance of selection or not. In the current research, probability sampling was used to randomly select and to provide responding organisations with an equal chance of selection from the total population. Different theoretical and practical considerations should be taken into account regarding the size of the sample. The main considerations include the cost, time and effort required. However, the most important factor for deciding sample size is population variance. The greater the variance of population the larger sample is needed (Saunders et al., 2009).

There is no population variance in the current study: the whole population of interest is assumed as homogenous. The sample size was selected according to the

table developed by Krejicie and Morgan in 1970. According to this table, if the population size is between 2,000 and 3,000, then the sample size should be between 320 and 340. Accordingly, a sample of up to 320 listed manufacturing organisations was selected (Sekaran, 2003; Cooper and Schindler, 2006; Collis and Hussey, 2009; Sekaran and Bougie, 2010).

The next section discusses the methods used for data collection.

5.8 Data Collection Methods

The method of data collection is an important component of the research design. There are two sources and types of data: secondary and primary. Secondary data is that which already exists in the public domain and has been collected by others. Primary data is that which is directly collected for the first time by the researcher. According to Ghauri and Grqnhaug (2010) when the available secondary data is insufficient to answer the research questions, the researcher should collect primary data. They further add that the methods of primary data collection include questionnaire surveys, observation and interviews.

The decision to use both quantitative and qualitative methods to collect the data was taken to extend the previous contingency-based research which depends mainly on the questionnaire to collect the data. According to Fisher (1995) the use of multiple methods may be helpful in addressing some of the problems of questionnaire-based research. In recent years, management accounting researchers (Modell, 2005; Van der Stede et al., 2005; Davila and Oyon, 2008) have used a qualitative approach to enhance the validity of their quantitative research findings.

Mainly data in this research was collected by questionnaires and partially by semi-structured interviews. A fully structured, self-administered questionnaire was given to human resource or accounts managers of listed organisations in the manufacturing sector of Pakistan. A discussion about the use and development of the questionnaire follows in the next section.

5.8.1   Questionnaire Development

A questionnaire is a research instrument that uses structured questions to extract information from respondents. These questions are normally given in a pre-determined sequence. Sekaran (2003) describes it as a set of preformatted written questions in which respondents record their answers, usually within available closed-ended alternatives. Sekaran further, points out that questionnaire is an efficient instrument for data collection when the researcher knows exactly what type of information is required and how to measure it. De Vaus (1996) explains that questionnaires are probably the most widely used technique for data collection within the survey research strategy. They may either be completed by respondents and returned to the researcher or administered in the presence of the researcher. Questionnaires are a highly structured technique of data collection in which respondents are usually asked the same set of questions. For these reasons they provide a convenient and efficient way of collecting data from a large sample.

Wilson (1996) argues that another benefit of questionnaires is that they are comparatively cheap. He further argues that researchers may use them to ask

closed or open-ended questions. In addition, Saunders et al. (2009) argue that questionnaires are a valuable survey tool because they are generally authoritative and provide standardised data from which it is easy to make comparisons. They also praise questionnaires because they allow data to be acquired directly without needing other sources (Saunders et al., 2009; Ghauri and Grqnhaug, 2010). According to Babbie (1998) questionnaires are cheaper and quicker than interviews. They are also more appropriate when dealing with sensitive issues because they offer respondents more autonomy and confidentiality.

On the other hand, Saunders et al. (2009) state that interviews may be used not only to reveal and understand the "what" and the "how" but also to explore the "why". Interviewing is a flexible method that allows the researcher to adjust and modify their questions according to the situation and need. It also helps to collect supplementary data, as well as clarify the objectives of the study. Questions can be revised if necessary, which is difficult in the case of a questionnaire (Dijkstra and van der Zouwen, 1982; Sekaran and Bougie, 2010). Interviews are more flexible and come with greater certainty, due to the direct interaction between researcher and respondents (Oppenheim, 1992; Robson, 1993). They allow the researcher to explain the purpose of the study more realistically and clarify any misunderstandings over the questions or concepts used (Cooper and Schindler, 2006; Sekaran and Bougie, 2010). The researcher can explain or elaborate on questions which the interviewee may not completely understand; this will lead them to know what aspects need to be highlighted and clarified (Oppenheim, 1996; Cooper and Schindler, 2006; Bryman and Bell, 2007).

The response rate for interviewing is often high. Respondents are also more cooperative in giving accurate answers and more questions may be posed as required. In general the typical response rate for an interview is about 95 percent, whereas for a questionnaire survey it is between 20 percent and 40 percent (Oppenheim, 1996; Bryman, 2004). Although interviews are a flexible way of findings things out, researchers have criticized them for being time-consuming. In some fields it is difficult to obtain cooperation (Robson, 1993). Interviewing is only more beneficial if a researcher has to collect data from a small sample (Sekaran and Bougie, 2010).

Questionnaires are preferred than interviews for data collection for many reasons. The first is the time constraint, since the researcher was limited by his funders to three to four months for data collection. This was hardly enough time to conduct the necessary interviews. Secondly, interviews require greater financial resources, which were not available. Thirdly, accessibility to the respondents was not easy, and they were also reluctant to provide more details in interview.

In view of the above discussion, the researcher follows the positivist philosophical approach for data collection in order to achieve the study objectives. According to Bryman and Bell (2007) the positivist approach starts from a literature review and develops hypotheses on the basis of a conceptual framework. Thus, within this philosophical stance, data can be mainly collected by a survey questionnaire. A survey questionnaire leads to the measurement of attitudes, and often involves asking respondents not just what they *feel* about a particular object, but what they

believe about it. Within a positivist methodology, survey questionnaires use the Likert scale to measure the attitudes of individuals (Saunders et al., 2007). This is because Likert scales tend to be reliable and partly because of the greater range of answers permitted to respondents (Oppenheim, 1996; Cooper and Schindler, 2006; Saunders et al., 2009).

Based on the need of research for empirical study, it was decided that this research will use quantitative and qualitative research methods as a strategy for theory testing. The most common methods for data collection under this strategy are questionnaire and interviews. These methods of data collection always require the researcher to have a proper plan of action. This is important for various reasons, including to put the task of data collection in a manageable format and to ensure that required data are gathered.

In order to reduce bias and to increase the reliability and validity of the results a proper plan of action has been used to develop the questionnaire and interview questions.

5.8.2   Questionnaire Design

The questionnaire design was based on an extensive review of the literature on human resource accounting and HCD. It was written in English, which is an official language in Pakistan. This ensured there were no issues of translation. Some of the ideas in the questionnaire's first draft were taken from the work of Athari and Zairi (2002), who conducted research on HCD in Kuwaiti

organisations. The variables used to calculate the cost and benefit elements are taken from (Warr et al., 1976; Campbell, 1995; Lengermann, 1996; Garavan et al., 2006; Phillips, 2006).

Questionnaires should be long enough to cover the essential aspects of the research, but not so long that respondents might consider them too time-consuming (Cooper and Schindler, 2006; Easterby-Smith et al., 2009). Short questionnaires have a better chance of being answered and, consequently, the response rate will be higher. However, the researcher should design questionnaires that will secure adequate data, and distribute a large number to offset any possible low return rate (De Vaus, 1996). When designing the questionnaire, the researcher should observe three attributes: questionnaires should be focused on the topic, the questions should be short enough to convey the meaning, and the questions should be simple and clear (Aireck and Settle, 1995). Finally, the researcher should meet the objectives of the research, obtain the maximum accurate information and complete this within the available time and with the resources to hand.

In this study, the researcher has tried to structure the questions carefully in order to achieve the required objectives and eliminate any bias. The researcher observed the problems mentioned by Bell (1993) and Churchill (1995) concerning the use of proper wording. Bell (1993) argues that the researcher, when designing questions, should avoid those that are ambiguous or imprecise, double, leading, presumptive, hypothetical, and offensive or sensitive. Churchill adds that the

researcher should avoid implicit alternative questions, generalisations and estimates. Fink (1995) believes that the researcher should avoid negative questions when asking respondents about their agreement, since these require deep logical thinking. According to Babbie (1998) the items in the questionnaire should be clear and relevant to the research problem; the shorter the items the better. In addition, respondents must be competent to answer the questions. Babbie recommends that the researcher avoids double-barred questions, negative questions, misinterpreted items and biased terms and items.

The researcher tried to follow the requirements for framing the questions mentioned by Converse and Presser (1986), and Churchill (1995). Converse and Presser (1986) argue for the use of simple common language and short questions so as not to impede the purpose of the questionnaire. Churchill (1995) further adds that the researcher should use simple interesting opening questions, progress from broad questions to narrow ones, and ask sensitive or difficult questions later on. The recommendations of Bourque and Fielder (1995) were also followed. They explain that questions should be specific, with abstract terms and jargon avoided. Questionnaires should start with easier questions, before progressing to more complicated ones, and should present questions in a logical order. According to Sheatsley (1983) questions should be simple because complicated and difficult ones might not draw out an opinion. He further argues against using long, double-barred, falsely premised, vague and overlapping questions.

The questionnaire in this study for the most part takes the form of structured (closed) questions, since these have many advantages over unstructured (open-

ended) questions. Alreck and Settle (1995) claim that structured questions clarify the different dimensions of answers, data are easily compared between respondents, there is accuracy in recording, they can be easy to answer and data analysis is easier. Oppenheim (1996) also prefers structured questionnaires to unstructured ones. He claims that structured questionnaires require little time, incur low costs, involve no extended writing, and are easy to process, make for easy comparison between variables, make for easy testing of specific hypotheses and involve less training for interviewers. According to Wilson and McClean (1994) closed questions are quick to answer, easy to code and show no discrimination between articulate and inarticulate responses. Fink (1995) agrees as to the advantages of closed questions, arguing that they produce standardised data that can be analysed statistically, and the answers have a better chance of being more reliable and consistent over time. He also praises closed questions for being easy to process and analyse, and suggests that they should include all possible alternatives (Babbie, 1998; Sekaran, 2003). Finally, closed questions are preferred to open-ended ones because respondents might be unwilling to write longer answers and might thereby lose interest in the questionnaire itself. Closed questions should include all information that respondents might need (Bourque and Fielder, 1995; Cooper and Schindler, 2006; Sekaran and Bougie, 2010).

Most of the questions used in this research were closed, in which respondents had to express the extent of their agreement by ticking the appropriate answers from the available alternatives. However, a few open-ended questions were asked, and there was also free space at the end of the questionnaire for those who wanted to

write any extra information that they thought relevant. These open-ended questions aimed to provide clarification on certain points about how human resource accounting practices are applied by those investing in HCD. After analysing the primary relationships between the variables, it was found that some aspects required further explanation. Open-ended questions were therefore asked at the end of questionnaire. These were appropriate for the purposes of providing clarification.

5.8.3   Types of Questions

Questionnaire questions are normally grouped into three types: classification, behavioural and attitudinal questions. Classification questions seek to group the respondents according to factors such as age, social class and so on. Behavioural questions seek factual information, such as the occupation of respondents or how often they do something. Attitudinal questions ask what respondents thought of something (Hague, 1993; Sekaran, 2003).

The current questionnaire used all three types of questions. Among the classification questions, Section I, for example, asked respondents whether their firm has a human resources department or not. In section II respondents were asked, how frequently their enterprises evaluated investments in the development of human resources. Another classification question was designed to ascertain which department is involved in evaluating investments in HCD. Behavioural type questions were used whenever the frequency of doing something required investigation. For example, questions in Section IV of questionnaire (see

Appendix V) asked respondents how often they appraised investments in human resource development, question 31 sought the frequency with which firms used methods for data collection regarding investments in HCD and question 32 asked about the use of various models for the evaluation of investments in HCD. Attitudinal questions were used extensively, to investigate the degree of agreement or disagreement with certain issues regarding the inputs and outputs of HCD. Questions 33 and 34, for example, asked respondents to give their opinion on the main inputs and outputs of investment made in HCD. Question 50 in Section VI asked respondents about the extent of their agreement with the statement that human resources are valuable assets for their organisations. In brief the questionnaire was a good blend of all three types of question (Appendix V).

5.8.4   Scales of Measurement

The researcher mainly used a five-point Likert scale. The use of scales instead of forced questions helps ascertain the degree of agreement or the extent to which a respondent evaluated or did something. Moreover, the use of a scale helps establish numerical results, which can be substituted for interval or ratio scales. These results may provide data for statistical analysis. The Likert scale has a number of advantages. It is easy to accomplish, it makes fewer assumptions and it can be evaluated through standard techniques of item analysis, factor analysis and reliability analysis (Anderson et al., 1983; Cooper and Emory, 1995).

In general, three types of scale were used: the interval or ratio scale, the nominal scale and the ordinal scale. The first uses numbers to represent the degree of the

scale, asking respondents to state the number only. This was mainly used for those questions assessing the costs and benefits of investing in human resource development programmes. In the second, nominal scale numbers do not mean the difference between the alternatives; each number is merely a form of identification for the alternative. The researcher used this scale in a few questions, such as for yes/no questions. The third, ordinal scale, establishes an ordered relationship between the persons or objects being measured. On this scale, a number represents the degree of doing or agreeing on something. As with the five-point Likert scale (Appendix VI), in which 5 represents the strongest agreement and 1 the weakest agreement, a five-point scale was used ranging from 1 = never and 5 = always.

The questionnaire was pilot-tested in advance of the main survey being conducted. By this means bias was reduced, validity increased and ethical considerations were made. The next section concerns the pilot testing.

5.9 Pilot Testing

According to Wilson and McClean (1994), researchers must conduct a pilot test of questionnaire and consider its findings. The purpose of this is to refine the questionnaire and remove any discrepancies so that it is suitable for collecting the desired data. According to De Vaus (1996) pilot testing should include all aspects of questionnaire design, including appearance, covering letter, instructions, question layout and the time taken for completion. De Vaus further argues that for

pilot testing the questionnaires must be send to a similar but smaller sample to that which is to be used in the final survey.

Bell (1993) suggests that researchers, when conducting a pilot test, might ask questions such as: how much time the questionnaire takes to answer, if the instructions are clear and whether or not there is any ambiguity in the questions. They might also ask if respondents are likely to have any objections to answering any of the questions, whether or not there are any major elements that have not been covered and if the layout is appropriate. Finally, they may ask for any further comments in this regard.

The first draft of the questionnaire was repeatedly reviewed by both of the researcher's supervisors. The researcher made changes based on their comments. Once the first draft was completed copies were distributed to a selected group of PhD students at the University of Bedfordshire's Business and Management Research Institute who had specialist expertise in questionnaire development. Following this, the researcher distributed the questionnaire to a small number of human resource managers and account managers working in the leading organisations of the Pakistani manufacturing sector, asking for their opinion and feedback. After reviewing the questionnaires, the researcher elicited their comments and ideas, and these were taken into consideration in the final draft (see Appendix V).

Furthermore, in order to ensure that the data obtained are valid and reliable, the researcher conducted a pilot study. Questionnaires were sent to 30 organisations

in Pakistan in July 2010. They were distributed via email or post to human resource managers and individuals associated with human resource development. The consent of respondents about data collection was obtained earlier via email.

A total of nineteen out of 30 questionnaires were collected. Eleven questionnaires were not returned and two questionnaires contained illegible and incomplete information. That is why only seventeen questionnaires were used for further processing and pilot analysis. The overall response rate was 46 percent. Although this level of response is acceptable it seems low, and will reduce further in the final survey. However, it was not unexpected, as in Pakistan people do not like to respond to postal questionnaires and most professionals working in manufacturing firms are either computer illiterate or do not have access to Internet facilities to respond to electronic questionnaires. For this reason it was decided to use a personally administered questionnaire in the final survey. The results of the study show that each measure has a Cronbach's alpha coefficient of more than 0.70 (see Table 7.1) which indicates high reliability and internal consistency of the measures used in the questionnaire. In conclusion the pilot study was positive and very useful in designing the final survey.

5.10 Main Questionnaire Survey

To collect the data through a questionnaire, the researcher may use one of three methods of distribution: personal administration, postal or electronic. Personally administered questionnaires differ from postal and electronic questionnaires in certain aspects. They have a higher response rate, respondents' doubts can be

clarified, less time is required to collect the data and they work better when data must be collected from a small geographical area (Churchill, 1995; Sekaran, 2003; Sekaran and Bougie, 2010). Postal questionnaires are suitable for collecting data from a wide geographical area. On the other hand they are time consuming, respondents' doubts may not be clarified and they have a low response rate (Saunders et al., 2009; Sekaran and Bougie, 2010). Electronic questionnaires are an easy way to collect data globally, but they are only suitable if respondents are computer literate and have easy and cheap access to the Internet (Cooper and Schindler, 2006; Sekaran and Bougie, 2010).

In Pakistani culture, personal and social contacts seemed to be more effective for collecting data from professionals. Personally administered questionnaires are more suitable when participating organisations are located close to each other and a targeted population can be conveniently approached under the researcher's supervision (Sekaran, 2003). For these reasons, it was decided to use personally administered questionnaires.

The researcher obtained a supporting letter from the University of Bedfordshire's Research Graduate School (see Appendix I). This letter endorsed the legitimacy of the research and encouraged enterprises to cooperate with the researcher. A covering letter was also included in the questionnaire, which gave instructions and ensured the strictness of confidentiality (see Appendix IV). All these arrangements were made before the questionnaires were distributed, in order to create trust between the researcher and the participants and to ensure the

participants' commitment to providing accurate answers. In addition, these letters ensured respondent confidentiality in that only the researcher would use the questionnaire data for the purpose of research.

Before starting the main survey, the researcher developed a database on the manufacturing organisations located in the four industrial cities such as Lahore, Gujranwala, Sialkot and Faisalabad. This information about the surveyed organisations was collected from the websites of the Pakistani stock exchanges and Securities Exchange Commission of Pakistan. In May 2011, all responding organisations were contacted by phone and email to get pre-informed consent for data collection, to check their contact details, to ask for an appointment with the persons dealing with human resource development and the researcher has also sent them a consent form (see Appendix III) to get their approval regarding participation in the survey. After updating the database with the correct contact details and dates of appointments (see Appendix IX), the researcher visited the office of the Securities Exchange Commission of Pakistan (SECP) to obtain a letter of official permission to commence the survey (see Appendix II). Finally, the researcher began the survey on 1 June 2011. It came to an end on 30 September 2011.

5.10.1 Response Rate

According to Sekaran and Bougie (2010) there are no issues of response rate involved in the case of personally administered questionnaires. The researcher visited a total of 320 organisations. The questionnaires were filled out in the

presence of the researcher. Once the survey was over the researcher examined all the questionnaires to handle any blank responses or incomplete answers. Of the 320 questionnaires, 38 were excluded for being incomplete or for having unusable responses. The remaining 292 usable questionnaires represent a response of 91 percent, which is excellent. According to Babbie (1991) a response rate of 70% or more is very good.

5.11 Semi-structured Interviews

Interviews can be conducted either face-to-face or through other methods such as the telephone or the Internet (Sekaran, 2003; Sekaran and Bougie, 2010). A face-to-face interview is a form of direct communication between interviewer and respondent in which the interviewer asks the respondent questions in person (Zikmund, 2003). There are three types of interviews. These include: structured, semi-structured and unstructured. Semi-structured interviews enable probing for more information (Easterby-Smith et al., 2009). This is the most widely used interviewing format for qualitative research, which is why it was adopted for the current study.

The interview questions covered most of the issues related to the evaluation of investment in HCD and the measurement of organisational performance among the Pakistani manufacturing organisations. These main questions were supplemented by several sub-questions to help in understanding each issue more deeply during the interview process (Zikmund, 2003). These interviews were conducted in order to answer the first two research questions. A list of predefined

questions was sent to the ten respondents from the main sample of study (Appendix-VIII). Details of the design, respondents and findings of the semi-structured interviews are given in Chapter 8.

A discussion about the using of different data analysis tools as follows in the next section.

5.12 Data Analysis Techniques

The main quantitative data analysis was performed in three phases. In the first phase, the multi-scale items were refined on the basis of quantitative data collected from different sources. In the second phase, the scales were examined and confirmed using confirmatory factor analysis (CFA) with the help of structural equation modelling (SEM). In the final phase, the research hypotheses were tested using the partial least squares method based on SEM (PLS-SEM). See Chapter 7 for more details on the analysis.

As discussed previously, a pilot study was carried out first to examine the reliability of the multi-item constructs used in the questionnaire. Cronbach's alpha scores were used to establish the reliability of the scores in the pilot study (Field (Field, 2006; Tabachnick and Fidell, 2007). The reliability of the main survey was further examined and assessed with the help of SEM confirmatory factor analysis (Hair et al., 2006). Confirmatory analysis examines the validity of constructs by measuring the extent to which a set of measured items actually reflects the construct those items are supposed to measure (Hair et al., 2006).

Tests for descriptive statistics, missing data, outliers, linearity, normality, multicollinearity and homoscedasticity, as well as reliability analysis and exploratory factor analysis were performed with the help of the Statistical Package for Social Sciences version 19 (SPSS-19). The confirmatory factor analysis, measurement model and path model for testing the hypotheses were carried out using PLS-SEM by adopting the SmartPLS package.

5.12.1 Structural Equation Modelling

The main quantitative analysis in this research study was performed by applying Structural Equation Modelling (SEM). SEM is a combination of statistical techniques that allow relationships between one or more independent variables and one or more dependent variables to be studied at the same time. It is also referred to as casual modelling, path analysis or confirmatory analysis (Tabachnick and Fidell, 2007). Hair et al. (2006) argue that SEM is the most appropriate and efficient estimation technique for a series of separate multiple regression equations estimated at the same time. It consists of two basic components: the structural model and the measurement model. The structural model denotes the path model that connects independent variables with dependent variables (Tabachnick and Fidell, 2007; Hair et al., 2013). In such a formation, theory or prior experience enable the researcher to identify which independent variables predict the dependent variable (e.g., organisational performance). The measurement model helps the researcher to apply several indicators (variables) to measure a single variable.

The SEM characteristics of simultaneous analysis make it distinct from the most of first generation statistical tools such as correlation, regression and factor analysis, which are limited to analysing only one layer of relationships of independent variables and dependent variables at a time (Chin, 1998; Hair et al., 2006). SEM performs a dual action by assessing not only the causation between the dependent and independent constructs but also the loadings of measurement on their designated constructs. As a result, factor analysis and hypotheses are examined in the same phase (Hair et al., 2006). The joint analysis of the measurement and structural models also means that the measurement error of the observed variables can be analysed as a vital part of the model. This ultimately results in a more rigorous and robust analysis of the proposed model and better methodological assessment (Hair et al., 2013).

SEM is extensively applied in the field of behavioural science to assess the casual modelling of complex, multivariate datasets in which there are compound measures of proposed constructs (Hair, 2006). The application of SEM in the field of business management studies has substantially increased due to the availability of several software packages that perform SEM (Hair et al., 2013).

However, SEM can be regarded as a family of techniques (Hair et al., 2013). According to Chin (1998) and Hair et al. (2013), SEM is normally equivalent to implementing covariance based SEM (CB-SEM) analyses by using well-known software, such as AMOS and LISREL. However, SEM includes another unique and very useful, but less popular, approach. This is PLS-SEM (Hair et al., 2013).

Although both techniques share the same roots, previous research, especially in marketing, has focused on CB-SEM (Hair et al., 2013). PLS-SEM is a causal modelling approach aimed at maximising the explained variance of the dependent latent constructs. This contrasts with CB-SEM's objective of reproducing the theoretical covariance matrix, without focusing on explained variance (Hair et al., 2006). The main focus of CB-SEM is to estimate a set of model parameters, keeping the difference between the theoretical covariance matrix and the estimated covariance matrix at a minimum (Hair et al., 2013).

PLS-SEM provides a good opportunity for statistical modelling to move forward without being restricted by large sample size, strong underlying theory and normally distributed data (Hair et al., 2013). It is mainly designed for predicting causal relationships in situations of high complexity and low theoretical information (Kline, 2005; Hair et al., 2013). There are many areas in management accounting research where theory is underdeveloped or the models being tested are very complex, and PLS-SEM is the appropriate technique for this type of research study.

5.12.2 The Rationale behind Using PLS-SEM

PLS-SEM has been adopted as the major analysis technique for path model testing in this study. It provides a proper and well organised inference for a series of separate multiple regression equations. The combination of a measurement model and a structural model seeks to confirm the reliability of the theoretical model and estimated model (Hair, 2006). PLS-SEM has the capability to integrate latent

variables into the analysis, which is important since the study variables are likely to be unobserved concepts that can only be approximated by measured variables (Tabachnick and Fidell, 2007). PLS-SEM uses confirmatory modelling that will serve the objectives of this study by confirming the hypothesised relationship between the different study variables.

This study uses SmartPLS software as the structural equation modelling tool. The objective of this package is to exhibit a high R^2 score and significant t-value, thus invalidating the no effect of a null hypothesis (Hair et al., 2013). SmartPLS executes an interactive set of factor analysis coupled with path analysis until the difference in the average R^2 of the constructs becomes insignificant. At the structural level SmartPLS estimates path coefficients and correlations among the latent variables along with the individual R^2 and average variance extracted (AVE) of every latent construct (Hair et al., 2006). Once the measurement and path model have been estimated, SmartPLS applies a bootstrap application to approximate the significant t-value of the paths (Chin, 1998; Hair et al., 2006).

In SmartPLS a good model fit is established with the help of significant path coefficient and a suitably high R^2 score and internal consistency (construct reliability) of more than 0.70 for each construct (Chin, 1998; Kline, 2005). Confirmatory analysis in SmartPLS was carried out for the assessment and verifying constructs' convergent and discriminant validity. The value of AVE of each construct was larger than its correlation with the other constructs, and that each item had a higher loading on its assigned construct than on other constructs (Hair et al., 2006). Chapter 7 of the thesis elaborates the results of both the

structural and measurement models of this research in depth. It also examines how these results help with accepting or rejecting the research hypotheses.

A two-step PLS-SEM strategy was adopted by the researcher. This meant specifying the specifications of both the structural and measurement models (Chin, 1998; Hair et al., 1998; Hair et al., 2013). In the first stage, the researcher used constructs whose causal relationships had been validated through advanced theory testing to prove the causal relationships between them. In the next phase, PLS-SEM was used to substantiate the pre-established link between the endogenous and exogenous variables by running a simulation-based multiple regression analysis (Hair et al., 2006).

5.12.3 Testing of Hypotheses by Using PLS-SEM

In this study the hypotheses were tested by using PLS-SEM. The application of SEM to measure the predictive strength of a variable is one of the most effective and robust means in the field of employee psychology, human resources management and social sciences. It is a widely applicable and appropriate approach for evaluating the relationship between dependent and independent variables owing to its well-built underlying statistical theory (Hair et al., 2013). Following the assumptions of PLS-SEM, the research hypotheses were tested with the help of standardised β estimate and t-value (see Table 7.12).

PLS-SEM analysis was carried out with the help of SmartPLS software to examine the model for testing the hypotheses (Chin, 1998; Hair et al., 1998;

Tabachnick and Fidell, 2007). Before applying PLS-SEM a list of statistical assumptions was examined and analysed with SPSS-19: the data was screened for missing data and outliers. To check the appropriateness of PLS regression analysis, the data was also examined to validate all the test's major assumptions, such as normality, linearity, homoscedasticity and multicollinearity. This was followed by an explanation of factor loading so as to identify the study variables.

Exploratory factor analysis was applied to find out the relationship between the factors and variables. Factors were extracted with the help of eigen-values and scatter plots. For principal component analysis, Varimax with Kaiser Normalization and Communality Score Extraction techniques were applied to rotate the factors and find out the maximum variance of factor loading. The scale measurement of constructs was subjected to confirmatory factor analysis (CFA) following the exploratory factor analysis.

SmartPLS software was used to assess the measurement model and structural model of the study on the basis of the dataset of 292 cases. Before results were inferred, reliability and validity tests were conducted to confirm that all the measurement scales were satisfactory. Following the evaluation of important assumptions, the researcher tested the significance of the parameters estimated and described the findings accordingly. The overall results regarding the testing of hypotheses are discussed in Chapter 7.

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The next section discusses the validation of the overall study results.

5.13 Issues of Reliability and Validity

Unless tests for reliability and validity are undertaken, the quality of research may be weak (Pallant, 2007). Statistical analysis has been carried out in the present study to ensure the reliability and validity of the results.

5.13.1 Reliability Analysis

Reliability refers to the consistency of the results, that is, the degree to which repeated measurements in the same conditions would yield the same results. The purpose of ensuring reliability is to minimise the chance of biased results (Cooper and Emory, 1995; Cooper and Schindler, 2006). An appropriate pilot study was designed and conducted to test the questionnaire's reliability before proceeding with the main survey, and different statistical tools have been applied to confirm the reliability of the results.

In this research, the reliability of the scales used was assessed with an internal consistency statistic, Cronbach's alpha coefficient. Internal consistency is based on the idea that items comprising a scale should show high levels of internal consistency. The higher the correlation among items in each scale the greater is the alpha value. High correlation implies that high scores on one question are associated with high scores on the other questions. Cronbach's alpha coefficient is related to scale length: the longer the scale, the higher the alpha value. The alpha value ranges between 0 and 1. A scale of five points shifts variance with a hypothetical alternative scale. Cronbach's alpha coefficient measures reliability as

acceptable if it falls above 0.6 (Pallant, 2007). In this study the alpha value is between 0.70 and 0.86, which shows that the measures are reliable (Chapter 7).

5.13.2 Validation of Results

Validity means that the measures are measuring what they mean to and that the conclusions drawn from the analysis are rigorous (Saunders et al., 2009). There are different methods for validating the results but no consensus on how to differentiate between them. However, the researcher has worked with the following main types of validity throughout this research.

5.13.3 Construct Validity

Researchers must demonstrate that the selected measures actually address the concepts and relationships (Chin, 1998; Hair et al., 2006). As shown in Section 5.10 on pilot testing and Section 7.8 on SEM, all the constructs have been rigorously selected. Next, they have been examined in order to ensure that the items within a construct correlate among themselves. This is the so-called convergent validity, and is measured by Cronbach's alpha or by t-values in PLS path model analysis. All the constructs used in the present research have appropriate Cronbach's alpha values, and also meet the requirement of unidimensionality. Another way to ensure construct validity is to perform cross-validation, for example, on a new sample. However, a lack of sufficient data makes cross-validation impossible in this instance. This limitation should be addressed in future research.

5.13.4 Statistical Validity

Statistical validity implies that the conclusions have been reached following a proper use of statistical tests (Saunders et al., 2009; Hair et al., 2013). Extensive readings on statistics and consultation with specialists have made the researcher able to analyse the data with confidence. Before testing of hypotheses data was screened out by finding out missing data and by detecting outliers. To check the appropriateness of statistical analysis, the data was examined to validate all major assumptions such as normality, linearity, homoscedasticity and multicollinearity. In order to draw proper conclusions and to achieve this type of validity, different techniques such as bivariate and multivariate analysis had been applied by following systematic procedures. Although conclusions should be validated by replicating them with a new sample, this has not been possible because of the short time horizon available to the researcher.

5.13.5 Internal Validity

Internal validity occurs when a researcher controls all extraneous variables, with the only one remaining to influence the results of a study is that which is being manipulated by the researcher (Cook and Olive, 2008; Saunders et al., 2009). Interrelationships between the main variables of the study are derived from the existing literature and have been controlled across several variables. They have also been carefully selected. In this way, the analysis has avoided certain biases that can arise from studying the relationships of the main variables of study.

5.13.6 External Validity or Generalisability

External validity is concerned with the generalisability of the findings to the wider population (Chin, 1998; Cook and Olive, 2008; Saunders et al., 2009). It is hard to make generalisations because of time constraint. However, the researcher extracted a random sample from the population, so to some extent the generalisability of the results is supported. The sample size was sufficient to draw reliable results. Furthermore, in order to control the drawbacks of mono methods researcher has also conducted semi-structured interviews. The best way of ensuring generalisability is by replicating the study as many times as possible. However, due to a lack of resources and time, this step will be left for the future research.

The next section presents the main ethical considerations of the study.

5.14 Ethical Considerations

Ethical issues are properly considered throughout the research process in order to make sure that the final thesis truly represents all the data and relevant results (Easterby-Smith et al., 2009; Sekaran and Bougie, 2010). Ethics were seriously considered during the research process so that all stakeholders – such as respondents, the researcher and the University of Bedfordshire – did not suffer any damage, discomfort, pain, embarrassment or loss of privacy (Cooper, 1999; Cooper and Schindler, 2006). All ethical requirements were followed throughout the research in order to protect the interests of the researcher, the university, the surveyed organisations and the participants of the study.

Before collecting data, the benefits of the study were explained to respondents by email. Furthermore, a consent form was attached to the email that described the title of the research study, purpose of the research, and what was involved in participation in a way that could be clearly understood by the respondents prior to their participation (Appendix III). The name and contact addresses of the researcher were given in the cover letter (Appendix IV) of questionnaire to increase the respondents' confidence, motivate them to answer the questions truthfully and to ensure that they knew with whom they were dealing (Cooper and Schindler, 2006; Easterby-Smith et al., 2009).

The participants were asked not to write their names on the questionnaire and data was coded to ensure anonymity and confidentiality throughout the research process. A promise of confidentiality was made to all respondents and the researcher was obligated not to use any information other than for purposes related to this research (Zikmund, 2003). To maintain the confidentiality and privacy of the respondents, only aggregate results are used in the report.

Respondents were asked to participate in the questionnaire and semi-structured interviewing by informed consent. Only questions directly related to the research objective were asked (Sekaran and Bougie, 2010). The respondents interacted directly with the researcher; the human resources manager or accounts manager of each organisation was contacted and questionnaires were personally administered by the researcher to reduce the data biasness.

In brief, the researcher has ultimate responsibility for ensuring that the inquiry is conducted with ethical integrity. The questionnaire design process and data collection were carried out in a professional manner to ensure that the study was truly representative of the data and relevant conditions. Care and consideration were given at all stages of the research design to minimise all possible ethical issues in this study.

5.15 Summary

This chapter aims to show the pathway by which the objectives of this study were achieved. It includes the main philosophical assumptions and paradigms that underpin the research. It presents the methodological procedures employed to collect the data through surveys conducted in Pakistan. Finally, the chapter identifies the overall research plan for answering the research questions. The researcher has examined different approaches and methods for data collection, their advantages and disadvantages, and the justifications and criteria for selecting those methods and techniques used. The overall methodological position is summarised in Figure 5.1.

In summary, the overall research methodology is based on the ideology of objectivism. It adopts the following set of philosophical assumptions: realism, positivism, determinism, nomotheticism. This study is conducted mainly through the use of the functionalist paradigm. Its approach is deductive in terms of theory testing, it uses mainly quantitative methods and partially qualitative methods, employs the survey as its primary research strategy, uses a cross-sectional time

horizon, seeks to be exploratory and explanatory in nature, uses probability sampling to select its respondents, uses a questionnaire as the main instrument of data collection. The chapter has discussed the statistical procedure followed in the research for testing of hypotheses. The chapter has also presented the ethical issues connected to the research and how these issues have been resolved.

The next chapters present the empirical findings of this research study.

Chapter 6   Quantitative Survey Results

6.1   Introduction

This chapter describes the results obtained through the main instrument of the study, namely the questionnaire. As described in the previous chapter (Section 5.8), a questionnaire was designed to collect information from the human resource managers or persons responsible for managing and developing human resources in the Pakistani manufacturing organisations. It was also stated that the researcher visited a total of 320 organisations during the survey (Appendix IX). The questionnaires were filled out by the respondents in the presence of the researcher. Out of the 320 questionnaires, 38 were excluded for being incomplete or for having inoperative responses. The remaining 292 usable questionnaires were used for further analysis.

This chapter begins with a description of the characteristics of the participating firms and participants and goes on to uncover and analyse the empirical findings pertaining to the provision of investing in HCD within the organisations concerned. It contains six main sections: characteristics of sample of the study, policies and planning for human resource development, implementation of human resource development programmes, investment in human resource development

programmes, evaluation of that investment and financial appraisal of that investment. The chapter concludes with a summary.

6.2   Characteristics of Study Sample

This section aims to describe the characteristics of the participant organisations and individuals responsible for human resource development within the Pakistani manufacturing sector. The first part of the questionnaire concerns the profile of the responding organisations and participants. These organisational characteristics are treated as contextual variables in the current study. Most of questions for the contextual variables appeared in the first two sections of the questionnaire, which provide background information about human resource development practices in the Pakistani manufacturing organisations.

6.2.1   Characteristics of Surveyed Organisations

The distribution of the surveyed organisations according to type of business activity and size of staff is summarised in Table 6.1.

6.2.1.1 Types of Manufacturing Organisation

The 292 manufacturing organisations under study cover 11 industrial sectors of Pakistan, following the industrial distribution used in the Economic Survey of Pakistan as discussed in chapter 2. Table 6.1 clearly shows that the most prominent responding manufacturing enterprises in Pakistan are from the textile sector (114, or 39%). That is why this study has more practical implications in this largest manufacturing sector. Responding firms from other sectors were as

follows: paper and board (10, 3.4%), sugar and allied sectors (17, 5.8%), cement (14, 4.8%), engineering (22, 7.5%), chemical and pharmaceuticals (33, 11.4%), leather and sports goods (7, 2.4%), fuel and energy (12, 4.1%), auto and allied sectors (7, 2.4%), cables and electrical goods (7, 2.4%). A total of 49 (or 16.8%) responding enterprises came from the miscellaneous sector of the Pakistani industrial economy. This sector comprises five sub-sectors, namely: jute, vanaspati and allied goods, glass and ceramics, food and personal care, and others.

Table 6.1: Characteristics of Surveyed Enterprises

		No.	%
Manufacturing Sector	Textile	114	39.0
	Paper and Board	10	3.4
	Sugar and Allied Sectors	17	5.8
	Cement	14	4.8
	Engineering	22	7.5
	Chemical and Pharmaceuticals	33	11.3
	Leather and Sports Goods	7	2.4
	Fuel and Energy	12	4.1
	Auto and Allied Sectors	7	2.4
	Cables and Electrical Goods	7	2.4
	Miscellaneous	49	16.8
	Total	292	100
Staff Size	Fewer than 500	3	1.0
	501 to 1,000	33	11.3
	1,001 to 1,500	75	25.7
	1,501 to 2,000	86	29.5
	2,001 to 2,500	57	19.5
	2,501 to 3,000	29	9.9
	More than 3,000	9	3.1

6.2.1.2 Staff Size

In order to discover how much the responding organisations are interested in investing in recruitment, they were asked about their number of employees. The distribution of employment size shows that the majority (87.7%) of the

organisations had more than 1,000 employees. This shows that a large part of the Pakistani population is working in the manufacturing sector. That is why researcher has selected the sample of study from the manufacturing sector. The organisation size in this study is measured in terms of number of employees.

6.2.2   Status of HR Departments

As discussed in Chapter 2, organisations must establish a separate department for the management and development of human resources. The purpose of this department is to help them in fulfilling the current and future needs of their skilled employees (Hyde and Shafritz, 1989; Dessler, 2009). It was interesting to find out how human resource development activities and functions were constructed within the surveyed Pakistani organisations, whether or not these organisations have separate divisions or departments for the management and development of human resources, when that department was established, the number of staff who deal with human resource development activities, and to whom they reported.

6.2.2.1 Provision of Human Resource Departments

Out of 292 total surveyed organisations, 169 (57.9%) responded positively when asked if they had a formal human resource department (Table 6.2). On the same issue, Mackay and Torrington (1986) found, in their UK-based study, that 66 percent of organisations had a training department or training officer. The findings of the present study are also consistent with the work of Athari and Ziari (2002), who found that more than 50 percent of Kuwaiti enterprises have an independent human resource department. In a similar context, Abu-Doleh (1996) found that

84.6 percent of Jordanian manufacturing organisations had human resource development units or departments, of which 63.3 percent had been established for less than four years.

6.2.2.2 Length of Establishment of Human Resource Departments

The length of establishment showed that most manufacturing organisations in Pakistan had a human resource department for fewer than 10 years. This was common to all manufacturing sectors, with 62.13 percent of the surveyed enterprises having a human resource department for up to 5 years and 23.67 percent of them having human resource departments for more between 5 and 10 years. Only 14.2 percent of those organisations surveyed, claim to have had a human resource department for more than 10 years (Table 6.2). These results show that over time there is a growing trend for establishing proper human resource departments within the Pakistani manufacturing sector. However, the rate of increase is only mild. Nevertheless, this is a good indication that most Pakistani organisations have recognised the need to invest in HCD programmes.

6.2.2.3 Staffing in Human Resource Departments

The number of employees engaged directly in human resource departments is also summarised in Table 6.2. 12.43 percent of organisations have more than 20 employees and 37.87 percent have between 10 and 20 employees. Thus nearly 50 percent of Pakistani manufacturing organisations have fewer than 10 staff dealing with human resource activities. This number probably reflects the size of the human resource department of the Pakistani organisations. It has been noted that

where there is an increase in employment size, there is a simultaneous increase in HR staff. On the other hand, it is expected that the span of control is usually reduced as one move up the management hierarchy. However, the span of control depends on other variables such as the nature of complex activities, competence among subordinates, kind of technology adopted and the availability of financial resources.

Table 6.2: Status of HR Departments in Surveyed Organisations

		No	%
Human Resource Department	Yes	169	57.9
	No	123	42.1
	Total	292	100.0
*Length of Establishment of HR Department	Less than 5 years	105	62.13
	6 to 10 years	40	23.67
	Over 10 years	24	14.20
	Total	169	100
*Staffing in HR Department	Fewer than 10 employees	84	49.70
	11 to 20 employees	64	37.87
	More than 20 employees	21	12.43
	Total	169	100
**Responsibility of Human Resource Development	Accounting Department	52	42.27
	Administration Department	39	31.71
	Finance Department	15	12.19
	Production Department	13	10.58
	Others	4	3.25
	Total	123	100

Notes: *These questions do not apply to 123 organisations since they do not have HR department.
** This question applies only to the 123 organisations without HR department.

6.2.2.4 Responsibility of Human Resource Development

After identifying the status of human resource departments within the Pakistani manufacturing organisations in all sectors, it is interesting to see who is

responsible for running and managing human resource activities in organisations where there is no HR department. These enterprises use different departments to deal with employees' issues. Most of those enterprises with no human resource department depend on accounting, administration, finance or production departments to manage and develop their human resources (Table 6.2). For those organisations that do not have a special human resources department, Table 6.2 shows that responsibility for human resource development is for the most part (42.27%) held by the accounting department.

6.2.3   Profile of Participants of the Study

Those human resource managers or individuals who deal with human resource development in the Pakistani manufacturing sector were chosen as the main study's participants. Their relevant demographic factors – namely nationality, gender, education and age – were collected. These are summarised, along with length of employment and level of job within the organisation, in Table 6.3. The aim of collecting this data is to highlight some of the main characteristics of the managers or individuals involved in this study through a set of standard questions.

6.2.3.1 Nationality

As mentioned before, 292 human resource managers or other individual managers responsible for the development of human resources from the Pakistani manufacturing organisations completed the questionnaires. The distribution of participants by nationality showed that 95.2 percent of them were Pakistani (Table 6.3). The underlying cause for this may be a policy of Pakistani firms to pay

higher salaries to non-Pakistani managers. This is why these profit-oriented enterprises prefer to hire Pakistani managers.

6.2.3.2 Gender

The majority of the participating managers (81.8%) were male (Table 6.3). This phenomenon can be seen in all the developing countries of the world. Private organisations are less attractive than public sector to work for many women due to the long working hours, slightly lower wages, household responsibilities, and social constraints. These findings indicate little progress in such a conservative traditional society of Pakistan in relation to the participation of women, not only in the workforce but also in managerial positions.

6.2.3.3 Education Level

Most managers in Pakistan are well educated as majority of them holding a Masters degree or having a degree equivalent to MPhil. Only a few respondents have an education level up to or less than graduation (Table 6.3). This high level of education is probably due to the fact that there have been more educational opportunities in Pakistan for the general public in the last 10 years. The educational policy adopted by the previous and current governments has made education easily available locally. The other main reason is the grant of overseas scholarships by the Higher Education Commission of Pakistan (HEC) for eligible candidates to earn doctorates in the developed countries of the world. The findings show that some respondents have received their doctorate (PhD) in countries outside Pakistan, especially in the USA and the UK.

It is worth mentioning that the majority of the respondents hold degrees in business administration, accounting, finance or human resource management. This shows that the Pakistani industrial sector prefers degrees in business education for management positions. Other common degrees among these personnel included engineering and operations management.

6.2.3.4 Age of Managers

The age of the management personnel in the Pakistani manufacturing organisations showed that a large number of participants from the sample were aged between 31 to 35, and 36 to 40 years (Table 6.3). This distribution of respondents illustrates that the Pakistani working population is young. According to the Economic Survey of Pakistan (2011), 89 percent of the Pakistani managers were under 40 years of age, which also corresponds with the findings of this study.

6.2.3.5 Work Experience

The extent of surveyed managers' total length of work experience is given in Table 6.3. This indicates that over half of them possess 11–20 years of work experience in the relevant area. Only a few of the managers have less than 5 years' work experience (Table 6.3). The raw data also show that training personnel have a minimum of three years' experience, and a maximum of 40 years'. These results show that interest in the area of human resource development has started to grow, and has been given more attention with the passing of time.

Table 6.3: Characteristics of Participants of Study

		No	%
Nationality	Pakistani	278	95.2
	Non-Pakistani	14	4.8
Gender	Male	239	81.8
	Female	53	18.2
Education	Less than Graduate	3	1.0
	University Graduate	16	5.5
	Masters Degree	188	64.4
	MS or MPhil	67	22.9
	PhD	14	4.8
	Other	4	1.4
Age	Less than 25 years	9	3.1
	26 to 30	20	6.8
	31 to 35	86	29.5
	36 to 40	110	37.7
	41 to 45	55	18.8
	Over 45 years	12	4.1
Work Experience	Less than 5 years	23	7.9
	6 to 10	87	29.8
	11 to 15	115	39.4
	16 to 20	41	14.0
	Over 20 Years	26	8.9
Time in Current Organisation	Less than 5 years	31	10.6
	6 to 10	99	33.9
	11 to 15	103	35.3
	16 to 20	36	12.3
	Over 20 Years	23	7.9
Level of Job	Top Level	52	17.8
	Middle Level	231	79.1
	Lower Level	9	3.1

6.2.3.6 Time in Current Organisation

The length of time participants have served with their current organisation show that majority of them had been with their current organisations from between 11 to 15 years, or from 6 to 10 years. A reasonable percentage of respondents in these organisations had been in their job for more than 15 years (Table 6.3). Only a few had been working in their organisations for less than 5 years. In the light of these findings, one can argue that the majority of managers in the Pakistani manufacturing organisations are quite loyal to their organisations. They do not want to change organisations.

6.2.3.7 Level of Job

The distribution of managerial level of the managers in all surveyed organisations is also shown in Table 6.3. The managers were divided into three categories: top management, middle management and lower management. The middle managers represented the largest part of the sample. This distribution can be explained by the fact that most of the manufacturing enterprises in Pakistan prefer middle management to handle training and development activities. Most participants reported that information about human resource development activities is communicated only to heads of departments who normally work at the middle level. It is observed that when human resource departments report to an upper management level they are likely to get more support and have a better chance of linking their activities to corporate strategy.

6.3   Policies and Planning for HCD

This section relates to the second part of the questionnaire, and presents the empirical findings on issues connected with the policies and planning of HCD programmes.

6.3.1   Human Resource Development Planning

A human resource development plan is a practical document that takes into account, identified employee training and development needs, and outlines specific training programmes, methods and resources to fulfil those needs (Stout, 1993, 2005). Its purpose is to raise the performance of the organisation as a whole and contribute to the achievement of its goals. Questions were asked of the surveyed organisations about whether they had any on-going plans for human resource development. They were also asked about the time horizon of these plans. The most surveyed organisations (53.8%) claimed to have proper investment plans for HCD. Out of these organisations, 61.78 percent said that their plans spanned a short period of less than one year, 27.39 percent had medium-term plans and only 10.83 percent claimed to have long-term plans. The key observations are that over 50 percent of all surveyed organisations admitted to having no human resource development plan for their employees. Short-termism is also evident (Table 6.4).

Those organisations that did not have any plans for HCD were asked to explain their reasons for this. Most of them set out one or more of the following reasons: top managers do not value investments in HCD; some organisations are more

interested in cutting costs than spending money on HCD; employee turnover intentions acts as a hindrance; and many Pakistani manufacturing organisations have little or no motivation to training or develop employees when they are still able to easily recruit fully trained people.

6.3.2   Nature of Policies

Those organisations that claimed to possess on-going plans for investing in human resource development were also asked whether their policies related to HCD are formal (written) or informal (unwritten). A policy, it has to be remembered, not only spells out how training and development programmes will achieve their objectives, but also delineates the focus of activities within the organisation, down to the details of which staff are to be trained and why and how the programme is to be implemented (Stout, 1993, 2005). As Table 6.4 shows, approximately three-quarters (76.43%) of all organisations surveyed reported having a written policy. However, this still leaves a significant minority with unwritten plans and policies, which possibly reflects a lesser degree of commitment.

6.3.3   Responsibility for Developing Plans and Policies

Participants were asked who has the primary responsibility for formulating HCD plans and policies in their organisations. Those organisations with an ongoing HCD plan varied substantially in their responses. The largest percentage of organisations (49.68%) said that this responsibility was held by the human resource department.

Table 6.4: Policies and Planning for Investing in HCD

		No	%
Ongoing Plans for Human Resource Development	Yes	157	53.8
	No	135	46.2
	Total	292	100
***Time Horizon of Plans and Policies**	Long-term (over 5 years)	17	10.83
	Medium-term (1–5 years)	43	27.39
	Short-term (less than one year)	97	61.78
	Total	157	100
***Nature of Plans and Policies**	Formal (written)	120	76.43
	Informal (unwritten)	37	23.57
	Total	157	100
***Responsibility for Formulating Plans and Policies**	Human Resource Department	78	49.68
	Head of Particular Department	27	17.19
	Board of Directors	41	26.12
	Others	11	7.1
	Total	157	100
***Expected % of Plan Implementation**	Less than 30%	7	4.55
	30–50%	34	21.66
	50–70%	60	38.22
	70–90%	37	23.56
	Above 90%	19	12.11
	Total	157	100

Note: *These questions are not applicable to 135 surveyed organisations as they do not have any plans for investing in HCD activities

While 17.19 percent indicated that this role was carried out by the head of a particular department, and 26.6 percent stated that this responsibility is held by the board of directors (Table 6.4). Although responsibility for this task is widely dispersed in all cases, one major fact stands out: most managers in Pakistani organisations view responsibility for formulating these plans and policies as risky. For this reason they prefer to delegate primary responsibility for this task to their HR department.

6.3.4   Expectation Level of Plan Implementation

Perceptions of the extent to which these plans can be reasonably expected to be implemented also varied substantially. A majority (73.89%) of the surveyed organisations expected to implement more than 50 percent of their HRD plans at the time of their formulation. Another 21.66 percent expected 30–50 percent of their plans to be implemented. Only 4.55 percent had expectation levels of less than 30 percent (Table 6.5). Overall, all categories of manufacturing organisation are highly optimistic as to the extent to which they expect their human resource development plans to be implemented properly. This may well be due to the fact that training and development costs are likely to be higher for these organisations because of the larger numbers of trainees involved in these programmes.

6.4   Implementation of Training and Development Programmes

This section presents and analyses findings on how training is implemented in the Pakistani manufacturing organisations. It contains results regarding need analysis and the training and development methods adopted.

6.4.1 Organisational Need Analysis

A systematic approach to investing in human resource development activities necessarily begins with a need analysis. Therefore, the survey first aims to elicit the extent to which participating organisations carried out a need analysis in accordance with their objectives and projected growth. It was found that less than 52.5 percent of the surveyed Pakistani manufacturing organisations often or always conducted regular training and development need analyses. The remainder only occasionally conducted such analyses (Table 6.5).

In Pakistani context, Saari et al. (1988) found that 27 percent of organisations have practices or procedures for need analysis before investing in human resources, while Abu-Doleh (1996) reports that 69.2 percent of Jordanian manufacturing organisations regularly carry out need analyses before investing in human resource development. Athari and Zairi (2002) and Yadapadithaya (2001) found similar findings to this research in the context of Kuwaiti and Indian organisations respectively.

Among the most frequent justifications given by the organisations that do not systematically analyse their training and development needs are the following: long-term employee instability, absence of clear training and development plans, absence of managerial commitment to training and development, lack of a proper HR department for organising training and development activities, and difficulty in determining the training needs of all employees in the organisation. The combination of these inhibiting factors drives organisations to view investment in

training and development as an extra burden, to be carried out only when immediate needs require it.

Table 6.5: Provisions, Methods and Circumstances of Need Analysis

	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Provisions	6 (2.1)	24 (8.3)	79 (27.1)	97 (33.3)	86 (29.2)	3.16	1.388
Methods							
Questionnaire	45 (15.4)	58 (19.9)	82 (28.1)	82 (28.1)	25 (8.6)	2.95	1.200
Personal interview	196 (67.1)	43 (14.7)	30 (10.3)	19 (6.5)	4 (1.4)	1.60	1.002
Direct observation	37 (12.7)	42 (14.4)	94 (32.2)	67 (25.7)	44 (15.1)	3.16	1.220
Human Resource Committee	115 (39.4)	80 (27.4)	57 (19.5)	25 (8.6)	15 (5.1)	2.13	1.176
Performance appraisal reports	56 (19.2)	45 (15.4)	62 (21.2)	74 (25.3)	55 (18.8)	3.09	1.388
Circumstances							
At the time of recruiting a new employee	30 (10.4)	43 (14.6)	79 (27.1)	67 (22.9)	73 (25)	3.06	1.220
When employees need training in new equipment or new working methods	45 (15.4)	58 (19.9)	82 (28.1)	82 (28.1)	25 (8.6)	2.95	1.200
When performance efficiency assessments are made	19 (6.5)	64 (21.7)	82 (28.3)	82 (28.3)	45 (15.2)	2.62	1.712
When employees are upgraded to fill vacant positions	79 (27.1)	72 (24.7)	49 (16.8)	78 (26.7)	14 (4.8)	2.58	1.270
When department requires it	37 (12.7)	42 (14.4)	94 (32.2)	67 (25.7)	44 (15.1)	3.16	1.220
When employee requires it	115 (39.4)	80 (27.4)	57 (19.5)	25 (8.6)	15 (5.1)	2.13	1.730

Note: Brackets () represent percentage.

6.4.2   Methods Used for Need Analysis

The participating organisations were also asked about which methods most often are relied upon to determine need for investing in training and development programmes. Of the methods cited in the survey, direct observation is by far the

most popular method of assessing employee training needs, with formal performance appraisal reports coming second but with a much lower frequency of use. Indeed, the highest mean value (3.16) shows that the majority of organisations indicated that direct observation was their preferred method for need analysis (Table 6.5). On the other hand, most of these organisations also said that they used performance appraisal reports for conducting training need analysis. Nearly 40 percent state they use questionnaires always or usually, more than any other method. The least used methods are the human resource committee and the personal interview.

6.4.3   Circumstances for Need to Invest in HRD

In view of the importance of investing in training and development activities for organisations, one question asked concerned the circumstances under which such investments are made. There is total agreement among the surveyed organisations that investment in training and development is first and foremost provided when a department within the organisation requests it (Table 6.5).

The second and third situations that call for investing in training and development are when employees are newly recruited, and when new equipment or working methods are introduced. The fourth and fifth situations are when performance efficiency assessments are made, and when employees are upgraded to fill vacant positions. The final situation is when employees ask to undergo the process of training and development to enhance their job skills. These results confirm the findings of various previous studies conducted by the authors in the different areas

of the world (Campbell, 1995; Yadapadithaya, 2001; Kirkpatrick, 2004; Brinkerhoff, 2006; Bras and Rodrigues, 2007).

6.4.4 Approaches to Training and Development

Table 6.6 shows that on-the-job training is unquestionably the most frequently used mode of training by all categories of the Pakistani manufacturing organisations. Thus, an overwhelming 94 percent of Pakistani organisations reported that, as a rule, this was the approach they relied upon most. Off-the-job training was sometimes resorted to, but in general it was a rare event. Still, for some reason, few organisations appear to make use of training opportunities outside their units.

Table 6.6: Approaches to Training and Development

Approach	Never		Seldom		Sometimes		Usually		Always	
	No	%	No	%	No	%	No	%	No	%
On-the-Job	0	0	12	4	6	2	105	36	169	58
*Off-the-Job	30	10.4	73	25	91	31.3	30	10.4	67	22.9

Note: this has one missing value

Of all the organisations that stated that they did not employ off-the-job training, 89.5 percent said that they never, or almost never, sent any of their employees abroad for training. Presumably this is because it is more practical and cheaper to use home facilities. However, on the rare occasions when it was necessary to gain new skills then staff may be sent overseas. Only a few large organisations frequently sent their employees abroad for training.

6.4.5   Methods Used for Training and Development

The training methods used by the surveyed organisations are summarised in Table 6.7. The following methods were cited as being used usually or always (combined percentage). Lectures were the most common training method used. This was cited by 94 percent of organisations. The next popular methods were audio-visual aids, and group discussion, cited by 77.1 percent and 72 percent of organisations, respectively. Training and development methods, such as management games, case studies, role playing and computer-based methods, are also prominently used by the Pakistani organisations. Other methods, such as special projects, fieldwork visits, brainstorming and job rotation, are less common.

Kerrigan and Luke (1987) also found through their research that lectures, discussion, case studies, movies and films, and field visits are the most common methods used in formal training in less developed countries. That is to say, the training methods used in Pakistan are conventional to some extent, with little practical involvement of the trainees in the learning process. It was also observed that the majority of the responding organisations expressed disagreement with the statement that training providers use conventional training techniques in Pakistan.

Although lectures, group discussions and audio-visual aids were the most common training methods used, there is a statistically significant difference in the frequency of the use of lectures, management games, case studies, special projects, group discussion, role playing, brainstorming and audio-visual aids in the manufacturing sector. That is to say, the manufacturing sector organisations

use proper training methods to fulfil the current and future development needs of their employees.

Table 6.7: Methods Used for Training and Development

Tools	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Lectures	0 (0)	12 (4)	6 (2)	105 (36)	169 (58)	3.66	1.438
Management Games	31 (10.4)	73 (25)	91 (31.3)	31 (10.4)	66 (22.9)	2.13	1.176
Case Study	6 (2.1)	24 (8.3)	79 (27.1)	97 (33.3)	86 (29.2)	3.16	1.388
Special Projects	31 (10.6)	74 (25.5)	99 (34)	63 (21.3)	25 (8.5)	2.95	1.200
Group Discussion	0 (0)	12 (4.2)	67 (22.9)	103 (35.4)	110 (37.5)	3.58	1.270
Role Playing	30 (10.4)	43 (14.6)	79 (27.1)	67 (22.9)	73 (25)	3.06	1.220
Brainstorming	19 (6.5)	64 (21.7)	82 (28.3)	82 (28.3)	45 (15.2)	2.62	1.712
Field Visits	24 (8.3)	60 (20.4)	128 (43.8)	49 (16.7)	31 (10.4)	2.22	1.378
Audio-visual Aids	0 (0)	30 (10.4)	37 (12.5)	85 (29.2)	140 (47.9)	3.06	1.308
Rotations	66 (22.7)	86 (29.5)	66 (22.7)	54 (18.2)	20 (6.8)	2.32	1.278
Computer-based	12 (4.2)	30 (10.4)	110 (37.5)	97 (33.3)	43 (14.6)	3.03	1.002

Note: Brackets () represent percentage.

These results are also in accord with the fact highlighted earlier, that these organisations have huge financial resources, personnel resources and independent human resource departments with which to train and develop employees.

6.5 Investment in HCD Programmes

This section relates to three questions of the questionnaire and includes details on the provisions and investment made in developing the human resources by the surveyed organisations. However, this investment is often seen as an expensive

proposition. It still shows up on the cost side of most accounting ledgers in the Pakistani manufacturing sector. As a result, the human resources department or those managers dealing with human resource development activities are mostly on the defensive, justifying the money that is spent on improving the skills of employees and, ultimately, improving the organisation's overall performance.

The extent of serious commitment to investment in HCD programmes is nowhere more evident than in the way schemes are financially resourced and supported. The survey sought to discover whether participant enterprises were interested in investing in the training and development of human resources. Table 6.8 shows that an overwhelming 95 percent of all responding enterprises have such provisions. Only 5 percent of organisations claim that they have no proper provisions for investing in HCD programmes.

The survey also sought to discover whether participant organisations had a fixed separate amount of capital, specifically allocated to HCD programmes, and what percentage it represented in relation to the total annual budget. Table 6.8 shows that 11 percent of enterprises have a separate budget in excess of Rs.5,000,000. 17.1 percent of the enterprises surveyed spent between Rs.4,000,000 and Rs.5,000,000, 25.7 percent invest between Rs.3,000,000 and Rs.4,000,000, 24 percent invest between Rs.2,000,000 and Rs.3,000,000, and 16.1 percent invest between Rs.1,000,000 and Rs.2,000,000 on developing their human resources. Only 6.2 percent of surveyed enterprises have budgeted less than Rs.1,000,000 for investment in HCD activities. The raw data show that the minimum amount of

money spent on HCD programmes for enterprises is Rs.1,000,000 and the maximum amount is above Rs.5,000,000.

Table 6.8: Investment Made in HCD

		No	**%**
Provisions for Investment in Human Resource Development	Never	5	1.7
	Seldom	50	17.1
	Sometimes	79	27.1
	Usually	91	31.2
	Always	67	22.9
	Total	292	100.0
Amount of Investment	Less than Rs.1,000,000	18	6.2
	1,000,000 to 2,000,000	47	16.1
	2,000,000 to 3,000,000	70	24.0
	3,000,000 to 4,000,000	75	25.7
	4,000,000 to 5,000,000	50	17.1
	More than Rs.5,000,000	32	11.0
	Total	292	100.0
% of Investment to Total Budget	Less than 10%	56	19.1
	10–20%	112	38.2
	20–30%	117	40
	30–40%	8	2.7
	Over 40%	0	0
	Total	292	100
Adequacy of Investment	Very inadequate	6	1.82
	Inadequate	133	45.5
	Don't know	5	1.8
	Adequate	138	47.3
	Very adequate	11	3.6
	Total	292	100.0

The vast majority of surveyed organisations that declared a separate budget for human resource development also claimed that this involves between 10 and 30 percent of their organisation's annual budget. Only 19.1 percent of the surveyed organisations invest less than 10 percent of their total annual budget in this way (Table 6.8).

The surveyed organisations were also asked to comment on whether or not their current budget for investing in HCD activities is adequate. Most participating organisations (50.9%) replied that currently their budget is adequate or very adequate. Just under half of these organisations stated that the present investment provisions are inadequate or very inadequate.

6.6   Evaluating Investment Made in HCD Programmes

The success or failure of any investment made in training and development programmes can only be established accurately through its proper appraisal or evaluation. It is therefore unsurprising that so many authors have described appraisal of investment as a vital and integral part of any systematic human resource development process (Rose, 1964; Kirkpatrick, 1976; Ralphs and Stephan, 1986; Taylor, 1986; Kirkpatrick, 2004; Bras and Rodrigues, 2007). This is because, without it, the overall impact of the human resource development programme would remain obscure and difficult to judge with any precision.

The purposes of appraising were previously set out in detail in Chapter 2 (Section 2.4). Briefly, appraisal measures the effectiveness of the programme after its completion, and determines whether the efforts and investments expended were worthwhile for the organisation or not. Investment in human resources is a form of capital investment (Phillips, 2006; Bullen, 2007), so it should be evaluated for its viability (Campbell, 1994; Campbell, 1995; Dale, 2004). Bullen (2007) adds that a comparison should be made to determine whether the investment yields

greater returns or not. This section contains the detailed results regarding appraisal of investment in HCD by the Pakistani manufacturing organisations.

6.6.1   Importance of Evaluation

In order to identify how Pakistani organisations view the evaluation of investments made in HCD, the surveyed organisations were asked about the level of importance of appraisal process (Table 6.9). Majority of the enterprises viewed evaluation as very important. This shows that most Pakistani organisations believe that each Rupee spent on training and the development of human resources has to pay off, or bring returns for them. For this reason there must a proper process for evaluating investments made in HCD.

The participants were asked about the primary responsibility for evaluating investments made in HCD programmes. Those organisations which had an ongoing HCD plan varied substantially in their responses. The largest percentage for Pakistani manufacturing organisations (50.34%) said that such responsibility is taken by the accounting department, while 44.52 percent of them indicated that such a role is carried out by the human resource department. In a few organisations (5.14%) some other department such as finance, administration, overall quality, or research and development is responsible for evaluating such investments (Table 6.9).

In order to investigate the importance of training evaluation, respondents were asked about the frequency with which they appraised their investments in training and development programmes. Most of the organisations (36.6%) evaluate their

investment after each activity. Another 29 percent evaluate their investment on a monthly basis, 10.6 percent quarterly, 11 percent half-yearly and 32.25 percent annually (Table 6.9).

Table 6.9: Evaluating Investment Made in HCD Programmes

		No.	%
Importance of Evaluation	Never	5	1.7
	Seldom	50	17.1
	Sometimes	79	27.1
	Mostly	91	31.2
	Always	67	22.9
	Total	292	100.0
Department Responsible for Evaluating Investment	Human Resource Department	130	44.52
	Accounting Department	147	50.34
	Others	15	5.14
	Total	292	100
Frequency of Evaluation	After every investment	107	36.6
	Monthly	28	9.6
	Quarterly	31	10.6
	Half yearly	32	11.0
	Yearly	94	32.2
	Total	292	100.0

6.6.2   Tools Used for Data Collection

Enterprises may use a number of tools to collect data about the effectiveness of investments in human resource development programmes. The main tools include questionnaires, interviews, attitude surveys, on-the-job observation and performance records (Kirkpatrick, 2004).

The data collection tools most often used by enterprises in Pakistan are questionnaires and performance reports. As a result these show the highest mean values of 3.09 and 3.16, respectively. The evaluation techniques of interview,

testing, observation and attitude survey are used less but are still important (Table 6.10). These results are very much in agreement with the similar work of Athari and Zairi (2002) in Kuwait.

Table 6.10: Tools Used for Collecting Data about Investment

Tools	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Questionnaire	56 (19.2)	45 (15.4)	62 (21.2)	74 (25.3)	55 (18.8)	3.09	1.388
Interview	115 (39.4)	80 (27.4)	57 (19.5)	25 (8.6)	15 (5.1)	2.13	1.176
Test	196 (67.1)	43 (14.7)	30 (10.3)	19 (6.5)	4 (1.4)	1.60	1.002
Observation	45 (15.4)	58 (19.9)	82 (28.1)	82 (28.1)	25 (8.6)	2.95	1.200
Attitude survey	79 (27.1)	72 (24.7)	49 (16.8)	78 (26.7)	14 (4.8)	2.58	1.270
Performance appraisal reports	37 (12.7)	42 (14.4)	94 (32.2)	67 (25.7)	44 (15.1)	3.16	1.220
Others	231 (79.1)	37 (12.7)	18 (6.2)	4 (1.4)	2 (0.7)	1.32	.712

Note: Brackets () represent percentage.

6.6.3 Models Used for Evaluating Investment

The selection of an evaluation model is very important in relation to what the organisation aims to get out of the training activity. Respondent organisations were asked about what training outcomes they measure and the models they adopt to measure these (Table 6.11).

The existing literature holds Kirkpatrick's four level model (reaction, learning, behaviour and outcome) as the most widely used for evaluating investment in training and development. Athari and Zairi (2002) also found the Kirkpatrick model to be the most useful. However, the present study shows different results.

Most of the respondents were not familiar with the Kirkpatrick model; the overall mean value for awareness of this model was 1.86, meaning that the majority of enterprises (66.1%) were not using it. Firms were also asked about Warr et al.'s CIRO (cost, input, reaction, and outcome) model (1976); the overall mean score for this was 1.82. This value indicates that most of the organisations (59.2%) were not using this model either to assess their investment of developing the human resources. Only a few responding organisations, use the British "investor in people" model. Most organisations consider benchmarking as the best way to evaluate their human resource development programmes.

Table 6.11: Models Used for Evaluating Investment

Model Used	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Kirkpatrick's four level Model	193 (66.1)	17 (5.8)	29 (9.9)	35 (12)	18 (6.2)	1.86	1.335
CIRO model	173 (59.2)	42 (14.4)	41 (14.0)	29 (9.9)	7 (2.4)	1.82	1.148
Investor in People	222 (76.0)	31 (10.6)	21 (7.2)	15 (5.1)	3 (1.0)	1.45	.908
Benchmarking	87 (29.8)	50 (17.1)	79 (27.1)	57 (19.5)	19 (6.5)	2.56	1.276
Cost benefit analysis	35 (12.0)	33 (11.3)	57 (19.5)	89 (30.5)	78 (26.7)	3.49	1.317
Human resource accounting (BCR, ROI, WACC etc)	160 (54.8)	64 (21.9)	35 (12.0)	28 (9.6)	5 (1.4)	1.80	1.070

Note: Brackets () represent percentage.

The degree to which firms compare their training outcomes with relevance to training inputs was analysed. Most of the responding organisations were familiar with the use of cost-benefit analysis. This and benchmarking have the highest

mean values, of 3.49 and 2.56, respectively (Table 6.11). The majority of manufacturing organisations in Pakistan use these models to evaluate investments in the development of human resources.

These results differ greatly from the work of Chaudhry and Roomi (2010), who conducted a primary study on accounting for HCD in the Pakistani textile sector. This study was based on a small sample of 30 organisations from the textile sector, and so is limited in its generalisation. The current study is based on a comprehensive survey of the Pakistani manufacturing sector, making its results more reliable.

6.6.4   Main Inputs of Investment

To continue with the evaluation section, and also to reach a conclusion about evaluation activity in the Pakistan, the respondent organisations were asked whether they were measuring or had measured their training inputs. In order to identify the kind of training input measurement used, the sample firms were provided with a list from which to choose on an alternate response basis.

Most of the responding organisations evaluate inputs such as training expenditure, number of employees receiving training, number of courses offered and trainer's fee. These firms are evaluating trainees' travelling and daily expenses or course development expenditures and cost of facilities. These findings show that firms are maintaining records of training and assigning importance on that basis (Table 6.12). This data also helps to identify the main concern of training as cost

identification, and provides further elements that can be used as evaluation tools within pre-training activities.

Table 6.12: Evaluating Main Inputs of HCD

Inputs	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Training and development expenditures	67 (21.6)	37 (12.7)	55 (18.8)	86 (29.5)	51 (17.5)	3.09	1.408
Number of employees receiving training	62 (21.2)	48 (16.4)	70 (24.0)	71 (24.3)	41 (14.0)	2.93	1.349
Training expenditure per employee	82 (28.1)	58 (19.9)	61 (20.9)	64 (21.9)	27 (9.2)	2.64	1.338
Training hours	75 (25.7)	45 (15.4)	59 (20.2)	80 (27.4)	33 (11.3)	2.83	1.373
Trainers' fee	72 (24.7)	48 (16.4)	57 (19.5)	67 (22.9)	47 (16.3)	2.89	1.424
Travelling and daily allowance	71 (24.3)	43 (14.7)	47 (16.1)	86 (29.5)	45 (15.4)	2.97	1.427
Number of courses offered	78 (26.7)	61 (20.9)	61 (20.9)	69 (23.6)	23 (7.9)	2.65	1.309
Course development cost	83 (28.4)	65 (22.3)	50 (17.1)	63 (21.6)	31 (10.6)	2.64	1.369
Cost of facilities and equipment	77 (26.4)	61 (20.9)	63 (21.6)	53 (18.2)	38 (13.0)	2.71	1.373

Note: Brackets () represent percentage.

These results also support the findings of Yadapadithaya (2001), who studied the training investment evaluation practices followed by Indian organisations. Hashim (2001) has also made similar remarks about the inputs of training evaluation. The findings above are consistent with those of Athari and Zairi (2002) and Yadapadithaya (2001), who each found that in Kuwaiti and Indian organisations the inputs of training and development are not properly recorded.

6.6.5 Main Outputs of Investment

The respondent firms were also asked whether they were measuring or had measured the outputs of investments made in the development of their human resources. Their answers indicate that different levels and elements of output were being evaluated. In order to identify the kind of training output measurement used, respondent firms were provided with a list from which to choose.

Table 6.13: Evaluating Main Outputs of HCD

Outputs	Never	Seldom	Sometime	Usually	Always	Mean	SD
Job satisfaction	49 (16.8)	30 (10.3)	46 (15.8)	107 (36.6)	60 (20.5)	3.34	1.362
Customer satisfaction	46 (15.8)	33 (11.3)	71 (24.3)	90 (30.8)	52 (17.8)	3.24	1.309
Increase in productivity	48 (16.4)	19 (6.5)	59 (20.2)	92 (31.5)	73 (25.3)	3.42	1.368
Reduction in work-in-process time	65 (22.3)	61 (20.9)	64 (21.9)	68 (23.3)	33 (11.3)	2.91	2.208
Reduction in repairs and returns	63 (21.6)	50 (17.1)	70 (24.0)	67 (22.9)	42 (14.4)	2.91	1.356
Reduction in HR issues	71 (24.3)	44 (15.1)	76 (26.0)	61 (20.9)	40 (13.7)	2.85	1.365
Increase in sales	37 (12.7)	12 (4.1)	71 (24.3)	126 (43.2)	46 (15.8)	3.45	1.187
Increase in profitability	62 (21.2)	33 (11.3)	79 (27.1)	81 (27.7)	37 (12.7)	2.99	1.324

Note: Brackets () represent percentage.

The answers indicate that most participants use employee productivity and its impact on sales as an output by which to measure training effectiveness. A large portion of the sample also used job satisfaction, reduction in work-in-process time, reduction in repair cost and increase in overall profitability as measurements

of training output. Enterprises also measured reductions in human resource issues (turnover, conflicts, absenteeism) as training outcomes.

These results support the findings of all previous studies (Hashim, 2001; Yadapadithaya, 2001; Athari and Zairi, 2002; Chaudhry and Roomi, 2010), which indicate enterprises' evaluation of the main outputs of investment they make in human resource development.

6.6.6   Challenges and Difficulties of Evaluating Investment

Evaluating investments in training and development effectively is not easy. It requires special techniques, financial resources and time (Brigham and Ehrhardt, 2011). Certain other challenges which might create additional hurdles in the evaluation process.

Respondents were asked to determine the most important challenges they faced in conducting productive assessment and evaluation of training. Most respondents answered that they have to face the majority of problems when evaluating. The biggest challenges were the constraint of time for assessment, and determining the corrective actions based on these evaluations; these scored 86 percent and 81 percent respectively. Upon further inquiry, the biggest reason identified by the respondent firms was the lack of a proper evaluation method (75% of respondents). The difficulty of finding evaluation professionals (77% of respondents) created further problems for firms, and as a result firms had to devote large amounts of time to evaluation. Respondents also faced problems in

converting their results into the language of top management (73% of respondents). One reason for this may be the difficulty of getting top level management involved in training evaluation; this was reported by 60 percent of respondents (Table 6.14).

Table 6.14: Challenges Faced in Evaluating Investment

Challenges	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Cost of doing evaluation well	75 (25.7)	57 (19.5)	65 (22.3)	72 (24.7)	23 (7.8)	2.72	1.384
Determining impact on financial performance	83 (28.4)	54 (18.5)	61 (20.9)	62 (21.2)	32 (11)	2.68	1.369
Time required to do evaluation	79 (27.1)	54 (18.5)	70 (24.0)	60 (20.5)	29 (9.9)	2.67	1.327
Identifying appropriate qualitative measure	78 (26.7)	66 (22.6)	77 (26.4)	51 (17.5)	20 (6.8)	2.55	1.244
Finding appropriate quantitative evaluation methods	96 (32.9)	58 (19.9)	84 (28.8)	39 (13.4)	15 (4.8)	2.33	1.206
Getting trainees' and managers' participation	89 (30.5	69 23.6	55 18.8	62 21.2	17 5.8	2.48	1.280
Involvement of top management	88 (30.1)	55 (18.8)	60 (20.5)	62 (21.2)	27 (8.5)	2.60	1.347
Finding qualified evaluation professionals	98 (33.6)	58 (19.9)	52 (17.8)	67 (22.9)	17 (5.8)	2.48	1.317
Translating results into language of top management	98 (33.6)	44 (15.1)	55 (18.8)	70 (24)	25 (8.6)	2.59	1.383
Determining actions based on evaluation	104 (35.6)	60 (20.5)	68 (23.3)	43 (14.7)	17 (5.8)	2.35	1.260

Note: Brackets () represent percentage.

Almost the same results were found regarding the involvement of middle-level managers and trainees in the evaluation of training: 70 percent of firms reported difficulties in getting these groups to consent to evaluation. While assessing the cost available to assess training, most of the firms were not facing problem regarding available resources for evaluation (only 14% reported problems in the

availability of resources), as firms were already devoting certain amounts to conducting training.

Table 6.15: Difficulties in Collecting Information about Evaluation

Difficulties	Never	Seldom	Sometimes	Usually	Always	Mean	SD
Latest advancement in evaluation techniques	71 (24.3)	77 (26.4)	65 (22.3)	37 (12.7)	42 (14.3)	2.68	1.428
Finding out methods used by other organisations	74 (25.3)	68 (23.3)	68 (23.3)	48 (16.4)	34 (11.7)	2.64	1.319
Information about evaluation tools	105 (36.0)	50 (17.1)	81 (27.7)	48 (16.4)	8 (2.7)	2.33	1.199
Information about how to conduct effective evaluation	95 (32.5)	67 (22.9)	77 (26.4)	45 (15.4)	8 (2.7)	2.33	1.161
Information on available evaluation resources	87 (29.8)	61 (20.9)	75 (25.7)	58 (19.9)	11 (3.7)	2.58	2.610
Information about outsiders providing evaluation Assistance	105 (36.0)	50 (17.1)	81 (27.7)	48 (16.4)	8 (2.7)	2.64	1.319

Note: Brackets () represent percentage.

The information firms found most difficult to obtain was finding out the suitable evaluation tool, which was mentioned by 86 percent of the organisations. On further inquiry 75 percent and 70 percent of respondents answered "Information of evaluation resources" and "Information about outsiders providing evaluation assistance", respectively. These findings are quite consistent with those presented in Table 6.15.

Human resource managers or professionals who are involved in training evaluation require sets of information to do their work. However not all of the required information is easily available. To continue with this section the respondents were asked whether they faced difficulties in obtaining information, the level of difficulty encountered and what kind of information was difficult to obtain.

When asked about evaluation methods, 59 percent of respondents were unable to identify a method of conducting evaluation that they might use. Similarly 51.4 percent of the organisations (Table 6.15) responded that it was difficult for them to get the method of evaluation used by other firms. These findings are interrelated as most of the firms find difficulty in identifying the most effective way to evaluate training.

6.7   Financial Appraisal of Investments Made in HCD

The cost and value approach of human resource accounting can be used to measure quantitatively the costs and benefits of training and developing human resources. It was found that most enterprises in Pakistan are not maintaining data on the cost of training and developing human resources, and are also not translating the benefits of this investment into monetary figures. For this reason, they were asked about the projected percentages regarding the costs and benefits of their investments in HCD.

6.7.1 Measuring Total Cost

The present study considers only the five elements of costs described in Chapter 4 (Section 4.3.3): C_1 (cost of trainers), C_2 (cost of trainees or participants), C_3 (cost of facilities and training material), C_4 (travelling and daily costs) and C_5 (miscellaneous costs) (Schulz and Carnevale, 1990). Most enterprises were found to be calculating these costs. The costs of trainers and trainees are estimated as percentage of annual sales revenue. Similarly, the cost of trainees, cost of training material, equipment costs and miscellaneous costs are taken as an estimated percentage of total production costs for the year. Table 6.16 describes how these costs are determined by the Pakistani manufacturing organisations.

Table 6.16: Total Cost Incurred in Human Resource Development

Outputs	0–0.5% (1)	0.5–1% (2)	1–2% (3)	2–5% (4)	Above 5% (5)	Mean	S.D
Cost of trainers	113 (38.7)	77 (26.4)	57 (19.5)	36 (12.3)	9 (3.1)	2.15	1.156
Cost of trainees	103 (35.3)	86 (29.5)	56 (19.2)	34 (11.6)	13 (4.5)	2.21	1.172
Cost of facilities and training Materials	115 (39.4)	85 (29.1)	47 (16.1)	29 (9.9)	16 (5.5)	2.13	1.197
Travelling and daily costs (TADA)	100 (34.2)	93 (31.8)	58 (19.9)	31 (10.6)	10 (3.4)	2.17	1.118
Miscellaneous costs	92 (31.5)	88 (30.1)	84 (28.8)	19 (6.5)	9 (3.1)	2.20	1.052

Note: Brackets () represent percentage.

These results are consistent with the findings of Klase (1996), who conducted a similar study in Kuwait on accounting for human resource development in the public sector.

6.7.2 Measuring Total Benefits

The benefits of human resource development in financial terms were divided into five elements (see Section 4.3.3): B_1 (increase in revenues or production), B_2 (savings due to reduction in errors and customer complaints), B_3 (savings due to reduction in repair costs and wastage of materials), B_4 (savings due to reduction in hiring and firing issues) and B_5 (savings due to reduction in work-in-process time) (Schulz and Carnevale, 1990; Phillips and Whalen, 2004).

Table 6.17: Total Benefits of Investing in HCD

Outputs	0 – 2% (1)	2 – 5% (2)	5 – 8% (3)	8 –10% (4)	Above 10% (5)	Mean	S.D
Increase in revenue or production	45 (15.4)	81 (27.7)	78 (26.7)	53 (18.2)	35 (12.0)	2.84	1.238
Savings due to reduction in errors and complaints	43 (14.7)	94 (32.2)	51 (17.5)	67 (22.9)	37 (12.7)	2.87	1.279
Savings due to reduction in repair cost and wastage	43 (14.7)	76 (26.0)	76 (26.0)	66 (22.6)	31 (10.6)	2.88	1.221
Savings due to reduction in HR issues	27 (9.2)	79 (27.1)	73 (25.0)	81 (27.7)	32 (11.0)	3.04	1.166
Savings due to reduction in work-in-process time	25 (8.6)	75 (25.7)	79 (27.1)	79 (27.1)	34 (11.6)	3.07	1.152

Note: Brackets () represent percentage.

In order to calculate these benefits, estimates were made of the annual cost of errors and defective production, repair costs, absenteeism costs and down-time costs that the firms had to face prior to training activities. Reductions in these costs were taken, in percentage form, as a result of the training activities in those firms, and these savings were finally converted into monetary terms. Pakistani

manufacturing organisations normally calculate all the benefits for the year in which a training investment is made. However, it has been seen that the benefits of training will increase over future years and investments made in training will continue to offer higher returns.

Similar results about the monetary benefits of investing in human resource development have been found by Schulz and Carnevale (1990), Klase (1996), and Chaudhry and Roomi (2010). These results also support the proposal of Chambel and Castanheira (2012) that investment in human resource development yields positive individual outcomes that increase overall organisational outcomes or performance. They have also inferred that organisational investment in training offers all-round benefits from the level of the individual to that of the organisation.

6.7.3 Analysis of Investment Made in HCD

It was almost impossible to obtain precise figures on the costs and benefits of investments made in training and development of human resources in the Pakistani manufacturing sector. Most enterprises in Pakistan do not maintain data on the cost of training and development programmes, and they also do not translate the benefits of these investments into monetary terms. That is why managers were also reluctant to reveal the exact amount of investment made in HCD. For this reason they were asked to give estimated figures about the return on investment (ROI), weighted average cost of capital (WACC), benefit-to-cost

ratio (BCR), bottom line evaluation (BLE) and payback period (PP) of investments in human resource development.

Table 6.18: Financial Appraisal of Investments Made in HCD

Appraisal Technique		No.	%	Mean	SD
Benefit-to-Cost Ratio	0 to 1 times	46	15.8	2.56	1.065
	1 to 2 times	109	37.3		
	2 to 4 times	76	26.0		
	4 to 6 times	50	17.1		
	Above 6 times	11	3.8		
	Total	292	100.0		
Payback Period	0–1 years	44	15.1	2.40	1.067
	1–5 years	135	46.2		
	5–10 years	74	25.3		
	10–15 years	30	10.3		
	Above 15 years	9	3.1		
	Total	292	100.0		
Bottom Line Evaluation	0 to 2%	32	11.0	2.95	1.203
	2% to 5%	85	29.1		
	5% to 8%	80	27.4		
	8% to 10%	57	19.5		
	Above 10%	38	13.0		
	Total	292	100.0		
Return on Investment	0% to 5%	26	8.9	3.85	1.063
	5% to 10%	95	32.5		
	10% to 15%	79	27.1		
	15% to 20%	67	22.9		
	Above 20%	25	8.6		
	Total	292	100.0		
Weighted Average Cost of Capital	0% to 5%	142	48.6	2.35	1.094
	5% to 10%	99	33.9		
	10% to 15%	33	11.3		
	15% to 20%	18	6.2		
	Above 20%	0	0		
	Total	292	100.0		

Another interesting finding of the current study is that a majority of the enterprises were familiar with the ROI of training, but none were really evaluating the financial returns of investments made in their human resource development programmes. Most firms were using ROI, WACC, BCR, PP and BLE to assess their investment in training and development programmes. However, they were

unaware of how to use the results of these accounting techniques to analyse the viability of their investments.

The surveyed organisations applied the main techniques of human resource accounting – BCR, ROI, WACC, BLE and PP – in evaluating investments made in HCD programmes. The mean value of BCR is 2.56, which shows that the benefits of investing in human resource development are 4 to 6 times the total cost incurred. The average value given by the respondents to PP is 2.40, which shows that investment in human resources will provide enterprises with long-term benefits (more than 5 years).

The mean value of BLE is 2.95, which reveals that investment in human resource development activities will bring a 5–8 percent increase in the overall profits of an organisation. The ROI offered by training averages 3.85, or a return of between 15 percent and 20 percent. The average value of WACC is only 2.35, which means that it accounts for about 10 to 15 percent of total investment made in human resources. This means that investment in human resource development offers higher ROI compared to WACC. The results of these techniques help to identify the potential of investments made in the development of human resources by the enterprises.

6.8   Summary

This chapter provides a detailed description and analysis of the survey findings concerning human capital development within the Pakistani manufacturing

organisations. It provides the detailed results regarding the human resource development practices and investment appraisal techniques of human resource accounting followed in the Pakistani manufacturing sector. It provides the detailed information about those factors that are relevant to appraising investment in HCD in the Pakistani manufacturing sector. The presentation began with a profile of the organisations and participants of the study and carries on to describe the results about some other contextual factors regarding the surveyed organisations.

The final part of the chapter was devoted to measuring the costs and benefits of investing in human resource development, using the cost and value approach of human resource accounting. According to the organisations surveyed the total cost incurred in human resource development activities consists of: cost of trainers, cost of trainees or participants, cost of facilities and training material, travelling and daily costs, and miscellaneous costs. They also reveal that the benefits of human resource development in financial terms were divided into five elements: increase in revenues or production, savings due to reduction in errors and customer complaints, savings due to reduction in repair costs and wastage of materials, savings due to reduction in hiring and firing issues, and savings due to reduction in work-in-process time.

The most common techniques of accounting used by the Pakistani manufacturing organisation for analysing the investment made in human resource development are: return on investment, weighted average cost of capital, benefit-to-cost ratio, bottom line evaluation and payback period.

This chapter has been designed to cover the first objective of the thesis and provide an answer to the first research question. The next chapter will cover the remaining objectives of the thesis. It will discuss the testing of hypotheses from which the final conclusions may be drawn.

Chapter 7   Testing of Hypotheses

7.1   Introduction

The previous chapter described in detail the results obtained through the questionnaire survey. In this chapter the relationships between dependent variables (DV) and independent variables (IV) are identified and explained. In order to achieve the objectives and to understand the relationship between the proposed variables, a number of statistical approaches are used. This chapter aims to test the hypotheses of the study as defined in Chapter 4, and to answer three major research questions (RQ 3, RQ 4 and RQ 5). It presents and explains the results obtained from different statistical techniques.

The chapter covers the data analysis procedures applied by the researcher. Various statistical techniques based on statistical package for social sciences (SPSS) Windows version 19.0 were used to analyse the quantitative survey data. For structural equation modelling (SEM) based on the partial least square (PLS) method, the SmartPLS package was used to test the hypotheses with model path analysis. This chapter first presents descriptive statistics related to the main variables under study. Second, it discusses the use of different statistical approaches to test the study's hypotheses. Finally, it presents a summary of the main findings.

7.2   Descriptive Statistics

As described in Chapter 4, the present framework creates a link between the contemporary dimensions of human resource accounting for appraising IHCD, HR sophistication and managerial decisions regarding investment in HCD in context of the Pakistani manufacturing organisations. The main appraisal tools which are used for appraising investment are: benefits of investing in HCD (BIHCD), benefit–cost ratio (BCR), payback period (PBP), bottom line evaluation (BLE), return on investment (ROI) and weighted average cost of capital (WACC). The proposed framework also consider five contingency factors as predictors which are linked with human resource sophistication: organisational size (OS), provisions of specialist HR department (PSHRD), policies for human capital development (PHCD), methods of human resource development (MHRD) and use of technology (UT) that could affect the decisions of management regarding human capital development in the Pakistani manufacturing sector. Details of each of these explanatory variables are as follows.

7.2.1   Organisational Performance (OP)

As discussed in the previous chapters the final goal of the current framework is to help management and organisations in analysing the viability of investments made in HCD programmes. In this study, organisational performance is operationalised in terms of the benefits that investing in HCD programmes will bring to organisations. Consistent with previous studies (Ittner and Larcker, 1998; Hoque and James, 2000; Hoque et al., 2001; Ittner and Larcker, 2001; Ittner et al., 2003; Hoque, 2004, 2005; Jusoh et al., 2008; Dessler, 2009), organisational performance

was measured in terms of several dimensions: increase in job satisfaction, increase in customer satisfaction, increase in quality of products, increase in sales, decrease in cost of operations, increase in assets, increases in productivity, increase in market share etc. Surveyed organisations were asked about these main outputs of investment made in HCD in question 34 (8 items) by using a five point Likert scale (Appendix V & VI). An average of respondents' scores to each item was used by the researcher as a measure of OP.

7.2.2   Investment in Human Capital Development (IHCD)

In order to measure investments in human capital development (IHCD), the total costs associated with training were divided into five elements: trainer's fee (C_1), cost of trainees during training time (C_2), training development and delivery cost (C_3), trainees' travelling and daily cost (C_4) and miscellaneous cost (C_5). Those managers surveyed were asked to provide estimates about the training and development costs using a five point Likert scale. Trainers' fees and trainees' scholarships were therefore assessed in terms of percentage estimate of annual sales revenue. Similarly, the costs of trainees, training material and equipment, and miscellaneous costs were requested in terms of a percentage estimate of total production costs for the year. An average of a respondent's scores to each item was used as a measure for IHCD (Appendix V & VI).

7.2.3   Benefits of Investing in HCD (BIHCD)

The total benefits of training were measured in financial terms across five elements: increase in production (B_1), reduction in errors and customer complaints

(B_2), reduction in repair costs and wastage (B_3), savings due to reduction in hiring and firing issues (B_4), and benefits from reduction in work-in-process time (B_5). In order to calculate the benefits of investments, estimates were taken of the annual costs of errors and defective production, repair costs, absenteeism costs and down time costs that firms had to face prior to conducting training programmes. Reductions in these costs that resulted from training activities were taken in percentage form. These savings were converted into monetary terms in order to calculate the BIHCD. The managers surveyed were asked to provide estimates about the training and development costs on a five point Likert scale (Appendix V & VI). An average of respondents' scores to each item was used as a measure for BIHCD.

7.2.4   Benefit to Cost Ratio (BCR)

According to human capital theory, any cost incurred in training is an investment that will enhance the quality of human capital (Becker, 1993; Campbell, 1994, 1995). Revenues or production output will increase and savings will be made through a reduction in customer complaints, reduced repair costs and wastage of materials, a reduction in hiring and firing issues, and reduced work-in-process time. Management will be helped in controlling the overall cost of goods manufactured. Previous studies have also argued that if the predicted benefits of a human development programme exceed their cost then this investment may be judged worthwhile (Kim and Huang, 2000; Robert, 2001; Kirkpatrick, 2004; Phillips, 2006).

In order to compare the total benefits and the total costs incurred in developing human capital, enterprises can calculate the ratio of benefits to total cost (investment) incurred by the human resource development programme (Campbell, 1994; Smith, 2004). BCR was measured by using respondents' average score of three items on five point Likert scale (Appendix V & VI).

7.2.5   Payback Period (PBP)

Payback period evaluates how long it takes to earn sufficient benefits to cover the investment (total cost) of training and development (McLaney and Atrill, 2005; Aghazadeh, 2007; Hui Lien et al., 2007). This will also help to predict whether investing in human capital provides organisations with long-term or short-term benefits on a five point Likert scale. An average of a respondent's scores was used as a measure for the PBP (Appendix V & VI). The low end of the measures indicates a low PBP (0-1year) while the high end (above 15 years) indicates a high PBP.

7.2.6   Bottom Line Evaluation (BLE)

In brief, BLE involves testing the association between investment and productivity, and the overall profitability of an enterprise. The independent variable of investment in training and development has a positive impact on individual employees' and overall organisational performance in the shape of increased outcomes in the long run. Enterprises that have made a large investment in developing human capital have reaped large returns in the form of both profits and growth (Smith, 2004; Cifalino and Baraldi, 2009). Those organisations that

invest in training and development programmes gain high employee productivity, which ultimately contributes to high organisational performance (Brinkerhoff, 2006; Cifalino and Baraldi, 2009).

Investments in the training and development of human resources will positively affect the overall profitability of an enterprise (Bras and Rodrigues, 2007). Finally, BLE is a tool for assessing the impact of development programmes at the level of the organisation as a whole (Smith, 2004; Bras and Rodrigues, 2007). Respondents were asked to provide their estimates about BLE on a five point Likert scale. The average of percentage breakdown a respondent provided for each item was used to construct a measure for BLE (Appendix V & VI).

7.2.7   Return on Investment (ROI)

Mostly, researchers and practitioners have promoted the measurement of ROI for measuring the financial impact of human resource development programmes, (Phillips, 2002; Smith, 2004). This approach has achieved a high degree of acceptance from human resource development practitioners and researchers (Phillips, 2002). When calculating ROI, the net benefits are taken as a percentage of the total costs of training and developing human resources. The average percentage breakdown respondents provided for each item on five point Likert scale was then used to construct a weighted-average strategy measure for ROI (Appendix V & VI).

7.2.8 Weighted Average Cost of Capital (WACC)

WACC is the average rate at which an enterprise is expected to pay to all of its sources of capital (debt or equity) in order to finance its human assets. It is calculated by taking into account the relative weights of each component of the capital structure. WACC is the minimum average return that an enterprise must earn on an existing investment base to satisfy the cost of its capital (Robert, 2001; McLaney and Atrill, 2005). It is used to see if an investment is worthwhile or not. So as to better appraise and check the potential viability of the amount invested in HCD, ROI must be compared with WACC. The surveyed managers were asked to give estimated figures on investment. The percentage breakdown respondents provided for each item was then used to construct a weighted-average strategy measure for WACC (Appendix V & VI).

7.2.9 Human Resource Sophistication

Five internal contingent factors of organisations – organisational size (OS), provisions of specialist HR department (PSHRD), policies for human capital development (PHCD), methods of human resource development (MHRD) and use of technology (UT) – lead to human resource sophistication which could affect the decisions of management regarding HCD in the Pakistani manufacturing sector. Organisational size is measured by number of employees. Consistent with previous studies the surveyed organisations were asked about these factors on a five point Likert scale. An average of respondents' scores to each item was used as a measure for these variables (Appendix V & VI).

Table 7.1: Summary of Descriptive Statistics

Variable	Reliability Cronbach's Alpha (Items)	Mean Statistics				Skewness		Kurtosis	
		Min	Max	Mean	SD	Statistics	Std. Error	Statistics	Error
OP	0.83 (8)	1	5	2.95	1.07	0.18	0.17	0.89	0.27
IHCD	0.79 (5)	1	5	3.57	1.07	0.24	0.14	0.89	0.28
BIHCD	0.84 (5)	1	5	3.35	1.06	0.64	0.14	0.14	0.28
BCR	0.76 (3)	1	5	2.56	1.06	0.35	0.14	0.59	0.29
PBP	0.78 (3)	1	5	2.40	1.08	0.64	0.14	0.14	0.28
BLE	0.80 (3)	1	5	2.95	1.07	0.18	0.14	0.89	0.28
ROI	0.86 (2)	1	5	3.85	1.06	0.19	0.14	0.81	0.28
WACC	0.81 (2)	1	5	2.35	1.09	0.15	0.14	0.30	0.28
OS	n.a. (1)	1	6	5.54	1.06	0.35	0.14	0.59	0.29
PSHRD	0.80 (4)	1	5	3.28	1.03	0.17	0.14	0.86	0.25
PHCD	0.80 (4)	1	5	3.04	1.04	0.16	0.12	0.87	0.22
MHRD	0.75 (8)	1	5	3.01	1.08	0.19	0.11	0.88	0.24
UT	0.64 (4)	1	5	2.57	1.09	0.13	0.13	0.31	0.29

Notes: *N= 292 the number of valid responses from all the surveyed organisations.
*Final values of Cronbach's alpha are derived from data collected during the main research survey.
*When applying different tests for hypotheses, the variables will be presented by their abbreviated form of names.

The descriptive statistics – Mean scores, Standard Deviation, Skewness and Kurtosis – of observed variables are presented in Table 7.1. Most of the variables have a mean value of more than 2 on a 5-point Likert scale and are highly skewed. The results in Table 7.1 also shows a Cronbach's alpha value of greater than 0.70 for most of the scales, indicating an acceptable level of reliability (Norusis, 1998; Pallant, 2007). The overall alpha value is between 0.64 and 0.86, which shows that the measures used in the questionnaire are highly reliable. Further details regarding reliability analysis are given in Section 7.6.

The next section will provide detailed discussion of hypothesis testing.

7.3   Empirical Analysis

The objective of the study is to explore relationships between dependent variables and independent variables. It also aims to measure the strength of relationships among variables in order to prove the viability of investment made in HCD. A list of hypotheses was developed on the basis of the available literature (Box 7.1). In order to test these hypotheses a range of statistical techniques were applied for bivariate analysis and multivariate analysis.

Fundamentally, in this study researcher uses SPSS-19 package to determine the descriptive scores of variables and Pearson's correlation of dependent variable with independent variables and data screening. The following section explains the findings of the bivariate analysis used to find out the association among variables of the study.

Box 7.1: Study Hypotheses

H₁: *There is a positive association between investing in HCD and the total benefits derived from this investment.*

H₂: *IHCD has a positive association with the BCR of investment made in HC.*

H₃: *There is a negative association between investment in HCD and the payback period of this investment.*

H₄: *Investing in HCD programme is positively associated with the bottom line (overall profitability) of enterprises.*

H₅: *Investing in HCD has positive association with return on investment (ROI).*

H₆: *There is a negative association between IHCD and the weighted average cost of capital (WACC) of an enterprise.*

H₇: *Investing in HCD programmes is positively associated with organisational size.*

H₈: *Investing in HCD is positively associated with provision for specialist HR departments.*

H₉: *Investing in HCD has a positive association with human capital development policies of the organisations.*

H₁₀: *Investing in HCD is positively associated with the use of multiple methods of human resource development by organisations.*

H₁₁: *Investing in HCD programmes is positively associated with the use of technology.*
.
H₁₂: *Organisational performance is positively associated with investing in HCD.*

7.4   Bivariate Analysis (Correlations)

The Pearson product-moment correlation coefficient was calculated to determine the strength of the relationship between the dependent and independent variables. Pearson correlation gives an indication of both direction (positive or negative) and the strength of a relationship between two variables (Field, 2006). A positive correlation means that if one variable increases then the other variable will also increase, while negative correlation means that if one variable increases, the other variable will decrease (Norusis, 1998, 2004; Pallant, 2007).

The literature on human resource accounting establishes a positive relationship between investments made in human resource development and the benefits which organisations can reap from these investments. Correlation measures the strength of the association between a dependent and an independent variable (Hair et al., 1998; Pallant, 2007). If both variables increase, then they have a positive correlation but if one increases, and the other decreases then they have a negative correlation.

The coefficient of Pearson correlation ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation). The Pearson product-moment correlation coefficient was used to confirm the association of IHCD with BIHCD, BCR, PBP, BLE, ROI, WACC, OS, PSHRD, PHCD, MHRD and UT. Table 7.2 shows the matrix of Pearson correlation coefficients between IHCD and independent variables. The correlation coefficients suggest that there is a significant positive correlation among the variables.

Pearson product-moment correlation coefficient was calculated to confirm the association between IHCD and BIHCD. The results ($r = 0.884$, $P < 0.05$ level) show a significant link between IHCD and BIHCD. As mentioned earlier, BIHCD is calculated by grouping the five benefits (B_1 to B_5) and then using an average of respondents' scores as a measure. These findings therefore support hypotheses H_1 that investing in HCD is positively associated with BIHCD.

Table 7.2: Correlation Matrix

	IHCD	TB	BCR	PP	BLE	ROI	WACC	OS	PHCD	PHCD	MAHCD	UT
IHCD	1											
BIHCD	0.884**	1										
	0.021											
BCR	0.749***	0.356*	1									
	0.001	0.069										
PBP	0.721**	0.431***	0.117*	1								
	0.033	0.000	0.072									
BLE	0.830***	0.267**	0.114*	0.272*	1							
	0.003	0.040	0.085	0.066								
ROI	0.879**	0.293**	0.145*	0.485***	0.878***	1						
	0.020	0.023	0.067	0.000	0.000							
WACC	0.606***	0.208*	0.423*	0.357***	0.288*	0.197**	1					
	0.001	0.061	0.065	0.005	0.061	0.046						
OS	0.579**	0.293**	0.145*	0.485***	0.878***	0.271*	0.197**	1				
	0.020	0.023	0.067	0.000	0.000	0.056	0.046					
PSHRD	0.779**	0.293**	0.145*	0.485***	0.878***	0.878***	0.485***	0.061	1			
	0.023	0.023	0.067	0.000	0.000	0.000	0.000	0.878***				
PHCD	0.769***	0.145*	0.485***	0.267**	0.114*	0.272*	0.749***	0.357***	0.356*	1		
	0.001	0.067	0.000	0.040	0.085	0.066	0.001	0.005	0.069			
MHRD	0.622**	0.431***	0.117*	0.606***	0.208*	0.423*	0.357***	0.288*	0.288*	0.197**	1	
	0.031	0.000	0.072	0.001	0.061	0.065	0.005	0.061	0.061	0.046		
UT	0.631**	0.531***	0.217*	0.208*	0.423*	0.357***	0.272*	0.749***	0.357***	0.287*	0.297**	1
	0.043	0.000	0.072	0.061	0.065	0.005	0.066	0.001	0.005	0.061	0.046	

Note: ***, ** and * show significance at 1%, 5% and 10%, respectively

The Pearson product-moment correlation coefficient was calculated to confirm the significant impact of IHCD on BCR. The results ($r = 0.749$, $P < 0.01$ level) support hypothesis H_2 that IHCD has a positive association with BCR of

investment made in HCD. The significant linkage (r = 0.721, P < 0.05) was present between IHCD and PBP. This result does not support H_3 that investment in HCD has negative association with payback period of such investment. Pearson product moment coefficient represents a positive linkage (r = 0.830, P < 0.01) between IHCD and BLE. This result supports H_4 that investment in HCD has a positive association with the overall profitability of enterprises.

There is also a significant positive linkage (r = 0.879, P < 0.05) between IHCD and ROI. This result supports hypothesis H_5 that IHCD yields a greater percentage of ROI for enterprises. There was a significant positive linkage (r = 0.606, P < 0.01) between IHCD and WACC. This result does not supports hypothesis H_6 that IHCD has a negative association with WACC.

The results of correlation show that there is a positive association (r = 0.579, P < 0.020) between IHCD and OS. A significant linkage (r = 0.779, P < 0.023) was present between IHCD and PSHRD. IHCD has a positive association (r = 0.769, P < 0.001) with PHCD; it also has a positive association (r = 0.622, P < 0.031) with MHRD. IHCD has a positive association (r = 0.622, P < 0.031) with UT. These results support the theory that investment in HCD has a positive association with the organisation size, provisions for specialist HR department, policies of HCD, methods adopted for HRD and using of technology by the enterprises. These findings support hypotheses H_7 to H_{11}.

Pearson correlation was performed to check the relationship between dependent and independent variables. It was also performed on the empirical data to test

study hypotheses that are based on testing the relationships between the study's variables. Despite the usefulness of correlation measures, they do not show the predictive power of variables. The effect of independent variables on dependent variable can be mapped out after performing a multiple regression analysis. For this reason the next section provides interpretations of the results of the multiple regression analysis.

7.5 Multiple Regression Analysis

Although correlation can be a very useful research tool, it does not say anything about the predictive powers of variables (Field, 2006). For this reason regression analysis was performed to evaluate further the possible impact of independent variables on dependent variables and to verify the results of the correlation analysis. The decision to accept or reject the hypotheses depends primarily on regression analysis. Regression analysis is one of the most common and widely used techniques in statistical analysis (Cooke, 1998; Kline, 2005). It is normally used in situations when one or a group of dependent variables is thought to be the result of one or more independent variables, and the values of the dependent variables are explained by changes in the values of the independent variables (Hair et al., 1998; Hair et al., 2006; Pallant, 2007).

In the main phase of data analysis, confirmatory analysis was performed with the help of structural equation modelling (SEM). SEM is famous technique of multiple regression analysis (Kline, 2005). SmartPLS was used to apply the partial least square (PLS) technique of SEM to assess the measurement model and

path model of this study. The PLS-SEM has become a more popular key of multivariate analysis method in research related to the discipline of management accounting (Lee et al., 2011). PLS controls parameter biases common in multiple regression analysis and is suitable for studies where the sample size is not very big (Tenenhaus et al., 2005). The PLS analysis consists of three parts, namely inner relation, outer relation and weight relations (Pag`es and Tenenhaus, 2001). PLS-SEM is applied in this study due to the complexity of theoretical model and also for the purpose of theory confirmation (Abdi, 2010).

7.6   Data Screening

Before applying any complex analysis, it is essential to assess the truthfulness and accuracy of responses and data in order to draw accurate conclusions. That is why data screening is the first step in determining accuracy and checking for data errors (Hair et al., 2006). Actually data screening in research is an exercise to confirm that the set of collected data is error free (Hair et al., 2013). It also involves finding out any errors made when entering the data and rectifying errors in the data file itself (Pallant, 2007). In brief, the purpose of running different tests for data screening is to purify the data (Hair et al., 2006).

During data collection and analysis the researcher may face a number of issues such as missing data, outliers, normality, linearity, homoscedasticity and multicollinearity (Hair et al., 2013). These issues may affect the relationship of dependent variables and independent variables. In order to have a precise and

honest view of data, it is very important for the researcher to address the above issues before running the data for main analysis (Tabachnick and Fidell, 2007).

Details of how these issues are worked out in this study and the final results of PLS-SEM about testing of hypotheses are described in the following sub-sections.

7.6.1 Missing Data

Missing data is one of the regular issues which researchers may face during data analysis (Pallant, 2007). It is a common problem in management science research, where in many instance respondents fail to give complete information because of a number of reasons: length of survey instrument, participants' personal reasons, research environment, etc. (Hair et al., 1998; Hair et al., 2006). The degree and implication of missing data during the research depends upon its patterns and quantity. Quantity and pattern of missing data are the main issues of concern during the data analysis (Tabachnick and Fidell, 2007).

A number of strategies are suggested in the literature for dealing with the issue of missing data. These include applying mean scores on the variance or deleting those responses where respondents have not answered all the questions (Norusis, 1998, 2004). If only a few data points – approximately 5% or less – is missing in a casual pattern one may assume it to be a less serious issue and resolve it with the above stated methods. In these cases dealing with missing data by applying any of these methods will yield identical outcome (Tabachnick and Fidell, 2007).

In this study, the researcher used the SPSS-19 package to deal with missing values. The SPSS output showed that missing data in all cases was less than 5% for the full dataset. The researcher replaced the missing data with mean scores, which do not affect the overall data pattern.

7.6.2 Outliers Detection

An outlier is value that is distinctive from the rest of data (Kline, 2005). Outliers will happen with extreme values or a combination of scores on more than one variable. They cause differences in the final outcome of statistical analysis (Tabachnick and Fidell, 2007). Outliers can be detected by checking normally high or low values of variables or an exceptional combination of values across the numerous variables that makes the observations exceptionally different from the rest of the data pattern (Hair et al., 2006). Outliers are detected on the basis of the following categories, depending on the reason for their exceptionality: procedural error, observation, extraordinary observation and ordinary range. At the data entry stage outliers may arise due to pressure of work or other procedural error such as a mistake in coding or data entry error. Another reason is an extraordinary observation that researcher cannot explain or clarify to the respondent (Hair et al., 2006; Hair et al., 2013).

SPSS proposes three main techniques for finding outliers in the research data: univariate detection, bivariate detection and multivariate detection.

a. Univariate Outlier

Univariate outliers are extreme values that can be detected by assessing the distribution of observations of each individual variable of the study. According to this approach the basic concern is to establish the threshold of the outliers' description (Hair et al., 2006).

b. Bivariate Outlier

Bivariate outliers can be determined by putting a pair of variables together in scatter plot. Any of the cases which stand out of the range of the other observations will be identified as detached points from the rest of the observations (Field, 2006). The bivariate outliers detection method has the disadvantage that a potentially large number of scatter plots need to be drawn if there is a greater number of variables involved in a study. Hence it is useful only in specific relationships between dependent variables and independent variables (Hair et al., 2006). However, in the view of the researcher, bivariate detection provides a clear outlier pattern in each variable of the present study and is quite useful for understanding the outlier trends in the data.

c. Multivariate Outlier

Multivariate detection involves more than two variables and indicates the limitations of using the bivariate outlier detection method (Pallant, 2007). In the current study the multivariate detection method is deemed a fit and more powerful tool because of the multidimensional nature of the variables. Normally, Mahalanobis Distance, Cook's Distance and Centred Leverage measures are

applied for the detection of multivariate outliers to assess each variable across a set of other variables. If degree of freedom (df) value exceeds 2.5 in small samples and 3–4 in large samples it can be used to identify possible outliers (Hair et al., 1998; Field, 2006). Outliers may cause bias in mean score and inflate standard deviation (Field, 2000; Hair et al., 2006).

Table 7.3: Residual Statistics

	Minimum	Maximum	Mean	S.D	N
Predicted Value	47.97	120.63	89.00	13.51	292
Standard predicted value	-3.11	2.35	.00	1.00	292
S.E of Predicted value	6.57	19.44	11.72	2.87	292
Adjusted Predicted value	45.55	117.32	88.92	14.12	292
Residual	-96.84	103.30	.00	49.43	292
Standard Residual	-1.91	2.04	.00	.974	292
Stud. Residual	-1.931	2.122	.001	1.002	292
Deleted Residual	-99.91	112.26	.0687	52.31	292
Stud. Residual	-1.95	2.145	.00	1.005	292
Mahal. Distance	**1.986**	**24.862**	8.859	4.93	292
Cook's Distance	.000	.039	.006	.007	292
Centered Leverage value	.012	.143	.052	.028	292

In this research the Mahalanobis distance method was applied to detect outliers in the data collected by the questionnaire survey. The Mahalanobis method involves scaling responses in terms of standard deviations to standardise the data and to made adjustments for correlations between the variables (Hair et al., 2006). The

method uses a critical value level to detect outliers depending on the number of dependent values (Pallant, 2007).

SPSS-19 was used to apply the Mahalanobis outlier detection method. It was found that all the variables are well within the range of standard score of 24.862 (see Table 7.3). This indicates that the data has no significant multivariate outliers. Graphic plots for identifying outliers for each variable were also generated (see Appendix VII).

7.6.3   Normality

The first and most important assumption of multivariate analysis is normality (Velilla, 1993; Kline, 2005). It refers to the degree to which the distribution of sample data corresponds to a normal distribution. In statistics, normality tests are applied to find that whether a dataset is based on a normal distribution or not, or to compute how likely an underlying variable is to be normally distributed (Field, 2006). The normality of residuals can be checked by two methods: graphical methods and normality tests. Both have been employed in the current study.

The most common graphical methods about normality include: Q-Q plot, P-P plot, histogram and Density estimate (Filliben, 1975; Kline, 2005). The Q-Q plot presents the quantiles of a variable against the quintiles of normal distribution, while P-P plot represents the standardised normal probability plot. The histogram indicates whether the distribution of the variable is skewed or adopts a bell shape. Density estimate plots the density of a variable and the normal density (Norusis,

1998; Field, 2006). The researcher has plotted Q-Q graphs to check the normality of data before applying regression analysis (see Appendix VII).

Table 7.4: Tests of Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	statistics	df	sig	statistics	df	sig
OP	0.057	291	0.073	0.981	291	0.189
IHCD	0.064	291	0.076	0.893	291	0.465
BIHCD	0.053	291	0.068	0.993	291	0.678
BCR	0.026	291	0.066	0.997	291	0.605
PBP	0.039	291	0.075	0.992	291	0.609
BLE	0.029	291	0.079	0.987	291	0.604
ROI	0.054	291	0.069	0.993	291	0.165
OS	0.061	291	0.074	0.743	291	0.415
WACC	0.043	291	0.077	0.995	291	0.509
PSHRD	0.028	291	0.069	0.897	291	0.405
PHCD	0.029	291	0.079	0.987	291	0.504
MHRD	0.054	291	0.069	0.993	291	0.263
UT	0.054	291	0.066	0.791	291	0.475

The most prominent tests used for testing normality are the Kolmogorov-Smirnov test, the Shapiro-Wilk test, the Pearson's chi-square test and the Shapiro-Francia test (Gujarati, 2003). In the past, skewness, kurtosis and ratio of the mean of absolute deviation to standard deviation have also been used as tests for normality (Filliben, 1975; Norusis, 1998, 2004; Pallant, 2007). According to Shapiro and Wilk (1965), the null hypothesis is that the population is normally distributed. If the *p*-value is less than the chosen alpha level then this null hypothesis is rejected, meaning that the data did not come from a normally distributed population. If the *p*-value is greater than the chosen alpha level then the null hypothesis is accepted, which shows that the data came from a normally distributed population.

In this study, the Kolgomorov-Smirnov and Shapiro-Wilk tests were applied to test normality. The third and fourth moments as skewness and kurtosis were also

used to verify the results. To test normality, the alpha level was considered to be 0.05 (5%). Table 7.4 shows that for all dependent variables the *p*-value is greater than 0.05. This indicates a normally distributed population. In this study the null hypothesis is accepted because all the explanatory variables have a *p*-value greater than the chosen alpha level (Table 7.4). These findings confirm that the data has been collected from a normally distributed population. Similarly, the values of skewness and kurtosis given in Table 7.1 also confirm the normality of the dataset used in this study.

7.6.4   Linearity

The assumption of linearity means that there is a straight line relationship between two variables, while one or both variables can be a combination of several variables. Linearity can easily be checked by plotting a graph of independent variables against the dependent variable and seeing how well the fitted regression line represents their relationship (Filliben, 1975; Norusis, 1998, 2004; Pallant, 2007). The graphs for checking linearity among independent and dependent variables indicate that all variables have an obvious linear relationship (Appendix VII). Furthermore, the linearity of this dataset was also checked with the help of Pearson's correlation. The result of correlation matrix presents that all independent variable are significantly correlated to dependent variable of study (Table 7.2). On the basis of results of Pearson's correlation test, researcher carefully assumes that linearity requirements are fulfilled and all variables are in linear relation to each other.

7.6.5 Homoscedasticity

This is an assumption related to primary dependence between the variables. It explains that dependent variables exhibit equal levels of variance across the range of predictor variables. Homoscedasticity is desirable because the variance of the dependent variable being explained in the relationship should not be concentrated in just a limited range of independent values (Filliben, 1975; Gujarati, 2003). For the dataset of the study the homoscedasticity of independent and dependent variables was observed through graphical analysis. Observed dependent variable was plotted against the standardised residuals. The results show a linear pattern indicating high homoscedasticity (Appendix VII). That is why researcher has used all variables for further analysis and draws the final conclusions.

7.6.6 Multicollinearity

This implies a linear relationship between two or more independent variables. If there is a perfect linear relationship among the independent variables, the estimates for a regression model cannot be uniquely computed. An extreme case of multicollinearity is singularity, in which one independent variable is perfectly predicted (coefficient of correlation = 1) by another independent variable (Hair et al., 1998; Tabachnick and Fidell, 2007). Two common ways to check for the presence of multicollinearity between independent variables are correlation coefficients and variance inflation factors (VIF) with tolerance values.

This study employs both methods to check whether the independent variables or the model suffer from multicollinearity. Pearson product-moment correlation

coefficients are given in Table 7.2. The values of VIF and the tolerance coefficients of each explanatory variable are given in Table 7.5. Gujarati (2003) indicates there is no problem if the VIF is less than 10. However, others suggest that a value of 5 can be used as a rule of thumb (Groebner et al., 2005). However, it can be seen from the Table 7.4 that the VIF is between 2.67 and is 1.36. Moreover, the lowest tolerance coefficient is 0.69. Therefore, the results of VIF and tolerance coefficients both confirm that there is no issue of multicollinearity.

Table 7.5: Tests of Multicollinearity

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig. (p)	Colinearity Statistics	
	B	Std. Error	Beta			TOL	VIF
OP (Constant)	4.938	0.814	-	6.065	0.001	1.00	-
IHCD	2.053	0.218	0.671	9.396	0.000	0.706	2.671
BIHCD	0.143	0.038	0.884	3.794	0.000	0.695	1.439
BCR	0.139	0.050	0.749	2.772	0.003	0.746	1.341
PBP	0.134	0.047	0.721	2.816	0.003	0.847	1.181
BLE	0.138	0.056	0.830	2.449	0.008	0.734	1.363
WACC	0.979	0.460	0.606	2.969	0.003	0.880	1.136
ROI	0.767	0.348	0.879	1.807	0.002	0.717	1.394
OS	0.143	0.041	0.731	2.826	0.003	0.747	1.783
PSHRD	0.931	0.461	0.679	6.777	0.000	0.847	1.381
PHCD	0.847	0.405	0.739	4.379	0.000	0.734	1.363
MHRD	0.767	0.348	0.622	1.807	0.002	0.717	1.394
UT	0.138	0.450	0.749	2.772	0.003	0.746	1.741

It is commonly agreed that a correlation matrix is a powerful tool for indicating a relationship between predictors. A correlation matrix presents the values of the

Pearson product-moment correlation coefficient as given in Table 7.2. It can be seen that the correlation coefficients confirm the results of the VIF and TOL. On the basis of these results, it can be concluded that there is no potential problem of multicollinearity in the current study.

7.7   Data Exploration

Exploratory factor analysis was conducted to examine the multidimensionality of the multi-item questionnaire used in this research. The principal component analysis of Kaiser Varimax Rotation Normalisation and eigen-values were applied to the constructs of the study. The Kaiser-Meyer-Olkin (KMO) value for the current dataset was 0.745. The minimum recommended value for KMO is 0.60 (Pallant, 2007), and the value of this study is well above this standard value (Table 7.6). Therefore, the researcher is quite sure that the factor analysis is suitable for the data collected by questionnaire survey.

Table 7.6: KMO and Bartlett's Tests of Measuring Sample Adequacy

KMO measure		0.745
Bartlett Test of Sphericity	Approx. Chi-square	3215.434
	DF	292
	Sig.	0.000

The value of the Bartlett Test of Sphericity must be 0.05 or smaller to run the factor analysis appropriately (Hair et al., 2006; Pallant, 2007). This assumption was also fulfilled with a significance value of (0.000), confirming the multivariate normality of the data (see Table 7.6).

Items with a load of greater than 0.40 are considered significant and important (Floyd and Widman, 1995). Similarly Hair et al. (1998 and 2006) refers to a load factor of 0.50 and higher as very significant. On the basis of this criterion factor analysis was performed with the help of the Principal Component Analysis (PCA) analysis and a list of factors was extracted for the subsequent Confirmatory Factor Analysis (CFA). The detailed results of the factor analysis and the load of each item are given in Table 7.7.

7.7.1   Communality Scores

Communality is an estimate of a common or shared and variance between the variables as represented by the derived factors. Hair et al. (2006) argue that the communality score is the total variance that an original variable shares with all other variables used in the analysis. Higher values indicate a higher variance whereas small communalities show that a large part of the variable is not explained by the factors (Field, 2006). However, there are no specific parameters for measuring small or large communalities. Often communalities measuring 0.50 points are considered as practically significant (Hair et al., 2006). A variable that does not share with other variables may have a communality score of 0 and a variable which has no variance must have a communality score of 1 (Field, 2006; Hair et al., 2006; Pallant, 2007).

In this research work, all the items with a communality score of more than 0.50 have been taken by the researcher as a standard (see Table 7.8 for communality index).

Table 7.7: Varimax with Kaiser Normalisation Rotation Method

Construct	Item	Loadings										
OP	OP_1	.8255										
	OP_2	.7963										
	OP_3	.7623										
	OP_4	.7210										
	OP_5	.6591										
	OP_6	.5845										
	OP_7	.5764										
	OP_7	.5664										
	OP_8	.4314										
IHCD	C1		.8659									
	C2		.8551									
	C3		.8058									
	C4		.7105									
	C5		.6699									
BIHCD	B1			.8437								
	B2			.8278								
	B3			.8051								
	B4			.7594								
	B5			.7086								
BCR	R_1				.8807							
	R_2				.8717							
	R_3				.8575							
BLE	P_1					.7105						
	P_2					.6699						
	P_3					.5764						
PBP	PP1						.7207					
	PP2						.6619					
	PP3						.5864					
WACC	W_1							.7594				
	W_2							.7086				
ROI	RI_1								.7348			
	RI_2								.6880			
OS	Size									1.000		
PSHRD	PS-1									.7941		
	PS-2									.6630		
	PS-3									.6610		
	PS-4									.7810		
PHCD	PY_1										.8146	
	PY_2										.8112	
	PY_3										.8050	
	PY_4										.8710	
MHRD	M_1											.8437
	M_2											.8278
	M-3											.8051
	M_4											.7594
	M_5											.7086
	M_6											.6301
	M_7											.5984
	M_8											.5784
	M_9											.5765
UT	T_1											0.6052
	T_2											0.6663
	T_3											0.7154
	T_4											0.7665

Table 7.8: Communality Score Extraction Method: PCA

	Initial	Extraction
OP_1	1.000	.799
OP_2	1.000	.685
OP_3	1.000	.614
OP_4	1.000	.671
OP_5	1.000	.747
OP_6	1.000	.597
OP_7	1.000	.555
OP-8	1.000	.639
OP_9	1.000	.439
IHCD_C1	1.000	.762
IHCD_C2	1.000	.763
IHCD_C3	1.000	.741
IHCD_C4	1.000	.743
IHCD_C5	1.000	.715
BIHCD_B1	1.000	.712
BIHCD_B2	1.000	.770
BIHCD_B3	1.000	.769
BIHCD_B4	1.000	.517
BIHCD_B5	1.000	.639
BCR_1	1.000	.820
BCR_2	1.000	.826
BCR_3	1.000	.832
PBP_1	1.000	.469
PBP_2	1.000	.556
PBP_3	1.000	.567
BLE_P1	1.000	.718
BLE_P2	1.000	.715
BLE_P3	1.000	.760
ROI_1	1.000	.597
ROI_2	1.000	.677
WACC_1	1.000	.619
WACC_2	1.000	.569
OS-1	1.000	0.00
PSHRD_1	1.000	.714
PSHRD_2	1.000	.713
PSHRD_3	1.000	.775
PSHRD_4	1.000	.575
PHCD_1	1.000	.769
PHCD_2	1.000	.617
MHRD_1	1.000	.715
MHRD_2	1.000	.588
MHRD_3	1.000	.655
MHRD_4	1.000	.634
MHRD_5	1.000	.417
MHRD_6	1.000	.730
MHRD_7	1.000	.554
MHRD_8	1.000	.672
MHRD_9	1.000	.543
T_1	1.000	.667
T_2	1.000	.515
T_3	1.000	.538
T_4	1.000	.639

7.8 Structural Equation Modelling

In this study researcher has applied Structural Equation Modelling (SEM) for the model analysis. The SEM is a broad strategy to test hypotheses and to find out the relationship among exogenous and endogenous variables.

Partial Least Square analysis of SEM (PLS-SEM) is followed in this study. The literature suggests that PLS method is suitable for the studies involving more realistic settings in social science research (Kline, 2005; Tenenhaus et al., 2005). In essence PLS is a structural equation modelling (SEM) technique similar to covariance-based SEM. This type of model analysis approach at the same time tests both the measurement model and path that helps to develop more realistic assumptions (Abdi, 2010; Hair et al., 2013). Hence, this study focuses on examining the prediction of dependent variable and emphasis is on explaining the endogenous constructs which makes the application PLS method the most appropriate in this study. The results of PLS-SEM analysis are presented in the following sub-sections.

7.8.1 Measurement Model Analysis

The strength and dynamics of PLS measurement model can be determined by using the measures of validity and reliability. Validity determines how well concepts are defined and reliability verifies the consistency of measures.

In this research study the measurement model is evaluated by using convergent and discriminant validity. Convergent validity is the degree of association of

totally two different scales that measure the same concept and to determine the reliability of items and constructs (Pallant, 2007). Whereas the discriminant validity indicates whether the scale is different from other scales those measure a different concept (Hair et al., 2006). In addition, the average variance extracted of which is sensitive to the convergent validity may be used to assess the discriminant validity (Hair et al., 1998). Another way to assess the discriminant validity is to check the factor loading for each indicator and every indicator should load more on the construct of interest than any other variable (Floyd and Widman, 1995; Abdi, 2010).

7.8.2   Item Reliability

Reliability indicates whether the scale is consistent and stable. In other words, the extent to which results are consistent over time and are a real representation of the total population studied (Cooper and Schindler, 2006; Saunders et al., 2009). According to Cronbach (1951) reliability means ensuring that every time respondents will answer the same or nearly the same to the similar set of questions. All items used in the current research instrument were drawn from the literature and have reliable scores over the time. The PLS scale reliability was also determined by examining the loadings of each item and by measuring the correlation between each item and its related constructs. The item loading and item construct's correlation score must be at least 0.60; and 0.50 could be considered if there were certain other items measuring the same construct with higher scores (Chin, 1998; Hair et al., 2006; Abdi, 2010; Hair et al., 2013).

In this study the score for item loading and item construct correlation suggested by Chin (1988) is used as threshold with which to establish the foundations of PLS model measurement analysis. All item loadings listed below (Table 7.9) meet this standard and fulfil the requirements for reliability and convergent validity.

Table 7.9: Item Reliability

Construct	Item	Item Loading	Item construct correlation	Construct	Item	Item Loading	Item construct correlation
OP	OP_1	0.825	0.836	MHRD	M_1	0.848	0.716
	OP_2	0.796	0.774		M_2	0.828	0.796
	OP_3	0.762	0.833		M-3	0.805	0.819
	OP_4	0.721	0.841		M_4	0.759	0.823
	OP_5	0.659	0.716		M_5	0.709	0.726
	OP_6	0.584	0.633		M_6	0.630	0.696
	OP_7	0.576	0.593		M_7	0.598	0.818
	OP_8	0.566	0.794		M_8	0.578	0.818
						0.576	
IHCD	C1	0.866	0.743	PSHRD	PS-1	0.794	0.916
	C2	0.855	0.844		PS-2	0.663	0.884
	C3	0.803	0.907		PS-3	0.661	0.936
	C4	0.710	0.690		PS-4	0.781	0.917
	C5	0.670	0.874				
BIHCD	B1	0.729	0.630	PHCD	PY-1	0.815	0.844
	B2	0.889	0.638		PY-2	0.811	0.828
	B3	0.851	0.700		PY-3	0.805	0.861
	B4	0.839	0.639		PY-4	0.871	0.510
	B5	0.805	0.653				
BCR	R_1	0.881	0.670	WACC	W_1	0.735	0.857
	R_2	0.872	0.732		W_2	0.688	0.699
	R_3	0.857	0.790				
BLE	P_1	0.710	0.831	ROI	RI_1	0.759	0.700
	P_2	0.670	0.872		RI_2	0.708	0.893
	P_3	0.576	0.654				
PBP	PP1	0.721	0.951	UT	T_1	0.605	0.675
	PP2	0.662	0.942		T_2	0.666	0.695
	PP3	0.586	0.826		T_3	0.715	0.776
					T_4	0.766	0.643

Note: Reliability and convergent validity tests have not been performed for organisational size as it has been measured using a single indicator – number of employees.

7.8.3   Construct Reliability

Construct reliability (CR) is the ability of observed variables to use similar underlying constructs. It is a measure of the reliability and internal consistency of the measures representing a latent variable (Hair et al., 1998; Hair et al., 2006).

CR value is often used together with SEM (Chin, 1998). CR is calculated from the sum of the squares of factor loadings for each construct and the sum of terms of error variance for each construct. The rule of thumb for a reliable construct is that 0.7 or higher indicates good reliability. However, scores between 0.6 and 0.7 are viable as long as the other constructs of the pointing model have good reliability. In brief, CR reliability must be 0.7 or higher to indicate a convergence or sufficient internal consistency (Hair et al., 2006).

Table 7.10: Construct Reliability

Constructs	Composite reliability	AVE	Cronbach Alpha(α)
OP	0.8521	0.5357	0.8330
IHCD	0.9282	0.6840	0.7941
TB	0.8305	0.6203	0.8451
BCR	0.8431	0.5748	0.7612
PP	0.9014	0.7530	0.7838
BLE	0.8327	0.5067	0.8078
ROI	0.9124	0.6348	0.8620
WACC	0.8199	0.5051	0.8152
PSHRD	0.9298	0.8153	0.8061
PHCD	0.8432	0.6203	0.8052
MHRD	0.9298	0.8153	0.7532
UT	0.7914	0.5880	0.6497

Note: Construct Reliability and convergent validity tests have not been performed for organisational size as it has been measured by using a single indicator – number of employees.

Average variance extracted (AVE) is a summary measure of convergence between all the items of a corresponding latent construct (Hair et al., 2006). The average percentage of extracted variance can be calculated simply by using standard loads or, in simple words, it is the average load factor squared. AVE of less than 0.5 indicates that, on average, more error exists in an item than variance (Hair et al., 2006). Measurement of variance captured by the AVE indicator for measuring errors and using a construct, an AVE score of 0.50 or higher is acceptable (Chin,

1998). Cronbach's alpha (α) indicates how well a set of items measures a single latent construct. Alpha measures a reliability that varies from 0 to 1; a minimum level of desirable values is between 0.60 and 0.70. However, in the case of a scale with a large number of items, a minimum score can be used to satisfy stringent conditions (Hair et al., 2006).

Table 7.10 shows that all the constructs of this study have composite reliability greater than 0.70 and an AVE score of more than 0.50. Similarly, the Cronbach alpha (α) value is greater than 0.60, indicating that the constructs used in the study fulfilled the condition of composite reliability and have a sufficient level of reliability.

7.8.4   Item Validity

Correlations of all items measuring each construct in the study were calculated. In this study, as shown in Table 7.11, each item is more strongly correlated with other items measuring the same construct than with other items measuring the other construct. This confirms the discriminant validity of the constructs (Hair et al., 2006). In addition to determining the confirmatory factor analysis (CFA) by SmartPLS, it also confirmed by checking that the validity of each item loading in its construct was assigned higher than all other constructs (Floyd and Widman, 1995; Abdi, 2010). In addition, the Bootstrap application was used to generate the t-scores of item loading. All the items were found to be more dependent on their assigned constructs than on other constructs of the study (see Figure 7.1). These findings indicate that the assumption of discriminant reliability has been achieved.

Table 7.11: Construct Item Correlations

Constructs	Items	BCR	BIHCD	BLE	IHCD	MHRD	OP	OS	PBP	PHCD	PSHRD	ROI	UT	WACC
BIHCD	B1	0.24	**0.63**	0.29	0.37	0.24	0.21	0.25	0.27	0.24	0.13	0.33	0.67	0.36
	B2	0.16	**0.64**	0.35	0.44	0.14	0.19	0.17	0.11	0.18	0.17	0.46	0.69	0.40
	B3	0.17	**0.70**	0.48	0.40	0.22	0.32	0.31	0.11	0.18	0.27	0.44	0.78	0.35
	B4	0.22	**0.64**	0.48	0.33	0.22	0.31	0.28	0.28	0.32	0.18	0.35	0.64	0.20
	B5	0.73	**0.65**	0.45	0.51	0.50	0.44	0.32	0.45	0.30	0.35	0.46	0.33	0.32
IHCD	C1	0.26	0.57	0.59	**0.74**	0.26	0.17	0.17	0.21	0.22	0.08	0.73	0.51	0.51
	C2	0.43	0.53	0.53	**0.84**	0.43	0.30	0.26	0.32	0.31	0.22	0.72	0.43	0.50
	C3	0.47	0.58	0.51	**0.91**	0.42	0.36	0.36	0.33	0.22	0.28	0.81	0.49	0.65
	C4	0.39	0.43	0.41	**0.69**	0.42	0.26	0.27	0.18	0.23	0.30	0.55	0.36	0.86
	C5	0.38	0.51	0.33	**0.87**	0.43	0.29	0.29	0.25	0.19	0.30	0.89	0.46	0.64
MHRD	M_1	0.50	0.31	0.25	0.24	**0.71**	0.73	0.60	0.55	0.43	0.61	0.21	0.23	0.26
	M_2	0.59	0.24	0.22	0.24	**0.79**	0.72	0.58	0.53	0.50	0.65	0.18	0.16	0.22
	M_3	0.61	0.21	0.19	0.24	**0.82**	0.67	0.57	0.41	0.44	0.65	0.20	0.12	0.24
	M_4	0.59	0.22	0.19	0.26	**0.82**	0.63	0.54	0.39	0.40	0.61	0.21	0.13	0.30
	M_5	0.55	0.29	0.12	0.20	**0.73**	0.68	0.59	0.39	0.41	0.64	0.19	0.21	0.26
	M_6	0.50	0.21	0.14	0.21	**0.70**	0.62	0.56	0.32	0.40	0.58	0.18	0.16	0.30
	M_7	0.61	0.44	0.43	0.56	**0.82**	0.42	0.37	0.39	0.33	0.44	0.50	0.31	0.41
	M_8	0.61	0.44	0.43	0.56	**0.82**	0.42	0.37	0.39	0.33	0.44	0.50	0.31	0.41
OP	OP_1	0.51	0.41	0.17	0.33	0.61	**0.84**	1.00	0.48	0.53	0.57	0.35	0.36	0.32
	OP_2	0.49	0.37	0.28	0.24	0.55	**0.77**	0.81	0.45	0.52	0.42	0.22	0.28	0.22
	OP_3	0.57	0.32	0.12	0.23	0.53	**0.83**	0.63	0.56	0.49	0.64	0.19	0.22	0.17
	OP_4	0.66	0.42	0.25	0.29	0.69	**0.84**	0.62	0.57	0.47	0.68	0.25	0.31	0.23
	OP_5	0.50	0.35	0.28	0.25	0.54	**0.72**	0.47	0.51	0.44	0.61	0.23	0.27	0.25
	OP_6	0.31	0.26	0.12	0.19	0.39	**0.63**	0.53	0.27	0.36	0.45	0.18	0.30	0.26
	OP_7	0.35	0.33	0.18	0.19	0.31	**0.59**	0.32	0.37	0.30	0.36	0.17	0.28	0.08
	OP_8	0.58	0.30	0.17	0.29	0.59	**0.79**	0.55	0.43	0.30	0.69	0.30	0.19	0.23
PBP	PP1	0.53	0.40	0.36	0.32	0.55	0.59	0.46	**0.95**	0.57	0.45	0.26	0.29	0.20
	PP2	0.48	0.40	0.31	0.30	0.50	0.56	0.45	**0.94**	0.55	0.35	0.26	0.29	0.19
	PP3	0.39	0.22	0.19	0.25	0.38	0.50	0.40	**0.83**	0.35	0.36	0.19	0.12	0.17
PSHRD	PS-1	0.56	0.30	0.19	0.22	0.56	0.60	0.43	0.30	0.39	**0.92**	0.18	0.25	0.27
	PS-2	0.65	0.25	0.12	0.19	0.63	0.66	0.51	0.41	0.43	**0.88**	0.13	0.19	0.17
	PS-3	0.69	0.33	0.21	0.26	0.66	0.73	0.52	0.44	0.38	**0.94**	0.20	0.22	0.29
	PS-4	0.61	0.37	0.13	0.35	0.65	0.69	0.58	0.40	0.33	**0.92**	0.35	0.29	0.34
PHCD	PY-1	0.40	0.35	0.30	0.25	0.52	0.59	0.54	0.48	**0.84**	0.45	0.20	0.32	0.27
	PY-2	0.42	0.23	0.26	0.18	0.48	0.44	0.40	0.41	**0.83**	0.38	0.08	0.16	0.17
	PY-3	0.34	0.34	0.34	0.29	0.33	0.42	0.39	0.49	**0.86**	0.29	0.21	0.28	0.24
	PY-4	0.15	0.18	0.13	0.11	0.12	0.24	0.31	0.25	**0.51**	0.06	0.07	0.19	-0.02
BLE	P_1	0.31	0.47	**0.83**	0.55	0.35	0.15	0.02	0.24	0.17	0.12	0.44	0.41	0.46
	P_2	0.36	0.61	**0.87**	0.49	0.35	0.31	0.26	0.34	0.40	0.20	0.39	0.55	0.36
	P_3	0.19	0.42	**0.65**	0.24	0.11	0.15	0.16	0.16	0.32	0.07	0.18	0.40	0.30
ROI	RI_1	0.19	0.53	0.45	0.55	0.22	0.22	0.27	0.17	0.13	0.06	**0.70**	0.47	0.36
	RI_2	0.38	0.51	0.33	0.87	0.43	0.29	0.29	0.25	0.19	0.30	**0.89**	0.46	0.64
BCR	R_1	**0.67**	0.25	0.07	0.22	0.59	0.64	0.48	0.28	0.36	0.74	0.21	0.18	0.21
	R_2	**0.73**	0.20	0.12	0.22	0.66	0.63	0.51	0.37	0.40	0.75	0.18	0.11	0.20
	R_3	**0.80**	0.51	0.45	0.48	0.49	0.38	0.27	0.45	0.28	0.31	0.36	0.27	0.38
UT	T_1	0.24	0.63	0.29	0.37	0.24	0.21	0.25	0.27	0.24	0.13	0.33	**0.67**	0.36
	T_2	0.16	0.64	0.35	0.44	0.14	0.19	0.17	0.11	0.18	0.17	0.46	**0.69**	0.40
	T_3	0.17	0.70	0.48	0.40	0.22	0.32	0.31	0.11	0.18	0.27	0.44	**0.78**	0.35
	T_4	0.22	0.64	0.48	0.33	0.22	0.31	0.28	0.28	0.32	0.18	0.35	**0.64**	0.20
WACC	W_1	0.39	0.43	0.41	0.69	0.42	0.26	0.27	0.18	0.23	0.30	0.55	0.36	**0.86**
	W_2	0.19	0.36	0.34	0.50	0.21	0.21	0.23	0.14	0.15	0.16	0.47	0.39	**0.70**
OS	size	0.51	0.41	0.17	0.33	0.61	0.84	**1.00**	0.48	0.53	0.57	0.35	0.36	0.32

7.8.5 Construct Validity

The validity is the extent to which a set of measurements correspond exactly with what they are supposed to characterise within the study concept. In simple terms, validity measures the degree to which the whole measurement is free from any systematic or non-random errors (Hair et al., 2006). Construct validity provides the basis for the determined score analysis (Chin, 1998; Saunders et al., 2009). The constructs used in this study are well defined and measured using scales derived from the well-established literature. However, the measures used by the researcher are further validated in this research. The correlation coefficient between each variable and its associated components is carried on by applying the Pearson correlation coefficient test (Chin, 1998; Hair et al., 2006). Significant correlations were observed for most of the variables of the model (Table 7.12) and associated items (Table 7.11). This confirms the convergent validity of constructs used in the model of current study.

7.8.6 PLS Results Bias and Significance

The PLS method of structural equation modelling uses an approach based on variance. In case of inadequate sample data the results of PLS analysis may be biased for higher estimates of the measurement model at the cost of lower estimate of path coefficients in the structural model (Chin, 1998). To cope with this situation of results bias, the sample size must be at least 10 times larger than the total number of independent variables that affect the dependent construct (Chin, 1998; Hair et al., 2006; Abdi, 2010). The current study's sample size consists of 292 participants, which is enough to overcome the above limitation.

The large number of independent constructs in this study was also used to help in controlling the data bias.

The significance level is called the statistical significance level of importance. It represents the probability that the researcher is willing to accept something, and is also known as a Type I error. In other words, this means the possibility that the researcher is willing to make a mistake as to whether the estimated coefficient is different from zero. In research the mostly used significance level is 0.05 (5%). This parameter was used to assess the level of significance and to avoid any significant and forged effect problems (Hair et al., 1998). Statistically significant indicates that the relationship between two measures is strong and eliminates the possibility of this being due to chance. Normally significance levels of 0.10, 0.01 and 0.001 provide higher chances of being wrong (Hair et al., 2006; Pallant, 2007). For this reason a significance level of 0.05 has been used by the researcher in the current study.

7.8.7   Structural Model Analysis

The SmartPLS is used to assess the structural model and the explanatory power of the structural model of the study. The explanatory power is determined by observing the R^2 value, path coefficients and t-values. The t-value used in PLS analysis is specific and expresses the relationship between measurement variables and latent variables. It should not be confused with the T-test used to compare two conditions (Table 7.12).

7.8.7.1 R^2 -Value

The R^2-value represents the percentage of variance that the independent variables explain in the dependent variable (Abdi, 2010). However, deciding what level of R^2 is acceptable varies from one discipline to another (Hair et al., 2011). In management accounting research, there is no specific threshold for a high R^2 value. However, in the very few studies that have used PLS-SEM in management accounting research the highest R^2 value was neither very low nor very high. For instance, in the study of Chenhall (2005), R^2 of the endogenous latent variables was between 0.17 and 0.32. In Vandenbosch's (1999) study, the R^2 value was 0.42. In the current study, exploring the values of R^2 of endogenous dependent variables ranges from 0.616 to 0.773 (Table 7.12). These values fall within the acceptable range compared with other research studies in the field of management accounting.

The R^2 value of the present dataset indicates that independent constructs explain more than 50% of the variance in the dependent variable. The result of model testing suggests and provides empirical support for the relationship posted in the model, which accounts for about 77% of the influence of independent constructs on managerial decision making regarding IHCD and 61% influence of IHCD on organisational performance (OP). Both categories of independent factors – appraisal of IHCD (i.e. BIHCD, BCR, PP, BLE, ROI, and WACC) and HR sophistication (i.e. OS, PSHRD, PHCD, MHRD and UT) – contribute significantly to managerial decisions regarding investing in HCD, which will subsequently contribute to the performance of the Pakistani manufacturing

organisations. Therefore, it can be argued that the structural model proposed in this study had a good power to explain relationships among the variables.

Table 7.12: Results of Structural Model Path Analysis

Link	t-Values	Path Coefficient (β)	R^2
BIHCD > IHCD	6.829	0.278	
BCR > IHCD	4.236	0.399	
PBP > IHCD	3.573	0.124	
BLE > IHCD	2.164	0.111	
ROI > IHCD	10.832	0.696	
WACC > IHCD	4.151	0.259	0.773
OS > IHCD	2.110	0.262	
PSHRD > IHCD	8.606	0.332	
PHCD > IHCD	3.887	0.242	
MHRD > IHCD	4.020	0.801	
UT > IHCD	4.479	0.177	
IHCD > OP	4.263	0.341	0.616

7.8.7.2 Path Coefficient and t-Values

The PLS Bootstrap procedure was applied to assess the t-value for each path in the structural model. Each path represents a hypothesis and the t-value denotes the relationship between the variables (Chin, 1998). The validity and justification of each hypothesis is tested by studying the statistical significance of the t-value for its corresponding path. In order to accept or reject the hypothesis of a study the standard t-value is 1.96 at a significance level of 0.05 (Hair et al., 2006). Table 7.12 shows the results of the PLS model used for testing the study hypotheses.

Figure 7.1: Computer Generated Graphic View (t-values)
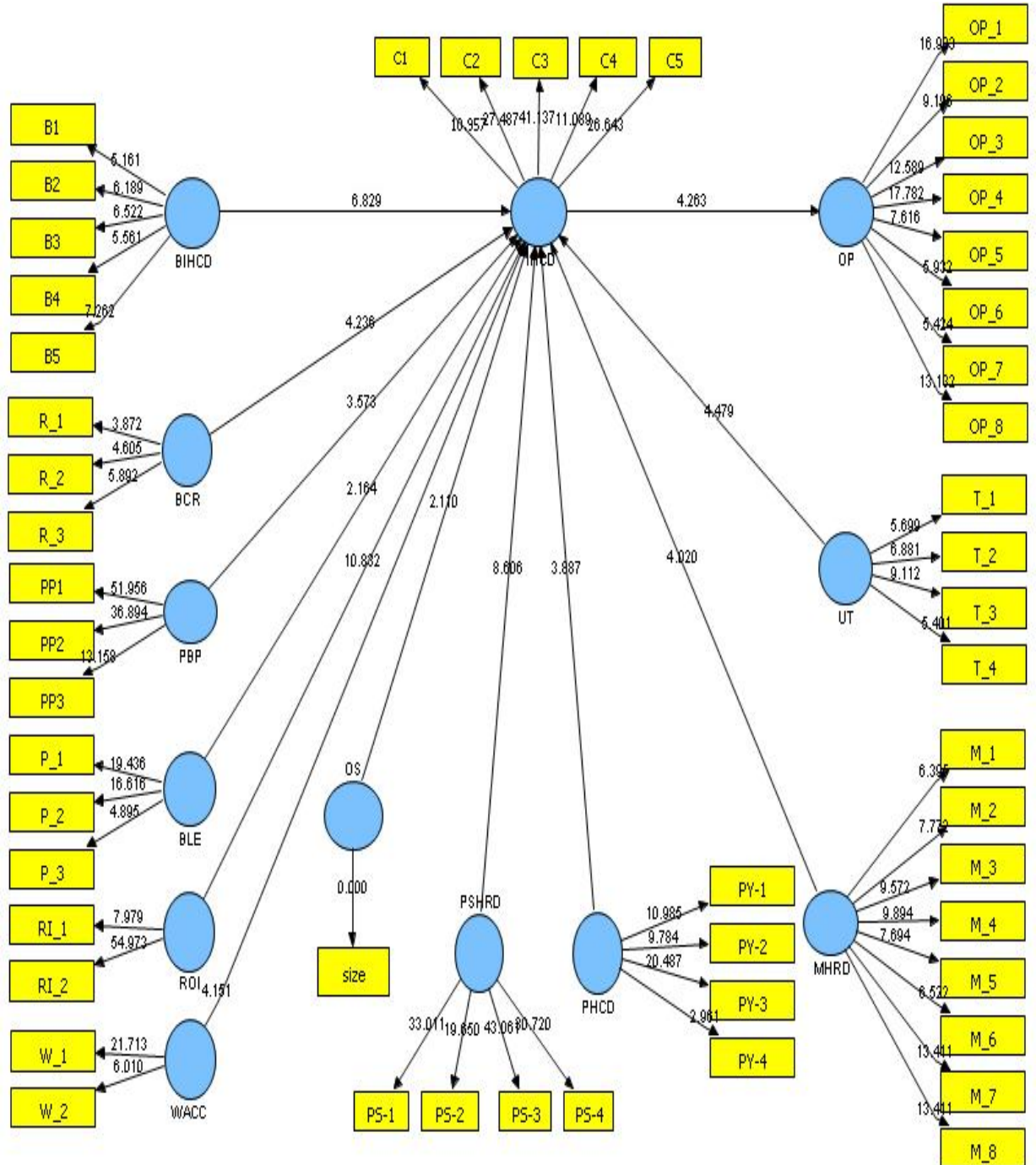
Screen Print of SmartPLS Window – Bootstrap

Figure 7.2: Computer Generated Graphic View (Path Coefficients)
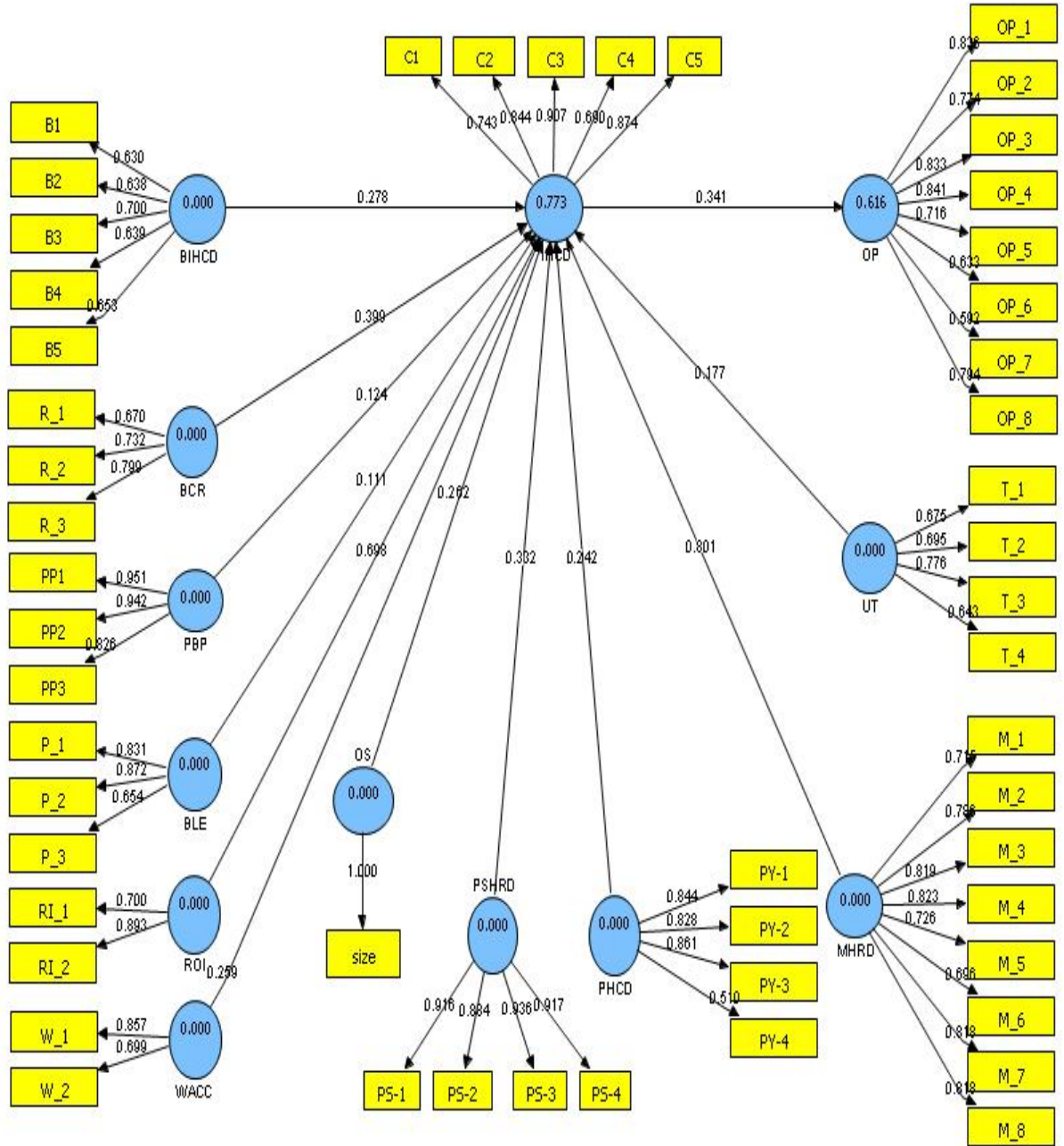
Screen Print of SmartPLS Window-Path Modelling

7.9   Testing of Hypotheses

The above screen prints of the SmartPLS window give details regarding the t-values and path analysis used to test the study hypotheses. The results generated by the structural model analysis in order to test the hypotheses are presented and explained in the following sub-sections.

7.9.1   BIHCD and IHCD

The PLS results (t = 6.829 and β = 0.278, P<0.05) show that IHCD has a relatively positive significant association with BIHCD (Table 7.12). The value of path coefficient (β) shows the strength of the relationship between two variables. These findings predict a strong positive relationship between IHCD and the benefits that are associated with this investment. These results also confirm the findings of the Pearson coefficient correlation applied in this study to find out the association between IHCD and BIHCD. Finally, all these findings support H_1, that *there is a positive association between investing in HCD and the total benefits derived from this investment.*

7.9.2   BCR and IHCD

The PLS results (t = 4.236 and β = 0.399, P<0.05) denote that IHCD has a significant positive association with BCR. The path coefficient value (β) shows a positive relationship between variables. These findings predict a strong positive association between IHCD and BCR (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation applied in this study. Hence, these

findings support H_2 that *Investing in HCD has a positive association with the BCR of such investment.*

7.9.3   PBP and IHCD

The results (t = 3.573 and β = 0.124, P<0.05) denote that IHCD has a positive effect on PBP. The path coefficient (β) shows a significant positive relationship between variables. These findings predict a strong positive relationship between IHCD and PBP. These estimates of path coefficient, t, P and R^2 verify the significant positive association between the two variables (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation. Finally these findings do not empirically support hypothesis H_3, that *there is a negative association between investment in HCD and payback period of this investment.*

7.9.4   BLE and IHCD

The path coefficient value (β = 0.111, P<0.05) shows a significant positive linear relationship between IHCD and BLE. The results of t- value (t = 2.164) given in Table 7.12 show that IHCD is significantly affected by BLE. These findings predict a strong positive relationship between IHCD and BLE. These estimates of path coefficient such as t, β and P verify the significant association between the two variables. These results also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H_4, that *investing in an HCD programme is positively associated with the bottom line (overall profitability) of enterprises.*

7.9.5   ROI and IHCD

The value of the PLS path coefficient ($\beta = 0.698$, P<0.01) shows the strength of the relationship between ROI and IHCD. It represents a positive relationship between IHCD and ROI. The t-estimates (t = 10.832) verify the significant association between the two variables (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation applied to this dataset. These findings support hypothesis H_5, that *investing in HCD has a positive association with return on investment (ROI).*

7.9.6   WACC and IHCD

The PLS path coefficient ($\beta = 0.259$, P<0.05) shows a positive relationship between IHCD and WACC. The path estimate (t = 4.151) verifies the significant relationship between the two variables (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation. Finally, these findings do not empirically support hypothesis H_6, that *there is a negative association between investing in HCD and the weighted average cost of capital (WACC) of an enterprise.*

7.9.7   OS and IHCD

The PLS path coefficient results (t = 2.110 and $\beta = 0.262$, P<0.05) show that IHCD has a significant positive association with OS. The path coefficient value (β) shows a positive relationship between variables. These findings predict a strong positive association between IHCD and OS (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation applied in this study.

Hence, these findings support hypothesis H_7, that *investing in HCD programmes is positively associated with organisational size.*

7.9.8 PSHRD and IHCD

The path coefficient value (β = 0.332, P<0.05) shows a significant positive association between IHCD and PSHRD. The result of the t-value (t = 8.606) shows that IHCD is significantly affected by PSHRD. These findings predict a strong positive relationship between IHCD and PSHRD. These estimates of path coefficients t, β and P verify the significant association between the two variables (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H_8, that *IHCD is positively associated with provisions for specialist HR departments.*

7.9.9 PHCD and IHCD

The path coefficient value (β = 0.242, P<0.05) shows the strength of the linear relationship between IHCD and PHCD. The result of the t-value (t = 3.887) shows that IHCD is significantly affected by PHCD. These findings predict a strong positive relationship between IHCD and PHCD. These estimates of path coefficients t, β and P verify the significant association between the two variables (Table 7.12). These results also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H_9, that *IHCD yields a positive association with the human capital development policies of the organisations.*

7.9.10 MHRD and IHCD

The path coefficient value (β = 0.801, P<0.01) confirms a positive relationship between IHCD and MHRD. The results of the t-value (t = 4.020) given in Table 7.12 show that IHCD is significantly affected by MHRD. These findings predict a strong positive relationship between IHCD and MHRD. They also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H_{10}, that *IHCD is positively associated with the use of multiple methods of human resource development by the organisations.*

7.9.11 UT and IHCD

The path coefficient value (β = 0.177, P<0.01) confirms a positive relationship between IHCD and UT. The results of the t-value (t = 4.479) as reported in Table 7.12 shows that IHCD is significantly affected by UT. These findings predict a strong positive relationship between IHCD and UT. They also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H_{11}, that *investing in HCD programmes is positively associated with the use of technology.*

7.9.12 Impact of Investing in HCD on Organisational Performance

Hypothesis H_{12} focuses on examining the positive relationship between investing in HCD and organisational performance. Consistent with this hypothesis, the results suggest that IHCD is significantly and positively associated (t = 4.243, β = 0.341 and P<0.01) with OP. The R^2 (0.616) indicates that more than 61% change in organisational performance is because of investing in HCD programmes (Table

7.12). These findings support H_{12} that *organisational performance is positively associated with investing in HCD.*

The above section has discussed the empirical results of the study. These show that there is a strong association between the total cost incurred in human resource development and the benefits which enterprises can reap from such investment. These values show that most of the returns from HCD are due to the amount of investment made in it. The empirical results indicate that investment in HCD will enhance the level of HR sophistication of Pakistani enterprises. They also support that appraising IHCD by using different tools of human resource accounting and factors of HR sophistication have a significant effect on managerial decision making regarding investing in HCD, which will consequently increase overall performance of the Pakistani manufacturing organisations. The above results derived by the researcher by using SmartPLS support ten hypotheses but do not support two hypotheses of current research. Finally, these results also confirm the validity of the study's framework. The detailed discussion of these results is provided in Chapter 9 of this thesis.

7.10 Summary

This chapter has aimed to analyse the data and test the study's hypotheses. It contains the results of the statistical analysis that were used to test these hypotheses. The objective behind conducting these statistical analyses was to investigate the relationships between dependent and independent variables. On the

basis of the available literature on HCD and human resource accounting, an overall set of 12 hypotheses was developed.

SPSS-19 was used to apply different statistical techniques in order to analyse the data and to test the hypotheses. In bivariate analysis, the Pearson product-moment correlation was used to test those hypotheses that are based on relationships between variables. In order to verify the results of the Pearson product-moment correlation coefficient, multivariate analysis (PLS-SEM) was also applied. Before PLS-SEM was applied, the data was screened for missing data and outliers. To check the appropriateness of PLS regression analysis, the data was also examined to validate all the major assumptions of this test, such as normality, linearity, homoscedasticity and multicollinearity. This was followed by an explanation of the factor loading to identify the variables of study.

Exploratory factor analysis was applied to find out the relationship between the factors and variables. Factors were extracted with the help of eigen-values and scatter plots. For the principal component analysis, Varimax with Kaiser Normalization and Communality Score Extraction techniques were applied to rotate the factors and find out the maximum variance of factor loading. The scale measurement of constructs was subjected to confirmatory factor analysis (CFA) following the exploratory factor analysis.

SmartPLS software was used to assess the measurement model and structural model of the study on the basis of the dataset of 292 cases. Prior to inferring results, reliability and validity tests were conducted to confirm that all

measurement scales were found satisfactory. The overall results regarding the testing of hypotheses are summarised in Table 7.13.

Table 7.13: Summary of Hypotheses Testing

Hypotheses	Result
H$_1$: *There is a positive association between investing in HCD and the total benefits derived from this investment.*	Supported
H2: *IHCD has a positive association with the BCR of investment made in HCD.*	Supported
H$_3$: *There is a negative association between investment in HCD and the payback period of this investment.*	Not supported
H$_4$: *Investing in HCD programme is positively associated with the bottom line (overall profitability) of enterprises.*	Supported
H$_5$: *Investing in HCD has a positive association with return on investment (ROI).*	Supported
H$_6$: *There is a negative association between IHCD and the weighted average cost of capital (WACC) of an enterprise.*	Not supported
H$_7$: *Investing in HCD programmes is positively associated with organisational size.*	Supported
H$_8$: *Investing in HCD is positively associated with provision for specialist HR departments.*	Supported
H$_9$: *Investing in HCD has a positive association with human capital development policies of the organisations.*	Supported
H$_{10}$: *Investing in HCD is positively associated with the use of multiple methods of human resource development by organisations.*	Supported
H$_{11}$: *Investing in HCD programmes is positively associated with the use of technology.*	Supported
H$_{12}$: *Organisational performance is positively associated with investing in HCD.*	Supported

The previous chapter covered the first objective of the thesis and provided an answer to the first research question. This chapter covers three major objectives of the thesis and provides answers to the three research questions (RQ 3, RQ 4 and RQ 5). It has presented the procedures, findings and discussion derived from the

quantitative data analysis. The next chapter presents qualitative research findings derived from the semi-structured interviews in order to complement on these quantitative findings.

Chapter 8   Qualitative Results

8.1   Introduction

As described in the previous chapters, the main quantitative data were collected by questionnaire survey, analysed to determine the significant variables that affect the managerial decision making regarding IHCD in the Pakistani manufacturing organisations and to test the hypotheses of the study. This thesis also partially applied a qualitative approach to collect more data and to complement the quantitative findings. The qualitative research was conducted by using a semi-structured interview with ten respondents selected from the same study's sample.

Some of the study's objectives cannot be answered quantitatively at this stage in the context of the Pakistani manufacturing organisations. This is why the qualitative research was conducted. In particular, the qualitative approach was designed principally to answer the following two research questions:

1. What are the main practices of human resource accounting followed by the Pakistani manufacturing organisations for appraising investments in human capital development?
2. What major difficulties are faced by the management of the Pakistani manufacturing organisations in appraising investments made in HCD and measuring their impact on organisational performance?

The objectives for conducting the interviews were to verify, explore and explain the results of the quantitative survey. This chapter explores whether this approach was useful to adding new and valuable information to the thesis and to minimize the drawbacks of a mono research method. It presents the findings of the semi-structured interviews, and consists of eight sections. Section 8.2 explains the approach of the semi-structured interview adopted. Section 8.3 describes the characteristics of the respondents. Section 8.4 identifies the actual HRA tools currently used by the management of Pakistani enterprises for decision making. Section 8.5 presents all the possible factors that may affect the extent of using HRA for managerial decision making. Section 8.6 discusses the perceived benefits of using a diverse set of investment appraisal tools for HRA. Section 8.7 presents the difficulties and problems faced by management of the Pakistani manufacturing organisation in appraising IHCD and evaluating their organisations' performance. Finally, Section 8.8 presents a summary of the chapter.

8.2   Semi-structured Interviews

The qualitative approach of semi-structured interviewing was used to achieve the first two research objectives. A predefined list of questions (see Appendix VIII) was used to make sure that topics central to the research questions were covered in the interviews (Easterby-Smith et al., 2009). The list of interview questions was sent to respondents by email to obtain their prior informed consent for a face-to-face interview. Although the open-ended questions were asked according to the questionnaire in a consistent manner, the researcher asked other relevant questions to collect in-depth information from the participants. The main interview

questions were supported by sub-questions to understand deeply each issue that arose during the interview process (Saunders et al., 2009).

The use of open-ended questions allowed the participants to express their views on issues not necessarily anticipated by the researcher and provided the opportunity to cover factors deemed important by the respondents (Saunders et al., 2009; Sekaran and Bougie, 2010). All interviews were recorded with the permission of the interviewees and notes were taken during the interviews by the researcher. However, only the information that referred to the research questions was taken and used for analysis. Thematic analysis was used to discuss the two main purposes such as; benefits, and difficulties of using HRA for appraising IHCD and evaluation of organisational performance. The next section gives information about the participants of interviews.

8.3 Background Information

One participant from each of the ten leading organisations from the different manufacturing sectors of Pakistan was interviewed between July 2012 and September 2012. These participants were chosen to represent the different industrial sectors of the Pakistani manufacturing companies. In respect of the participant demographic characteristics, all of the participants were human resource managers, were aged above 30 years and had a minimum Bachelor degree or higher.

The identity of the participating organisations and participants were kept secret. For this reason the organisations' names were assigned with coded names (see Table 8.1). In addition, participants were also assigned with coded names, making it impossible to identify participants (see Table 8.1).

Table 8.1: Background Information about the Participants of Interviews

Organisation	Participant	Manufacturing Sector
A	P1	Textile
B	P2	Paper and Board
C	P3	Sugar and Allied Sectors
D	P4	Cement
E	P5	Engineering
F	P6	Chemical and Pharmaceuticals
G	P7	Leather and Sports Goods
H	P8	Fuel and Energy
I	P9	Auto and Allied Sectors
J	P10	Cables and Electrical Goods

8.4   Usage and Aims of HRA

Interviewees were asked to identify the different types of HRA tools that are used currently by their organisations and to add any new tool that they use but is not given in the question list. All interviewees mentioned that most of the tools listed in the questionnaire are common across all manufacturing sectors in Pakistan and are used in their investment decision process. This set of tools includes both financial and non-financial measures and often includes tools which quantify what has been achieved in terms of benefits as well as being used to help in predicting

the future financial benefits. These findings are consistent with the quantitative survey findings of this study and also with the findings of Bourne et al. (2003). It was also found that using different measures of HRA depends on the sophistication of an organisation's information system. This argument is also consistent with the previous studies in which the supporting infrastructure of accounting for decision making can vary from the very simplistic manual methods to sophisticated information systems (Bourne et al., 2003; Franco-Santos, 2007; Bullen and Eyler, 2010; Flamholtz and Randle, 2012).

Nine of the ten interviewees mentioned that they use computer application programs for evaluation before investing in HCD programmes, but they still face some problems with these applications (see Section 8.7).

In general, most of the HRA tools that are listed in the main questionnaire (see Appendix V) are commonly used by the Pakistani manufacturing organisations. These findings were consistent and confirmed the descriptive findings of the questionnaire survey as outlined in Chapter 6. The following measures were added by those interviewees using different tools of HRA for effective decision making regarding investing and controlling the human resources:

1. Calculating the benefits of investing in HCD;
2. Calculating the benefit to cost ratio of IHCD;
3. Calculating the term of benefits of IHCD;
4. Calculating the impact of IHCD on the bottom line or overall profitability of an enterprise;
5. Calculating the ROI made in HCD;

6. Calculating the WACC of investment in HCD;

7. Comparing the ROI with WACC to find out the financial viability of IHCD.

The interviewees were asked to identify their organisations' aims in using financial techniques of HRA and to include any other aims which were not given in the list. Respondents indicated that manufacturing organisations in Pakistan are using different techniques of HRA for different aims. These results again were consistent with the findings derived from the questionnaire survey in Chapter 6. In addition to those measures listed in the questionnaires, the Pakistani manufacturing organisations are using investment appraisal measures to achieve their various business objectives. These include:

1. Identifying the strategic direction of the company at the time of IHCD;

2. Decreasing and managing risk associated with IHCD;

3. Taking the right decision in a timely manner about IHCD;

4. Controlling the cost of different activities of HRD in their organisations;

5. Increasing their bargaining power when hiring and firing employees.

The above findings support the argument that HRA is considered as an important management control tool for the Pakistani manufacturing enterprises in the current competitive era, and are also consistent with findings of the questionnaire survey as discussed in last two chapters.

8.5 Factors Influencing the Usage of HRA

During the interviews, the participants mentioned a list of factors that affect the extent of usage of HRA tools in their organisations. Consistent with the previous

literature most of these factors were included in the main questionnaire survey. The interview participants also discussed the role of some governmental institutions in encouraging them to use some measures of HRA. Participants commented on the role of the Pakistani government in prompting the use of HRA regarding IHCD through global competition and international trade agreements.

Participant P10 said that, 'After Pakistan joined the World Trade Organization (WTO), the competition became very intense because the agreement allowed foreign goods to enter easily into the country ... to face this competition more attention was given to the development of human resources.' Participant P6 stated, 'To continue in this huge competition, we have paid more attention to improving productivity and development of our human resources by investing more in HCD programmes.'

Participant P1 said, 'Sometimes governmental institutions such as SECP force us to use different tools of accounting for the valuation of investment in human resources in order to achieve some legal requirements.' Participant P7 also added, 'The intensity of global competition led us to give more attention to our current employees and to search for new ones.' Furthermore, participant P9 said, 'Competition is very intense in the Pakistani market. Thus, competition is one of the main reasons that forced us to pay more attention on investing on the development of our human resources and to have high quality human capital.'

A majority of the participants also commented on the role of their top management in supporting the use of different HRA tools for effective management and control of human resources. However, only two participants explicitly addressed the relationship between organisational structure and the use of HRA. Overall, the interviewees effectively mentioned the following factors

which they believed support the use of different tools for appraising of IHCD positively:

1. The effect of Western business culture on the local organisations because of globalisation;
2. The intensity of competition among the domestic organisations;
3. The advocating role of the Securities Exchange Commission of Pakistan (SECP);
4. The role and policies of human resource departments regarding the development of employees;
5. Policies of the top management regarding HCD.

These results are consistent with the questionnaire survey findings presented in Chapters 6 and are also consistent with the existing literature discussed in Chapter 2 of the thesis.

8.6   Perceived Benefits of HRA

Previous researchers (Brummet et al., 1969; Flamholtz, 1971, 1985; Flamholtz et al., 2003; Chen and Lin, 2004; Flamholtz et al., 2004; Bullen, 2007; Bullen and Eyler, 2010) identified many uses and benefits of using HRA for management. Improving managerial decision making is among the one of major reasons to make HRA an essential part of management accounting (Bullen, 2007). The valid appraisal of investment allows an enterprise to describe and implement strategy effectively, guide employee behaviour, assess managerial effectiveness, and provide the basis for financial rewards. Thus, appraising investment should improve decision-making, reflect HR system sophistication, and facilitate

communication, learning and HCD (Flamholtz et al., 2003; Flamholtz et al., 2004; Bullen, 2007; Bullen and Eyler, 2010). However, the essential function of HRA before investing in any human resource development programme includes a comparison of actual results with a planned goal and an assessment of the extent of any deviation from the standard goal (Bullen and Eyler, 2010). Finally, using different measures of HRA can support the identification of performance gaps between current and desired performance results and provide an indication of progress towards closing these gaps.

Most of the previous research has focused mainly on the reasons for using HRA measures and ignored the perceived benefits of using such measures (Flamholtz et al., 2002; Bullen, 2007). However, Bullen (2007) argued that the importance of the relative benefits that firms obtain through using financial performance appraisal measures has been of particular interest in management accounting research. This thesis extends previous research in that it uses a qualitative approach and seeks to determine the actual benefits from using multiple tools or measures of HRA among the Pakistani manufacturing organisations.

Accordingly, the participants were asked about the perceived benefits of using a diverse set of financial measures of HRA. The qualitative approach is the most suitable method to investigate this type of issues. The analysis of the qualitative data revealed that participants focused their comments on many perceived benefits for using a diverse measurement approach. These benefits were related to efficiency, performance, employees, customers and other external parties,

competition, and the future. The reported benefits are consistent with the main purposes identified in the results of the main questionnaire.

All the participants emphasised the importance of using a combination of financial measures for appraising IHCD because they felt them to be more useful. In particular, the participants indicated that financial measures alone cannot identify the problems that the companies face, cannot measure the behaviour of employees and cannot identify areas of efficiency. The participants indicated that using multiple financial measures would be more effective, because such measures have many benefits.

> *For example participant P6 stated, 'Traditional financial measures cannot identify the problems that the company faces ... For our company to survive in this competitive market, a new set of financial measures should be used for effective decision making.'*

Participant P6 stressed many perceived benefits for using HRA measures including the ability to identify the strengths and weaknesses in an organisation, the ability to differentiate between alternative investment opportunities and to control overall cost and quality of human resources. He further said;

> *"I spend 60% of my time in before making any investment on using of different tools of HRA ... therefore; using such measures has many benefits including identifying the areas of strength and weakness in the company, monitoring costs, improving quality and identifying investment opportunities regarding human capital development" (P6).*

The use of a diverse set of financial measures provides management with the opportunity to correct any mistakes or variances and improve their decisions (Flamholtz et al., 2003; Chen and Lin, 2004; Bullen, 2007).

> *Similarly, participant P8 argued that 'The multiplicity of investment appraising measures provides us the opportunity to correct any deviation or variances and gives us the ability to build trust in our human resources away from their cost' (P6).*

The interviewees also stated that using HRA is reflected in the different perspectives of organisational performance. Participant P9 said, 'The broad usage of HRA reflected on the various perspectives of performance such as the satisfaction of employees, management and customers.' Similarly, participant P4 stated, 'The multiplicity of financial performance measures enhances the financial and operating performance of an organisation.'

Furthermore, participant P10 thought that using HRA helps to achieve all the company objectives. 'Using HRA will help to achieve all the company's objectives whether financial or others such as employee's satisfaction which leads towards HR sophistication.' Participant P7 added, 'In the presence of this intense competition, using multiple measures of investment appraisal will increase our overall profits because of good control on human resources.'

Respondents indicated that using HRA tools is an important indicator of management efficiency. This helps to identify employee responsibilities and their training and development needs. In particular, using these measures motivates

employees, highlights their positive and real role in the company and provides a basis for evaluating their performance (Chenhall, 2003; Brinkerhoff, 2006; Bras and Rodrigues, 2007; Cifalino and Baraldi, 2009). These measures also act as a control system enabling the enhancement of good performance and the correction of poor performance of human resource departments. Both of these effects lead to higher performance (Bras and Rodrigues, 2007; Bullen, 2007; Cifalino and Baraldi, 2009).

> *Participant P9 stated, 'using these measures also highlights the real roles of the companies' employees and management.' Participant P6 described the effect of using multiple measures of HRA on employees by saying 'Using these measures is very important to identify that the employees are able to perform their responsibilities effectively ... by using these measures, you can also identify the employees' training and development needs ... these measures are also very important in increasing the efficiency and the productivity of organisations.'*

Most of the respondents pointed out that the use of HRA gave management the ability to retain their employees and to increase their commitment and satisfaction level.

> *For example participant P8 said, 'Internally, using of HRA improved our financial performance by improving the efficiency of management and productivity of the employees. Externally, we retained our customers and they continued with us on the long-term basis.'*

> *Furthermore, using a diverse set of performance measures provides us with a competitive advantage and differentiates them from their competitors. In this context participant P6 stated that 'Traditional*

financial measures have many limitations that make them less applicable in today's competitive market.' Participant P8 also stated, 'Using a broad set of measures improved our ability to compete in the market.'

The above discussion indicates that the extent of usage of performance measures differs from one company to another (see Section 7.4). Finally, participants mentioned that using the investment appraisal tools of HRA is important to predicting the future because this is linked with the company's strategy. Thus, it helps in the achievement of strategic long-term goals and creates the ability to identify overall organisational trends regarding IHCD in the past.

Participant P10 commented on the importance of using a diverse set of performance measures for the future by saying, 'therefore, their frequency usage identifies the trend of the company. For example, the development of manufacturing sector of Japan is related primarily to their focus on human resources.' Participant P6 added, 'Non-financial performance measures are linked to the company's strategy ... therefore; these measures lead to the change towards the company's benefit.' The result will be a positive future for the business as stated by participant P9, 'Using these measures in decision making opens the way towards a better future for the management.'

This is also consistent with the quantitative results of this study, which indicated that before investing in HCD programmes the management of the Pakistani manufacturing organisations use a broad set of financial measures. This helps them to assess the future of their organisations more effectively. In summary, the participants identified the following benefits for the management regarding using HRA tools for appraising of investment made in HCD:

1. Efficiency of these measures in providing feedback in financial terms about the different activities of HCD in an organisation, such as the costs and benefits of HCD;

2. Providing a comprehensive picture about the overall performance of an enterprise;

3. Enhancing the financial, operating and strategic performance of management;

4. Paying more attention to employees' satisfaction and organisational productivity;

5. Increasing management's ability to measure employees' skills and providing evidence about their real role in the organisation;

6. Promoting innovation, creativity and efficiency amongst employees;

7. Meeting employee's training and development needs and retaining them on a long-term basis;

8. Improving relationships with external partners such as government sectors and fulfilling company obligations towards them with reference to accounting for human resources;

9. Providing a competitive advantage and differentiating their organisations from their competitors;

10. Predicting the future and helping to achieve long-term and strategic goals.

The above interview findings are consistent with the questionnaire survey findings as presented in Chapter 6 of this thesis. These findings also support in answering to first research question of the thesis.

8.7   Difficulties in Evaluating IHCD and Organisational Performance

The use of HRA as indicated in Chapter 3 is important for managerial staff and management accounting researchers to improve decision making and organisational performance (Bullen, 2007; Roslender and Stevenson, 2009). Although the results of the study identified many benefits for the use of multiple

methods, the result also documented significant challenges and problems in this regard.

Interviewees were asked to identify and discuss any problems and difficulties they had encountered at the time of investing in HCD programmes. These issues have received little previous attention. Bullen (2010) has criticised the focus of previous research on various models of measurement while ignoring the problems and difficulties associated with applying these models. For HRA to work effectively a company must have in place key capabilities, including: effective internal business processes, appropriate skills and human resources, appropriate business culture and flexible systems. However, little attention has been given in the literature to these capabilities concerning the design and implementation of measurement systems for IHCD and organisational performance (Flamholtz, 1980; Flamholtz et al., 2004; Bullen, 2007).

Pakistan is a developing country and its business environment is complex. Thus, Pakistani organisations come across a number of problems with their investment plans for HCD. Not all of these problems are unique to the Pakistani manufacturing organisation because some of them are common to the services sectors as well as other countries in the region. The analysis of the qualitative data revealed that the Pakistani manufacturing organisations faced some common difficulties when investing in their HCD programmes and evaluating their impact on organisational performance. These difficulties include: limitation of employees and top management support, knowledge of using investment appraisal measures,

the selection process of relevant measures, the implementation process and the use of complicated computer applications and software.

The first problem that some of the participants identified is the support for the use of different tools of HRA by the employees and top management in any organisation. In this context, participant P6 said that some employees resisted the implementation of HRA as they felt these systems forced them to make more effort.

'The main problem is the employees ... If they do not interact and support the usage of these measures; the company can do nothing ... the employees feel that these measures pressure them' (P6). Participant P10 also added, 'Human resources cannot perform their responsibility effectively. This leads to some difficulties in the evaluation process.' This is because they were not involved in the investment evaluation or appraisal process. In this context, P5 added 'furthermore, all the employees must be involved in the selection of measures that will be used in the evaluation process.'

These results are consistent with Flamholtz (2004), who found that the involvement of employees was also limited in relation to the phase of the investment appraisal at the development and the subsequent implementation phases. HRA allows a firm to effectively guide employee behaviour, assess managerial effectiveness, and provide the basis for financial rewards (Bullen, 2007). Also, it was revealed from some discussions that some employees had little knowledge of the purpose of such measures, especially in the operational and higher levels of organisations.

Participant P6 stated, 'It is necessary to arrange training courses for the employees and to make them to recognise that such a system is established for their benefit.' In addition, it is important to offer training courses to those managers who will be implementing and managing the HR system.

In his study, Flamholtz (2003) argued that it was necessary to provide managers with sufficient leverage in performance evaluation to account for changes in internal and external contexts. He further argued that the role of top management in supporting the successful use of HRA for performance measurement is essential.

In this context, participant P6 stated, 'The implementation of the system needs the support of top management.' Participant P9 added, 'Our previous general manager did not support the implementation of performance measurement system in the company.' Furthermore, a lack of communication between the top management and other employees is another problem that some Pakistani organisations face in this regard.

The choice of appropriate appraisal measures is a critical issue within an organisation. However, it is known that it is impossible to define generic types of measures that should be included in any definition of HRA (Flamholtz, 1976; Flamholtz and Geis, 1984; Flamholtz et al., 2004). Some of the interviewees reported that they face some problems in selecting the relevant measures. They also argued that there are many problems associated with the selection of relevant performance measures. The reason given by some of the interviewees is that not all the management and employees levels are involved in selecting relevant

measures. Furthermore, it seems that measures are not effectively linked with the organisations' objectives.

For example participant P1 stated, 'All the management levels in the company must be involved in the process of objectives' setting ... furthermore, all the employees must be involved in the selection of measures that will be used in the evaluation process.' Also, participant P10 added, 'Sometimes objectives of IHCD are not smart enough, to avoid this problem, you have to train managers.' Participant P9 went beyond that and suggested that the measures must be formulated by experts, 'I think it is necessary for these measures to be formulated by experts in the company in order to measure the financial performance effectively.'

In this context, interviewees also emphasised the importance of the role of consultants in the adoption of new measurement practices and call for additional research to highlight their role. Furthermore, participant P9 stressed the importance of choosing the relevant measures based on scientific research. However, Bullen (2010) identified many criteria for selecting investment evaluation measures. These include: relevance, reliability, comparability, consistency and understandability of the management.

In addition, some participants stated that there were some problems in the implementation and use of performance measures. For example, participant P9 identified that some measures are not related to the future in a relevant way, 'The main problem is that we do not use our own measures that relate to the future properly' (P9). Furthermore, some participants said that their HR system was not linked effectively to the rewards system and the objectives of the organisation.

In this context, participant P10 said, 'Sometimes, it is difficult to apply the investment appraising techniques because some of them are not clear. Furthermore, these measures are not linked to the reward system. ... I feel that there is no correct implementation to these measures.'

A supporting infrastructure can vary from very simplistic manual methods of recording data to sophisticated information systems. However, only one participant mentioned that the human resource information system is still manual in the company, 'One of the most important problems is that the system is still manual in our company … we have no relevant software' (P9). The other participants, however, reported that they use relevant computer applications and software to control and manage HCD programmes. This finding is consistent with the quantitative findings of the current study that investing in HCD leads to HR sophistication and has an impact on managerial decisions regarding investing in HCD.

To sum up, the following problems and difficulties have been identified in the Pakistani manufacturing sector regarding the use of different tools of HRA for effectively controlling and investing in HCD programmes:

1. Resistance from senior employees particularly in the development and implementation stages of HCD programmes;
2. Difficulty in understanding the purpose and application of HRA tools, especially from the operational and top levels;
3. Lack of support and commitment from the top management;
4. Lack of effective communication across the different levels of an organisation;
5. Difficulty in selecting the relevant measures of performance;

6. Lack of effective linkage between the measures and the objectives of the organisation about investing in HCD;

7. Shortage of relevant research dealing with the selection, usage and application of different tools of HRA and measures of performance;

8. Complexities surrounding the implementation of HRA;

9. Lack of relevant software applications and data about investment made in HCD in the past;

10. Lack of proper communication between accounting and human resource departments of an organisation.

The interviewees identified several solutions to the above problems. These include: creating and effective commitment among top management to support the implementation process of performance evaluation measures; adequate training for the employees; choosing reliable and effective measures; and having employees involvement in the selecting processes of the HCD, objectives and the selection of performance measures. Furthermore, organisations must offer the necessary financial support, use effective software and computer applications, benefit from the experience of others, use skilled experts and consultants and pay more attention to the applied research before investing in any HCD programme in order to enhance the overall performance of their organisations. All these findings support in answering to second research question of the thesis.

8.8   Summary

This chapter has presented the results of the semi-structured interviews conducted with 10 human resource managers from the leading manufacturing organisations of different industrial sectors in Pakistan. These findings are consistent with a

large part of the descriptive findings of the main questionnaire survey presented in Chapter 6 about the inputs and outputs of using HRA in decision making by the management of the Pakistani organisations. Similarly, the perceived benefits and problems of using different tools of HRA among the Pakistani manufacturing organisations were discussed in depth. This chapter has also helped to explore and understand the effect of using different tools of HRA on managerial decisions regarding investing in HCD among the Pakistani manufacturing organisations. These findings support the central theme of the thesis and its first two objectives. Two of the research questions (RQ 1 and RQ 2) have also been answered in this chapter.

The qualitative results derived in this chapter confirmed and strengthened the quantitative survey findings as described in chapters 6 and 7 of the thesis. The next chapter presents the detailed discussion on results of the current research.

Chapter 9   Discussion

9.1   Introduction

This chapter develops discussion on the findings from the empirical results of the study that are presented in the last chapters. This chapter aims to discuss and explore the theoretical contributions made by this study to the literature on management accounting in general and to human resource accounting in specific. This chapter starts with a general discussion on the findings of research survey. The discussion in the later sections elaborates the results of hypotheses testing and leads to the finalisation of the theoretical model initially proposed in Chapter 4. It discusses the results in relation to the objectives of said thesis and the existing literature. Finally, the chapter concludes with a summary

9.2   Survey Findings – General Discussion

The study covers 292 manufacturing organisations from 11 prominent industrial sectors of Pakistan. Overall, the manufacturing sector has well qualified and relatively young managers in charge of human resource activities. The most significant finding as given in Chapter 6 is that over 57 percent of all surveyed organisations have a special unit or department for the management and development of their employees. These organisations have human resource

departments that have been in operation for an average of just 5–10 years. In other cases, responsibility for dealing with human resource activities is given to accounting, administration, finance or production departments. In most cases, human resource development activities appear to be relegated by majority of the Pakistani organisations.

Nevertheless, the empirical data show that despite the shortcomings just cited, approximately 70 to 80 percent of all personnel in charge of human resource development are selected from among the most highly educated and experienced staff of the organisation. The real problem, it seems, lies in the fact that a large proportion of organisations have no formal plans and policies for human resource development. Not only that, but in almost a third of those organisations that do have such plans and polices these are unwritten, meaning in effect that they are piecemeal and unaffected by measures of performance and accountability.

Formulating a training and development plan and policy, for those organisations that have one, is to a large extent concentrated in the hands of human resource managers or senior management. In a few large manufacturing organisations the tendency in developing plans and policies for human resource development is to allow the head of a particular department to assume the primary role for this task. However, ambitiously or unambiguously the human resource development plans in question may be, the vast majority of organisations were very optimistic regarding the expected percentage of implementation of such plans (50–90%). Another significant finding is that only about a half of all organisations declared

that the current provisions for investing in human resource development were satisfactory, indicating a need for more attention to be paid to this area.

Commitment to human resource development was nowhere more obvious than in the way the schemes are supported financially. In this respect, just over 40% of surveyed organisations reported that having no separate budget for human resource development programmes. Although the amount of money spent on human resource development programmes appears to be increasing for the most organisations, in recognition of its importance, the general view held by about half of the managers surveyed is that human resource development activities are still severely underfunded and unsupported in their organisations.

Training and development programmes ought to begin with a need analysis if a systematic approach is to be achieved. It was discovered that less than 58 percent of surveyed organisations took this task seriously by conducting regular assessments. The remaining organisations claimed to conduct need analyses only "from time to time". The main reasons given for this shortcoming were attributed to senior management's lack of commitment to training and development activities, and the low incentive to train employees who then leave the organisation for better jobs elsewhere. The most frequently used method of need analysis was overwhelmingly "direct observation", raising questions about its accuracy and value. With regard to when training is provided, the results reveal that it is resorted to first in response to a formal request from a particular department, and secondly when new staff is recruited or new equipment is

purchased. It was also found that training and development activities are designed to follow performance efficiency analysis reports irregularly, and in some cases are not activated at all. Curiously, just over 70 percent of those organisations surveyed reported that they were satisfied with their need analysis methods, despite them generally being based on the subjective judgments of managers or supervisors. Those who expressed dissatisfaction mostly blamed s deficiency on the lack of a clear human resource development strategy, the interference and influence of personal relationships on decisions, and the absence of adequate structures.

On-the-job training, using demonstrations or lectures, emerged as the most common approach to training for the majority of surveyed organisations. Modern computer-based techniques were also used. Although most off-the-job training is conducted in Pakistan, about 10 percent of surveyed organisations said that they sent some of their staff for training abroad, particularly to the UK, the USA, Australia and Canada. These findings highlights that Pakistani manufacturing organisations are investing on the both type of training programmes.

Evaluation of investment in human resource development activities should follow the implementation of training and development programmes in any systematic process. However, this was found to be neglected to some extent by most of the surveyed organisations. All of these state that they only sometimes carry out a proper evaluation or appraisal of investments in human resource development.

The reasons for this may be encapsulated in a single underlying reason: a lack of awareness and knowledge of the skills required to conduct it properly. Furthermore, two methods of evaluation are relied upon: either the trainee's performance report or questionnaire before and after the programme. These two methods command approximately 70 percent support among the surveyed organisations. In Pakistan, most manufacturing organisations are using benchmarking and cost benefit analysis as major models for the evaluation of investments made in the development of human resources. It shows that in Pakistan organisations prefer to use non-financial methods than financial methods for appraising of IHCD.

On the question of obstacles that impede the effectiveness of human resource development, there is almost unanimous agreement regarding the main factors involved. Inadequate funding comes first on the list and the lack of adequate specialist training centres comes second, closely followed by poor staff loyalty after training. Fourth comes the lack of a clear human resource strategy, and fifth is the perceived lack of sufficient senior management commitment and support for training and development. Several other reasons were suggested, all of which in the researcher's view are likely to be due to the low status and low priority given to human resource development and the piecemeal manner in which it is carried out in many surveyed organisations. Similar type of responses was given by human resource managers during the semi structured interviews as discussed in the chapter 8.

The final part of the questionnaire was devoted to measuring the costs and benefits of investing in human resource development, using the cost and value approach of human resource accounting. According to the organisations surveyed the total cost incurred in human resource development activities consists of: cost of trainers, cost of trainees or participants, cost of facilities and training material, travelling and daily costs, and miscellaneous costs. They also reveal that the benefits of human resource development in financial terms were divided into five elements: increase in revenues or production, savings due to reduction in errors and customer complaints, savings due to reduction in repair costs and wastage of materials, savings due to reduction in hiring and firing issues, and savings due to reduction in work-in-process time. The most common techniques of accounting used by the Pakistani manufacturing organisation for appraising the investment made in human resource development are: return on investment, weighted average cost of capital, benefit-to-cost ratio, bottom line evaluation and payback period.

The above discussion reveals that although these factors are taken into account for demographic purposes, many of them may have a strong influence on the final outcome of the study. The role of all these factors has not been directly studied, yet a few of them are taken as contributing factors to the main variables in order to see their impact on managerial decisions regarding IHCD. The majority of the 10 human resource managers who were interviewed agreed with the importance of these dimensions in defining the variables of the study.

The next section contains discussion of the relationships between the variables and of the results of the hypothesis testing in terms of the existing literature.

9.3 Discussion about Hypothesis Testing and Research Questions

This section provides detailed discussion of the study's results in connection with testing the study's hypotheses and research questions. The discussion is divided into three sub-sections according to the grouping of hypotheses.

9.3.1 Impact of Appraisal of Investment on Investing in HCD

(H_1 to H_6 and RQ 3)

This section discusses in detail the results of the direct effect of the independent variables drawn from the investment appraising tools of human resource accounting (i.e. BIHCD, BCR, PP, BLE, ROI, and WACC) on the dependent variable (i.e. IHCD). It also provides discussion in relation to RQ 3 of the study.

9.3.1.1 Investing in HCD has positive association with BIHCD (H_1)

The statistical results support the positive association between IHCD and the benefits which enterprises can reap from such an investment. The quantitative survey results regarding the costs associated with human resource development activities and benefits associated with these activities are given in Tables 6.7 and 6.8. Respondents agree that their respective organisations reap huge benefits after investing in HCD programmes.

The majority of the surveyed organisations agreed that they are reaping the benefits of increased production, savings due to a reduction in errors, reduction in repair cost, savings due to reduced absenteeism and reduction in cost due to decrease in work in process. The result of the correlation reports a positive

correlation between IHCD and BIHCD. The results of the PLS structural model analysis ($\beta = 0.278$, $p < 0.05$ and $t = 6.829$) also proved a positive relationship between IHCD and BIHCD. These results help to accept H_1.

These results are consistent with the findings of Klase (1996), who conducted a similar study in Kuwait on accounting for human resource development in the public sector. They are also consistent with the empirical findings of Chaudhry and Roomi (2010), which concluded that investment in training and development offers positive benefits to organisations in the textile sector. Chambel and Castanheira (2012) have also inferred that organisational investment in training offers all-round benefits to individual and organisational level outcomes.

From the standpoint of accounting for training investments, the research studies provide evidence that companies that invest in the training and development of their employees reap huge benefits from these investments. A general conclusion from the above-cited studies is that training investment generates returns for employers over and above other human resource management practices. Another important aspect of these studies is that they document the effects of training in the years that follow the training investment. The fact that the effects of training materialise with a considerable lag suggests that these transactions are associated with future economic benefits, which is a fundamental criterion for recognising an asset in most accounting standards around the world.

The most compelling evidence that enterprises benefit from investments in training and HCD is presented in several research studies. These studies link

investments in training and the development of human resources with financial outcomes for enterprises such as increases in production or turnover, decreases in repairs and complaints, decreases in human resource issues, and increases in profitability and stock market performance. The majority of these studies establish the positive direction of the relationship. They conclude with reasonable confidence that investing in human resource development brings for enterprises the huge financial benefits.

The studies that provide the strongest evidence that human resource training and development investments generate financial gains are: Barrett and O'Connell (2001), based on 215 Irish firms; Dearden et al. (2000), based on 94 British industries over 12 years; Groot (1999), based on 479 Dutch firms; Bosworth and Loundes (2002), based on 3,569 Australian SMEs; D'Arcimoles (1997), based on French firm-level data; and Bassi et al. (2004), based on 388 US stock exchange-listed firms. Most of these studies were undertaken in the developed countries of the world. This study is the first of its type in Pakistan to have empirically found that investing in HCD yields higher benefits for enterprises.

9.3.1.2 *Investing in HCD has a positive association with the BCR* (H_2)

The Pearson correlation matrix shows a positive association between IHCD and BCR (Table 7.2). The result of PLS structural model analysis also confirms the significant relationship between the two variables. Hence, these statistical results ($\beta = 0.399$, $p < 0.05$ and $t = 4.236$) support the fact that enterprises that expect

greater BCR make higher IHCD. This supports H_2 that IHCD has a significant positive association with BCR.

In a similar context, Klase (1996) conducted a study in Kuwait on accounting for human resource development in the public sector. This study concluded that investment brings more benefits than the total cost incurred in human resource development. The findings of the current research are also consistent with the empirical findings of Chaudhry and Roomi (2010), who concluded that IHCD offers more benefits to organisations than the cost incurred. Pollitt (2011) and Griffin (2011) have also given similar conclusions and inferred that investments in training and development always yield greater benefits for organisations. The results of this study extend the boundaries of knowledge by empirically collecting evidences from the manufacturing sector of Pakistan.

9.3.1.3 *Investing in HCD has negative association with PBP* (H_3)

The Pearson moment correlation coefficient matrix shows a positive relationship between IHCD and PBP. The results of the PLS structural model analysis (β = 0.124, p < 0.05 and t = 3.873) also confirm the significant relationship between IHCD and PBP. Hence, these statistical results do not support H_3, that investment in HCD is negatively associated with payback period.

Most previous studies have concluded that to gain a competitive edge and achieve their corporate goals, organisations must make sound investment strategies in the development and satisfaction of their employees. These investments will start to

provide benefits in the short run (Flamholtz et al., 2003; 2004; Bullen, 2007; Bullen and Eyler, 2010) that will increase over the coming years (Brinkerhoff, 2006). According to Bontis and Fitz-enz (2002), who use the survey data of 76 senior executives from 25 companies to study the elements of effective HCD, the dollar amount of training is the primary measure for the construct of human capital investment. They also document that the amount of training investment is a leading indicator of firms' future financial performance, suggesting that the benefits of human capital investment can last for a long time.

Those enterprises that invest highly in the training and development of their human resources will reap huge returns in the shape of both profits and growth (Smith, 2004; Aghazadeh, 2007). These investments make employees flexible, confident, thorough, motivated, committed and loyal (Santos and Stuart, 2003; Finegold et al., 2005). These employees will support management in controlling their overall cost of operations. In most enterprises, investments in training and the development of human resources are undertaken with the goal of meeting future objectives and goals, such as decreased cost of operations, increased efficiency and higher profits (Wagar, 1997; Brinkerhoff, 2006). Finally, these benefits will not be restricted to current years, but the investment will continue to offer higher returns in the future (Bernthal, 2000; Devins et al., 2005).

 Similar results about the short-tem monetary benefits of investing in human resource development have been found by Schulz and Carnevale (1990), and Klase (1996). The results of the present research are not consistent with the

findings of all previous studies as it found that investment in HCD will take higher time to generate benefits for the organisations. These empirical findings contribute to the literature in the context of Pakistan.

9.3.1.4 *Investing in HCD has a positive association with BLE* (H₄)

The Pearson moment correlation coefficient matrix shows a positive relationship between IHCD and BLE. The result of the PLS structural model analysis ($\beta = 0.111$, $p < 0.05$ and $t = 2.164$) also confirms the significant relationship between the two variables. Hence, these statistical results support hypothesis H_4 that enterprises with a greater estimation of overall profitability and productivity will have a high level of IHCD.

A number of empirical studies have assessed the positive impact of IHCD on the overall productivity or profitability (bottom line) of firms. Famous studies of this type include Bishop (1991), Holzer et al. (1993), Bartel (1994), Tan and Batra (1995), Black and Lynch (1996), and Huselid (1995). Similarly, McLinden and Perkins (1998), Bras and Rodrigues (2007) and Flamholtz (2012) add that investments in the training and development of human resources will lead to increased learning and better job performance productivity, and will positively affect the overall profitability of an enterprise.

In (1997), Corvers analysed the manufacturing sectors in seven member states of the European Union and concluded that IHCD is positively related to the overall productivity or profitability of enterprises. Other studies that use survey data

about individual firm's training programmes also document a significant positive effect of employer-provided training on business productivity (Bishop, 1991; Bartel, 1994; Black and Lynch, 1996). Finally, investments made in developing human capital have a direct impact on the bottom line of enterprises (Chaudhry and Roomi, 2010; Flamholtz and Randle, 2012).

In a similar context, Syverson (2011) points out that the evidence suggests that human capital investment decisions are directly linked to the success of a business and ultimately to the overall profitability of an enterprise. This was also supported by the proposal of Chambel and Castanheira (2012) that investments in human resource development yield positive individual outcomes that increase overall organisational outcomes or performance. Chambel and Castanheira also inferred that organisational investment in training and development activities offers all-round benefits from the level of the individual to that of the organisation. The results of the present research agree with the findings of all prior studies. As the first of its type, this thesis also contributes to literature by empirically collecting evidence from the Pakistani manufacturing organisations.

9.3.1.5 *Investing in HCD has positive association with ROI* (H$_5$)

The Pearson correlation matrix shows a positive relationship between IHCD and ROI. The results of the PLS structural model analysis also confirm the significant relationship between IHCD and ROI ($\beta = 0.698$, $p < 0.05$ and $t = 10.882$). Hence these statistical results support H$_5$ of the study.

A practical issue in relation to the evaluation of the amount of HCD investment and the firms' return on it is how employers know about these returns. Hunter et al. (2010), for example, provide evidence that suggests that human capital investment data are not widely collected in a form that is suitable for calculating rates of return. As mentioned in Chapters 6 and 8 the same issue has been observed in the present research. The previous studies conducted by researchers (Phillips, 2002; Flamholtz et al., 2003; Phillips and Whalen, 2004; Phillips and Phillips, 2004; Phillips, 2006; Murray and Efendioglu, 2007; Kline and Harris, 2008; Chaudhry and Roomi, 2010) in the different countries of world found positive association between ROI and IHCD. They argued that if estimated rate of return is higher then, organisation will prefer to make more investment in training and development programs.

Being consistent with the above studies this thesis also contributes to literature by empirically collecting evidence from the Pakistani manufacturing organisations.

9.3.1.6 *Investing in HCD is negatively associated with WACC* (H_6)

The Pearson correlation matrix shows a positive relationship between IHCD and WACC. The results of the PLS structural model analysis also confirm the significant positive relationship between IHCD and WACC ($\beta = 0.259$, $p < 0.05$ and $t = 4.151$). Hence, these statistical results do not support H_6 of the study.

The empirical findings of this pioneer study in Pakistan are not consistent with the findings of the previous studies. As majority of the studies found that there is

negative association between WACC and IHCD. If WACC is higher then organisation will make lesser investment in training and development programmes. In the similar context Chaudhry and Roomi (2010), who inferred that offer an excess of ROI over WACC pays off positively for an organisation to make more investments in HCD. The same outcomes are inferred by Chambel and Castanheira (2012). Campbell (1994 and 1995) has suggested that the emphasis of training evaluation should be shifted from traditional to modern methods, i.e. ROI of training. He further added that any investment can be considered viable if its estimated ROI is greater than the WACC. It can be concluded that organisations will invest in training and developing their human resources if this will offer higher returns than the cost of capital. The study's findings contribute to the literature by opposing to the findings of previous studies.

PLS path modelling analysis was used to predict the direct effect of the independent variables drawn from the investment appraising tools of human resource accounting (i.e. BIHCD, BCR, PP, BLE, ROI, and WACC) on the dependent variable (i.e. IHCD). Hypotheses H_1 to H_6 focus on examining the relationships between the appraisal of investment by using different tools of human resource accounting and the managerial decision making regarding IHCD. The standardised path coefficients (beta) statistics (see Table 7.12 and Figure 7.1 and 7.2) revealed that the greater application of different tools of human resource accounting for appraising investment has a significant impact on managerial decision making regarding IHCD.

Figure 9.1: Summary of PLS Structural Path Analysis
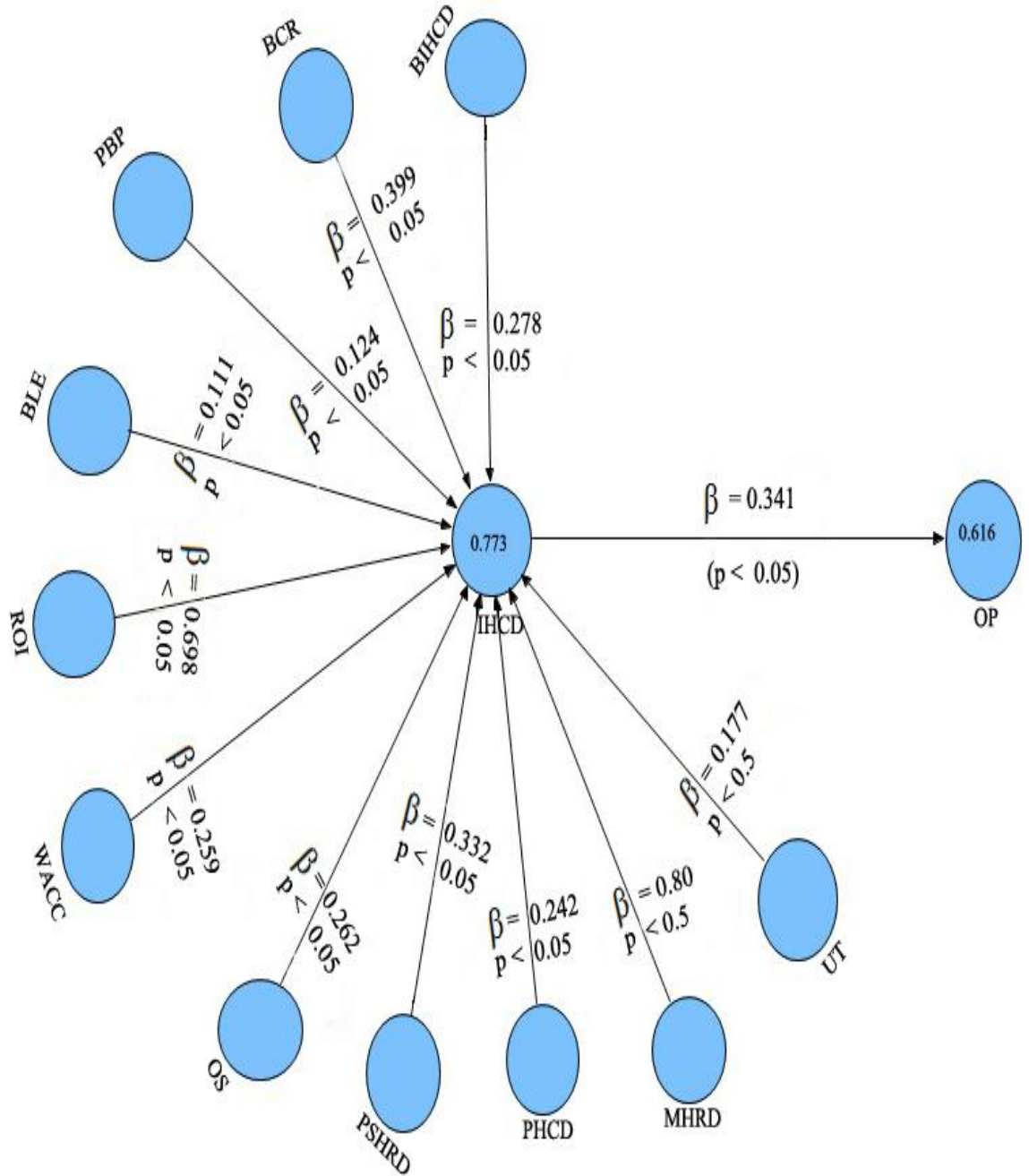
The literature on HRA suggests that management should use a set of investment appraisal techniques (i.e. BIHCD, BCR, PBP, BLE, ROI and WACC) for evaluating IHCD. These techniques give significant results for evaluating investments in financial terms (Campbell, 1994; Flamholtz et al., 2003; Chen and Lin, 2004; Bullen and Eyler, 2010; Chaudhry and Roomi, 2010) and will assist the management in their decisions regarding IHCD.

During the semi-structured interviews it was found that in Pakistan human resource managers are also using different HRA tools to appraise investments before investing in any HCD programme. The quantitative results described in Chapters 6 and 7 are also consistent with the findings of prior studies. This study therefore found strong empirical support for the fact that the use of different tools of HRA for appraising IHCD has a significant impact on managerial decision making about HCD. These outcomes also provide an answer to RQ 3.

9.3.2 Impact of HR Sophistication on Investing in HCD

(H_7 to H_{11} and RQ 4)

This section provides detailed discussion of the relationships between the HR sophistication (i.e. OS, PSHRD, PHCD, MHRD and UT) and managerial decision making regarding IHCD. It also provides discussion in relation to RQ 4 of the study.

9.3.2.1 *Organisational size and IHCD* (H_7)

The results of the PLS structural model analysis show a significant association between IHCD and OS. The results ($\beta = 0.262$, $P < 0.05$ and $t = 2.110$) denote that

OS as reported in table 7.12 significantly affects IHCD. These results are also consistent with the findings of the Pearson coefficient correlation applied in the study. These findings support hypothesis H_7.

The findings of the contingency-based studies indicate that organisational size is positively related to the sophistication of accounting and human resource systems. For instance, a large number of studies suggest that as an organisation increases in size, its accounting, human resource and control systems tend to be more sophisticated (Flamholtz, 1976; Merchant, 1981; Huselid, 1995; Libby and Waterhouse, 1996; Hoque and James, 2000; Haldma and Laats, 2002). Similarly, the findings of Hoque and James's (2000) study support the proposed positive relationship between organisation size and balanced scorecard adoption as one of sophisticated performance management systems. More recently, the findings of some studies have suggested that large companies are more likely to adopt more sophisticated management accounting procedures (Abdel-Kader and Luther, 2008). The HCD literature also suggests that the larger the company size, the more likely that financial performance becomes more complicated; as a consequence organisations tend to use more sophisticated procedures to provide information for decision making (Huselid, 1995; Ryan and Trahan, 1999, 2007).

In the context of Kuwaiti public organisations, Athari and Zairi (2002) found that only large organisations will prefer to invest in training and development of human resources . Moreover, the results of the empirical studies conducted by Ryan and Trahan (1999, 2007) support the claims of positive association between

company size and investing in HCD programmes. The results of this research are consistent with the results of all previous studies. Being a pioneer study it also contributes to literature on contingency theory, human resource accounting and HCD in the context of Pakistan.

9.3.2.2 *PSHRD and IHCD* (H$_8$)

The results of PLS structural model analysis show a significant association between IHCD and PSHRD. The results ($\beta = 0.332$, P< 0.05 and t = 8.606) denote that IHCD as reported in table significantly affects PSHRD. These results are also consistent to the findings of the Pearson coefficient correlation. These findings support hypothesis H$_8$ that *IHCD positively associated with provisions for specialist HR department.*

As described in Chapter 6, 57.9 percent of respondents argued that in order for organisations to have more provisions for specialist HR departments, they should invest more in HCD programs. On the same issue, Mackay and Torrington (1986) found in their UK-based study that organisations which have highly specialist HR departments have higher budgets for HCD. The findings of the present study are also consistent with the work of Athari and Ziari (2002), who found that more than 50 percent of Kuwaiti enterprises have an independent human resource department because of their higher interest of investing in HCD.

In a similar context, Abu-Doleh (1996) found that 84.6 percent of Jordanian manufacturing organisations had human resource development units or

departments which are responsible for IHCD. Similar results were also found during the quantitative survey. The empirical findings of the study are consistent with the findings of prior studies and contribute to literature.

9.3.2.3 *PHCD and IHCD* (**H$_9$**)

The results of the PLS structural model analysis (β = 0.242, P< 0.05 and t = 3.887) show that IHCD is significantly affected by PHCD. These findings predict a strong positive relationship between IHCD and PHCD (see Table 7.12). They also confirm the findings of the Pearson coefficient correlation. These findings support hypothesis H$_9$.

The results show a significant association between the level of IHCD and the use of polices for HCD in the Pakistani manufacturing organisations (Table 7.24). In the US context, Saari et al. (1988) found that 27 percent of organisations have adopted formal practices or procedures for need analysis before investing in human resources, while Abu-Doleh (1996) reports that 69.2 percent of Jordanian manufacturing organisations regularly use formal policies before investing in human resource development.

Athari and Zairi (2002) and Yadapadithaya (2001) found similar findings to this research in the context of Kuwaiti and Indian organisations respectively. In a similar context Athari and Zairi also found that organisations that invest in the training and development of human resources have long-term formal HRD policies for improving the quality of their human resources. Further, Kouhy et al. (2009) argued that organisations having sound policies for human resource

development will make higher investments in HCD in order to improve their overall financial performance. The results of the present research are consistent with those of all previous studies and empirically contribute to the literature in the context of Pakistan.

9.3.2.4 *MHRD and IHCD* (H$_{10}$)

The results of the PLS structural model analysis ($\beta = 0.801$, P< 0.05 and t = 4.020) show that IHCD significantly affects MHRD (see Table 7.12). These findings predict a strong positive relationship between IHCD and MHRD. They also confirm the findings of the Pearson coefficient correlation. The findings support hypothesis H$_{10}$, that *IHCD is positively associated with the use of multiple methods of human resource development by organisations.*

The quantitative results show a significant association between the use of multiple methods for HCD and the investment made by the enterprises. These findings also support H$_{11}$, meaning that in Pakistan most manufacturing organisations prefer to invest in multiple methods of human resource development. The results of the quantitative survey described in Chapter 6, show that Pakistani manufacturers are using all methods of human resource development that are widely followed in the West. Managers rely heavily on these methods to make decisions about IHCD that will benefit their organisations in the long-run.

These findings are consistent with the results of prior studies conducted by the researchers around the world (Barrett and O'Connell, 2001; Athari and Zairi, 2002; Barry et al., 2004) in different countries. However, many researchers have

suggested that for businesses to survive in a competitive market place, a set of methods should be used for human resource development (Becker, 1993; Bartel, 1994; Huselid, 1995; Daniels, 2003; Dessler, 2009). These methods will help to improve the productivity of employees and ultimately increase financial returns before investing in any HCD programme (Huselid, 1995; Wagar, 1997; Aghazadeh, 2007; Dessler, 2009). Current results are consistent with the results of all previous studies and contribute to the literature in the context of Pakistan.

9.3.2.5 *UT and IHCD* (H₁₁)

The results of the PLS structural model analysis (β = 0.177, P< 0.05 and t = 4.479) show that IHCD is significantly affected by UT (see Table 7.12). These findings predict a strong positive relationship between investing in HCD and using of technology. They also confirm the findings of the Pearson coefficient correlation. The findings give strong empirical support to hypothesis H_{11}.

The above result indicates that the use of technology has a positive impact on the extent of investing in HCD. Manufacturing organisations have increasingly invested in HCD programmes to make effective use of new technologies in order to compete in today's business environment (Widener, 2006). The use of new technologies supports the use of information related to performance such as customer satisfaction, employee productivity, efficiency and innovation. Abdel-Kader and Luther (2008) argued that in the current competitive business environment many companies found that their traditional cost accounting measures were inhibiting the introduction of innovative processes and technologies. Previous researchers (Hoque and James, 2000; Hoque et al., 2001;

Chenhall, 2003; Hoque, 2004; Chenhall, 2005) have indicated that technology affects design and encourages firms to invest in human resource development (Flamholtz et al., 2003; Bullen, 2007).

In line with the study's results, Becker et al. (1993) found that the implementation of adopting of new technologies is positively associated with the quality and productivity of human resources. Hoque et al. (2001) found that more frequent use of computer-aided manufacturing process requires having and investing in more sophisticated accounting and human resource systems. Similarly, Baines and Langfield-Smith (2003) found that an increased use of technology will result in greater investments in management accounting information systems. Thus, it can be concluded that using advanced manufacturing technology plays a major role in encouraging the use of sophisticated human resources at the work place, which consequently leads to make more investment in HCD programmes.

The second set of hypotheses (H_7 to H_{11}) focuses on the relationships between HR sophistication (i.e. OS, PSHRD, PHCD, MHRD and UT) and managerial decision making regarding investing in HCD. The statistics of the standardised coefficient (β, beta) relating to these hypotheses showed that independent variables have a positive and significant impact on the dependent variable (see Table 7.22). The findings of the PLS structural model analysis (Figures 7.1 and 7.2) supported hypotheses H_7 to H_{11} that managerial decision making regarding IHCD depends on the size, provisions, policies, technology and methods adopted by the organisations. This is linked to the fact that there is a surplus of conceptual models that have been developed by researchers help to explain and predict the

link between HR sophistication, managerial decision making and organisational performance (Becker, 1993; Huselid, 1995; Zula and Chermack, 2007).

This thesis conceptualises investments in human resource development by an organisation as having an impact on their HR sophistication level, through the HR provisions, policies and practices and methods in place. Much of the research on the link between HR sophistication and managerial decision making regarding IHCD has considered only single HR practices as a predictor of HR sophistication (Becker and Gerhart, 1996). Huselid (1995) evaluates the impact of a firm's overall system of HR management on the managerial decision making regarding investing in HCD programmes.

This study provides broad evidence in support of the assertions of prior studies. Across a wide range of industrial sectors and manufacturing organisations, considerable support was found for hypotheses H_7 to H_{11}. The results of the PLS path model analysis show that HR sophistication had a significant impact on managerial decisions regarding IHCD within the Pakistani manufacturing organisations. These outcomes also provide an answer to RQ 4.

9.3.3 Impact of Investing in HCD on Organisational Performance (H_{12} and RQ5)

This section provides detailed discussion of the results in connection with testing the study's final hypothesis and fifth research question. It provides explanations about the direct effect of investing in HCD on the performance of the Pakistani manufacturing organisations.

The results of the PLS structural model analysis ($\beta = 0.341$, $P < 0.05$ and $t = 4.63$) show that OP is significantly affected by IHCD (Table 7.12). The R^2 (0.616) indicates that more than 61 percent change in organisational performance is a result of investment in HCD programmes. These findings predict a strong positive relationship between investing in HCD and organisational performance. They findings provide strong empirical support to hypothesis H_{12}, that investing in HCD yields higher organisational performance.

These findings are in accordance with the view that investing in the training and development of human resources is a key element of organisational success (Lumpkin and Dess, 2001) and a prerequisite for high performance (Zahra and Covin, 1993; Huselid, 1995). The results of the current study provide evidence that support this argument. Because performance is a multidimensional construct, the relationship between IHCD and organisational performance is sensitive, to a large extent, to the type of performance measures used (Lumpkin and Dess, 2001; Hoque, 2004). However, the performance measures used in the management accounting literature include financial and non-financial performance measures (Ittner and Larcker, 1998, 2001; Chenhall, 2005). For instance, previous studies provide evidence of a positive association between IHCD and financial performance measured by sales growth and profitability (Zahra and Covin, 1993; Huselid, 1995; Davis and Albright, 2004; Andrikopoulos, 2005; Aghazadeh, 2007; Flamholtz and Randle, 2012).

Investments in HCD are linked together in a cause-and-effect relationship that covers different perspectives, including customer satisfaction, employee

satisfaction, product quality, market share, and productivity (Ittner and Larcker, 1998, 2001; Chenhall, 2005). Davis and Albright (2004) found that organisations that invest in HCD programmes should experience better financial performance than those that do not. Jusoh et al. (2008) found that firm performance is positively associated with investing in HCD.

In the current study, the positive association between IHCD and organisational performance can be attributed to the use of both financial (increase in sales, decrease in cost of operations, increase in assets, increase in margin on sales, increases in productivity and increase in market share) and non-financial (increase in job satisfaction, increase in customer satisfaction and quality of products) measures of organisational performance. This is consistent with the results of previous studies. In conclusion, investing in HCD is viable for the Pakistani manufacturing organisations because it has a positive effect on their financial and non-financial performance. These outcomes also provide an answer to RQ 5.

9.4   Model of the Study

The study's results suggest that in a developing country like Pakistan, managerial decisions regarding investing in HCD programmes are based on the financial returns derived from such investments. During the research survey, causal and statistically significant relationships were found between IHCD and financial returns of human resource development in the Pakistani enterprises. Thus, this study establishes important empirical support for the basic theoretical proposition that the use of different practices of human resource accounting for appraising investments made in human capital will help the management of Pakistani

organisations in designing effective investment plans for HCD. This study also establishes empirical support for the basic proposition that investment in HCD will enhance the sophistication level of human resources of the manufacturing organisations, which will later on enhance their performance. As mentioned earlier, the R^2 values also justify that the structural model proposed in this study had a good power to explain relationships among the variables.

Qualitative results of the study as presented in the previous chapter help in identifying the major problems faced by the management of the Pakistani manufacturing organisation in evaluating investments in HCD and their impact on organisational performance. These finding also support to the central theme of research that there is urgent need to develop a framework for assessing the impact of investing in HCD on the performance of an organisation. That is why, practitioners and researchers especially in Pakistan, should consider and adopt the model (Figure 9.2) of this research for assessing the impact of investing in HCD on the performance of their organisations.

Some studies on the impact of IHCD on organisational performance have been conducted in developed countries of the world, but this study is the first to be conducted in Pakistan. Most of the available studies look at the importance of HCD for service organisations, and there is therefore a dearth of empirical research into the impact of investing in HCD on manufacturing enterprises. This research contributes to the literature on management accounting by filling this gap by developing a model (Figure 9.2) and by empirically investigating the effect of investing in HCD on exclusively the Pakistani manufacturing businesses.

Figure 9.2: Final Model of the Study
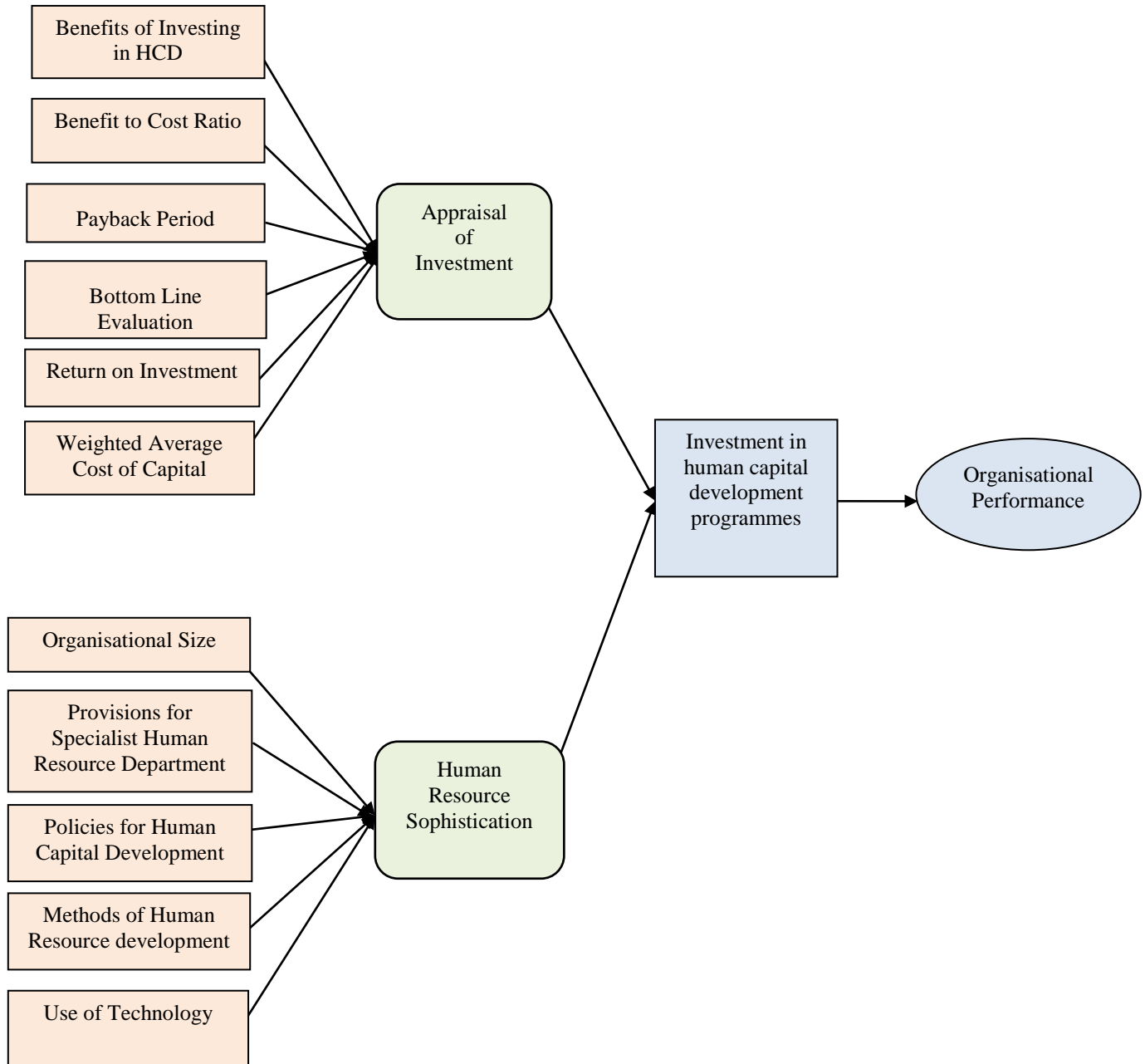
9.5   Summary

The purpose of this chapter was to discuss the findings within the context of the present literature. The chapter ensures that the current study is situated on the research continuum of human resource accounting in the context of the Pakistani manufacturing organisations. The study empirically finds out the impact of appraising of IHCD and HR sophistication on the managerial decision making regarding HCD which later on affect the performance of enterprises. In order to find out the answers to research questions a list of hypotheses are developed by using the available literature on human resource accounting and HCD. All the hypotheses developed and incorporated in the framework were derived from the preceding literature and established inferences for the potential research. The SPSS and SmartPLS were used to analyse the data and to test the hypotheses. All independent predictor variables are found significantly related to the dependent variables. The findings of study helped to draw and validate the final conclusions as discussed in detail in the chapter.

The next chapter presents the conclusions and the overall contributions of this study. It also contains discussions regarding limitations of the study and opportunities for the future research.

Chapter 10 Conclusion

10.1 Introduction

This chapter aims to sum up the study's findings in relation to its research questions and objectives. It begins with a summary of the overall findings and continues with the study's contributions to knowledge, methodology and practice. The chapter also identifies the main limitations of the research and outlines possible directions for future research. It ends with some concluding thoughts.

10.2 Summary of the Research Findings

This study has focused on the intersection between two important fields of management studies: management accounting and human resource management. Its purpose has been to review and empirically analyse the impact of investing in HCD on the Pakistani manufacturing enterprises. This thesis addresses five main research questions, as stated in the first chapter. These questions are as follows:

1. What are the main practices of human resource accounting followed by the Pakistani manufacturing organisations for appraising investments in human capital development?
2. What major difficulties are faced by the management of the Pakistani manufacturing organisations in appraising investments made in HCD and measuring their impact on organisational performance?

3. What is the impact of appraisal of investment on the managerial decision making regarding investing in HCD within the Pakistani manufacturing organisations?

4. What is the impact of HR sophistication on the managerial decision making regarding investing in HCD in the Pakistani manufacturing sector?

5. Whether investing in HCD is financially viable for the Pakistani manufacturing organisations?

A functionalist-paradigm approach has been followed to answer all the research questions and to achieve the objectives of the thesis. Such an approach provides an opportunity to develop a theoretical framework and to answer the research questions through the development of a set of hypotheses. The quantitative data were collected by questionnaire survey, and analysed to determine the significant variables that affect the managerial decision making regarding IHCD in the Pakistani manufacturing organisations and to test the study's hypotheses. This thesis also partially applied a semi-structured interview approach to collect qualitative data to complement the quantitative findings in answering the research questions.

The first research question was answered through a review of the available literature on human resource accounting and human capital development– given in Chapters 2 to 4 and by a description of the quantitative research survey results as covered in Chapter 6 of the thesis. These results provide information on the main techniques of human resource accounting that are used in the Pakistani manufacturing sector to appraise investments in the development of human resources. These findings confirm the first objective of the study and provide

answer to first research question. The qualitative results of the study also support to answer the first research question.

The qualitative results as covered in Chapter 8 confirm the results of main quantitative survey and help in identifying the main problems faced by managers of the Pakistani manufacturing organisation in evaluating their investments in HCD and their impact on organisational performance. These findings confirm the second objective of the study and provide answer to second research question.

In addition, the study has empirically examined the impact of investing in human capital development on the manufacturing organisations of Pakistan. To answer research questions 3 to 5, the study formulated a number of hypotheses based on the proposed theoretical framework, as described in Chapter 4. Hypotheses were tested empirically against the quantitative data collected through the research survey by using different statistical methods, as described in Chapter 7.

In order to analyse the data acquired and to test the hypotheses, different statistical techniques were applied to perform bivariate analysis and multivariate analysis by using SPSS and SmartPLS. In bivariate analysis, Pearson product-moment correlation was used to test associations between dependent and independent variables. In order to test hypotheses and to draw valid conclusions, a multivariate analysis, i.e. partial least squares based structural equation modelling (PLS-SEM), was also applied by using SmartPLS. Before the PLS was applied, the data was screened for missing data and outliers. To check the appropriateness of PLS

analysis, the data was examined to validate all the major assumptions of this test, such as normality, linearity, homoscedasticity and multicollinearity.

Pearson correlation was performed to check associations between the dependent and independent variables. As described in Chapter 7, it was also performed on the empirical data to test the hypotheses. In order to predict changes in the dependent variables due to changes in the independent variables, a PLS test was also applied. The PLS analysis also helped to verify the results of the Pearson product-moment correlation coefficient and to accept or reject the hypotheses of the study. The results of PLS analysis also confirm that more than half of the changes in the dependent variables were due to the independent variables.

The first set of six hypotheses (H_1 to H_6) focuses on examining the relationship between the appraisal of investment by using different tools of human resource accounting and managerial decision making regarding IHCD. The statistical results as discussed in Chapter 7 support hypotheses H_1, H_2, H_4, and H_5 and do not support to H_3 and H_6. These results show that a greater application of different tools of human resource accounting for appraising investment has a significant impact on managerial decision making regarding investing in HCD. They provide an answer to third research question and also help to accomplish the third objective of the thesis.

The second set of five hypotheses (H_7 to H_{11}) focuses on examining the relationships between the HR sophistication and the managerial decision making

regarding IHCD. Considerable support was found for these hypotheses across a wide range of industrial sectors and manufacturing organisations. The statistical results confirmed that the level of HR sophistication had a significant impact on managerial decisions regarding IHCD within the Pakistani manufacturing organisations. These outcomes provide an answer to the fourth research question and support to accomplish the fourth objective of the thesis.

The final hypothesis H_{12} was concerned with the financial viability of investments made in human resource development programmes. The statistical findings provided a strong empirical support for hypothesis H_{12}, that investing in HCD yields higher organisational performance. Investments in HCD programmes is financially viable for Pakistani manufacturing organisations because they have positive effects on their financial performance, such as increased sales, increased assets, decreased cost of operations, increased productivity and increased market share. Such investments also enhance employee job satisfaction, customer satisfaction and product quality. Finally, these empirical results show that investments made in the training and development of human resources has a significant effect on the overall performance of enterprises in Pakistan. These results provide an answer to the fifth research question and covered the final objective of the thesis.

10.3 Research Contributions

This research contributes to knowledge and practice in several dimensions and may help in the construction of further research, both in Pakistan and other

national settings. The main contributions of this research to theory and practice are described below.

10.3.1 Contribution to Knowledge

After reviewing the extant literature in the domain of human resource accounting and human resource management, a framework was developed. This study was conducted in the manufacturing sector of Pakistan, where it was proposed that investments in HCD do not bring any benefits for enterprises. There is no useful accounting technique for analysing investments in the development of human resources. By using the study framework described, the researcher made efforts to create a relationship between investments in human resource development and the financial benefits which organisations can reap as a result. This understanding was conceptualised on the basis of previous studies (Brummet et al., 1969; Flamholtz, 1969, 1971, 1973, 1985, 1999; Athari and Zairi, 2002; Phillips, 2002; Flamholtz et al., 2003; Roslender et al., 2006; Roslender, 2009; Roslender and Stevenson, 2009; Flamholtz and Randle, 2012).

The novelty of this research is that it developed a new comprehensive theoretical framework for examining the influence of investing in HCD on the Pakistani manufacturing organisations. Previous studies on human resource accounting had not focused on the financial returns of an organisation's investment in HCD. Their main concern was the presentation of human resources as assets in financial statements. Therefore, it can be claimed that this research is the first study about assessing the financial impact of investment in human resource development on

the manufacturing enterprises. As a result, several theoretical and methodological contributions emerge; a brief description of each as follows.

First, this research is, to the researcher's knowledge, the first empirical work to examine the literature on human resource accounting and HCD from different methodological strands and synthesise the findings within a new theoretical framework. The proposed framework considers those conceptual aspects of human resource accounting that concern how investments in human resource development can be used to investigate the financial returns for enterprises. This framework uses a combination of the relevant accounting tools for appraising investment in HCD as independent variables and it also takes into account a set of five contingent factors which lead to HR sophistication as the independent variables. The main dependent variables were investment in human capital development (IHCD) and organisational performance (OP). These variables were operationalised and their dimensions were outlined. A set of hypotheses was developed on the basis of predicted relationships between the key concepts of the theoretical model. The variables were measured and hypotheses were tested against the questionnaire data collected from the Pakistani manufacturing organisations. This empirical collection of evidence from the Pakistani manufacturing organisations, contributes to the global literature on management accounting.

Second, this research was conducted in the manufacturing sector. Similar studies have been conducted in services organisations in different countries around the

world (Flamholtz, 1971; Athari and Zairi, 2002; Flamholtz et al., 2003; Phillips and Whalen, 2004; Bullen, 2007; Hansson, 2007; Bullen and Eyler, 2010), but this is the first such study to report valuable data from the Pakistani manufacturing enterprises. It has contributed to develop the understanding of how investments in human resource development programmes provide long-term benefits to the manufacturing organisations of a country.

Third, this research contributes to the wealth of literature on contingency theory. It has been argued that this theory is one of the dominant paradigms for research in management accounting (Chenhall, 2003, 2005). The present study has supported one of the main arguments of contingency theory, which indicates that the appropriateness, effectiveness and use of different tools of accounting are affected by the circumstances or contexts in which an organisation operates (Otley, 1980; Fisher, 1998; Otley and Fakiolas, 2000; Haldma and Laats, 2002; Chenhall, 2003). In particular, this thesis contributes to and extends the contingency theory literature by investigating the impact of several contingent factors and investment appraising tools on the extent of managerial decision making regarding investing in HCD and organisational performance. The study provides new evidence that the use of different tools of human resource accounting for appraising of IHCD is positively and significantly associated with the managerial decision making regarding investing in HCD programmes. Additionally, the study extends previous research in the field of human resource management by empirically confirming that organisational size, provisions for specialist human resource departments, HCD policies, methods of human resource

development and the use of technology lead to higher level of HR sophistication, which has a significant impact on managerial decision making regarding IHCD and which consequently enhances the organisational performance.

Fourth, this study is one of only a few to investigate the impact of investing in human resource development outside the West, and particularly in Pakistan. As discussed in the chapter of literature review, research on human resource accounting and human resource management has established that employees are the most valuable assets for enterprises in this competitive era. However, the Pakistani manufacturing organisations studied are still following the principles of an industrial economy. They are still making greater investments in physical properties such as plant, equipment, inventories and so on. They are more immediately profit-oriented and want to be sure of their returns before making investments in human resource development programmes. This theme is central to the current research.

The fifth contribution concerns methodology. Different steps were followed in developing the main questionnaire, and a pilot study was conducted to develop an effective questionnaire and to validate the main research instrument. According to Van der Stede et al. (2005) there is great importance in using the pilot testing procedure in management accounting research. A pre-test of the survey instrument is an important procedures used in this research to respond to what is a key criticism of the survey method. Thus, it is reasonable to claim that the data is reliable and valid since the study variables were selected carefully following the

pilot study. The study also applied a highly sensitive analysis for hypotheses testing. In an attempt to improve the generalisability of the findings, this thesis also applied a partial qualitative approach to collect more data and to complement the quantitative findings. The qualitative research was conducted using a semi-structured interview with 10 human resource managers selected from the same study sample. The reasons for conducting the interviews were to answer the first two research questions, and to explore and explain the results of the quantitative survey. This approach helps to ensure greater confidence in generalising the research findings. All these procedures and steps are also an important contribution to the literature on management accounting research methodology

Finally, most previous studies of human resource accounting have been conducted in the developed countries of the world, such as the USA, Australia, the UK, Sweden, Canada and New Zealand. A key contribution of this study therefore relates to its collection of empirical evidence from a relatively new cultural context. This is the first study of its type to address human resource accounting in Pakistan. This is significant because it permits the wider testing of findings derived from previous research conducted within developed countries. By empirically testing hypotheses in cross-cultural work settings that may be useful for making wider generalisations, the research has filled a gap in the global literature on HRA. Because Pakistani organisations and their culture are substantially different from those of Western countries, the particular context of the research provides additional insights to the extant literature on human resource management, human resource accounting and management accounting.

10.3.2 Contribution to Practice

The challenge of this thesis was to find a way to present accounting information to management that would enable accounting and human resource professionals to work effectively together to facilitate the creation and growth of the talent and accumulated knowledge of an organisation's human capital. This thesis is fundamentally about providing ways to meet this challenge.

In charting a way forward, it was recognised that it was necessary to learn from the past. An understanding was required into why earlier proposals of accounting for human resources failed to gain acceptance and why human resource management has remained a predominantly operational discipline of limited importance at senior management levels. The conclusion drawn was that the methods had been wrong. Attempts to develop a framework for human resource accounting had become trapped in the regulated world of accounting. They had become too focused on the traditional statements of financial performance and financial position. Putting aside differences arising from the methodologies of measurement, the existing proposals were seen by many as attempts to treat human resources in the same way as the physical and financial resources of an organisation.

Unfortunately, accounting has not responded to changes in circumstances. Even today, it is still based on an industrial paradigm in which only physical property is considered an asset (Flamholtz et al., 2004; Bullen and Eyler, 2010). Modern-day enterprises need a system that continually assesses and re-assesses the skills,

talents and behavioural attributes of the people they employ, and that can also analyse how human resources affect their profitability. Human resource management was an identity change that had gone wrong. Correctly perceiving that a change was required in the way that organisations managed their employees, the discipline of personnel management sought to change how others viewed it by renaming itself and adopting a more strategic outlook. Unfortunately, prescription and practice were poles apart from human resource professionals. They were unable to demonstrate linkages between core business processes, human resource management choices and policies, and their impact on organisational performance.

To attract and retain outstanding people, organisations must develop and build upon the knowledge potential of their workforce. They need to understand how best to invest to acquire or create such an indispensable commodity of new knowledge. Sustainable organisations must devise systems that provide clear indicators of success or failure in meeting this need. A framework of human resource accounting developed in this thesis aims to do just that. It acknowledges that many of the traditional practices of accounting, with which we are familiar and comfortable – benefit cost analysis, return on investment, weighted average cost of capital and so on – are still suitable for organisational planning, control and performance measurement systems. The framework thus developed provides a structure for describing an organisation's vision and strategy in tangible and understandable terms. It provides a common language for debate within the

organisation and acts as an interface between individuals who are independently developing and investing in plans for HCD and have sophisticated HR system.

The proposed framework helps to balance the various factors that need to be considered when determining the strategy for an organisation's future development. It will also help managers to deal with the remaining challenges in quantifying and measuring the benefits of HCD. Overall, it offers a practical way to provide information about an organisation's knowledge and skills: how they are valued, how they are nurtured and how they contribute to organisational sustainability. The proposed measures are seen as complimentary to the traditional financial measures and provide a way to reduce the risk of harmful short-term approaches to the management and development of human resources.

The framework's viability depends on its acceptance in practice. It was considered by several organisations for which the knowledge and skills of their employees far outweighed physical capital as a key asset. These organisations were looking for ways to integrate the complexity of human resources into a framework of organisational accountability. They needed a new model that would meet the accountability tests of relevance and reasonable measurement while, at the same time, provide more meaningful information to stakeholders.

The framework developed in this thesis will be generally well received by such organisations. A number of the measures have been accepted for immediate use while others are currently subject to further evaluation. Complete adoption may

have been hampered by a lack of the technological infrastructure required to collect all the necessary data. This creates a temporary problem in its cost-effectiveness. However, as infrastructure is upgraded, this issue will cease to be relevant. Even so, where the data is available or easily collected these organisations will progressively introduce these new performance indicators only so long as they are internally useful and perceived to be improving their accountability to stakeholders. It would appear, then, that as Pakistan catches up with the twenty-first century, the human resource accounting framework envisaged in this thesis may play an influential role in the performance measurement and accountability of organisations with respect to their human resources. This framework encourages a move away from vague, subjective terms of performance measurement to the more specific, objective language of numbers. By using it, human resource professionals will be able to show that they care equally about people and profitability. They will also be able to provide reliable evidence of the outcome of their decisions regarding HCD.

The study's qualitative results as discussed in chapter 8 help in identifying the major problems faced by the management of the Pakistani manufacturing organisation in evaluating investments in HCD and their impact on organisational performance. That is why, practitioners and researchers especially in Pakistan, should consider and adopt the model of this research, for assessing the impact of investing in HCD on the performance of their organisations.

It may one day be desirable to furnish present and potential investors with information about a firm's human capital. The framework of human resource

accounting described here will in these circumstances serve as a useful management tool. It may be used to provide potential investors with better information about the present state of an organisation and its growth possibilities. This framework not only measures all the costs or investments associated with the recruitment, placement, training, and development of employees, but also quantifies their economic value. The information provided to managers would not only assure them of the costs and benefits of specific personnel policies, but also provide feedback about their own management styles. The study's framework may also contribute to more effective management by helping managers to choose between alternative investments in HCD and the evaluation of such investments.

10.4 Research Limitations

Obtaining data and information in any sort of social research depends to a great extent on the cooperation of organisations or individuals to provide accurate, adequate and reliable information. It is a matter of fact that there is insufficient research in the field of human resource accounting in the world as a whole and in Pakistan in particular. Despite the study's promising results, the following limitations should be noted and may be addressed in the future research.

The main limitations of this study relate to the characteristics of the sample and population. To be of scientific value explanations and predictions must be generalisable. Generalisability refers to the extent to which any given results are representative of the population as a whole. Since for using sample of the specific types of organisations, this will be able to provide information that conforms to

certain criteria set by the researcher. The study's sample excluded small and medium size organisations, as it was known that they were less likely to engage in formal training and human resource development practices. Therefore, it should be remembered that the findings of this study are generalisable only to the Pakistani large-scale manufacturing organisations.

The study design targeted the Pakistani context as its core focus. The implications of the findings are therefore closely related to the context in question and should be applicable across Pakistani culture. In any context the social structure, norms and values shape individual behaviour, opinions and attitudes towards specific issues. While good care was taken to minimize biases in the findings provided, it is still likely that some respondents may have been influenced in their responses by the bias of social acceptability. According to Sekaran and Bougie (2010) some respondents will give "socially accepted" responses when answering personally administered questions. This may have affected the validity of some of the data and therefore the findings and conclusions. However, the confidential nature of the questionnaire may have helped minimize such bias. To counter these likely limitations and minimize the influence of "social bias", it is strongly recommended that this study should be replicated in a different cultural context.

Research of this nature is treated with scepticism in Pakistan, due to the conservative attitude of both organisations and individuals. They are reluctant to disclose their behaviour, especially to an outsider. This may be attributed to the scientific methodology, which is still a new concept and experience for the

country and its people. Thus, some managers were reluctant to answer questionnaires in front of the researcher. A shortage of time, heavy responsibilities and a lack of interest may also have prompted some managers to pass the questionnaire on to their lower staff members. Those staff members may themselves have been reluctant to criticise their organisation or other co-workers. It was possible to overcome the reluctant behaviour of the Pakistani organisations through the support of SECP, and the researcher's knowledge of the power of personal relationships to make things easier. Thus the top managers and other specialists made things easy and interesting and thus helped for the successful completion of the research.

One weakness in this respect is that the data was gathered in a snapshot. In order to validate the results properly, the study should be replicated at different points in time. Tippins and Sohi (2003) describe cross-sectional research as the current standard methodology in quantitative research. However, this is known to suffer from certain drawbacks such as: large number of participants, data biases, and high volume of data and accuracy of results. The researcher attempted to account for these drawbacks through the careful selection of respondents and a cross-check of their knowledge ability and involvement. However, they cannot be completely ruled out. The best way to deal with such limitations is through longitudinal studies. Whereas, given the limited time available, a further longitudinal investigation was deemed impractical. Therefore, a follow-up survey should be undertaken sometime in the future in order to give us greater confidence in the relationships identified in the present study. However, the low survey

response, reluctant behaviour of participants and the high volatility of firms might make it impossible to carry out a proper longitudinal study. In this respect, the most appropriate manner to address this issue would be to employ qualitative methods such as case studies. However, this would come at the expense of generalisability.

Indeed, any quantitative survey methodology should be preceded and followed by qualitative investigations, such as interviewing. However, due to the limited time and funds available for research, researcher has only conducted semi-structured with 10 human resource managers. As explained in Chapter 5, the decision was made to mainly conduct a quantitative survey because interviews are considered as sensitive issues for the Pakistani organisations. The exclusive reliance on quantitative methods is a limitation that should be considered in future research.

During the research survey, it was observed that although most enterprises talked about the importance of training and developing their employees, most were not properly investing in this. It may also be seen that most of the Pakistani enterprises studied have no HR department. Most of the sample enterprises had difficulty calculating the financial outcomes of their investments in training and development. The main reason for this is that most were not maintaining any sort of data about their investment in such programmes. That is why the questionnaire information might have issues of reliability and validity because the questionnaires were self-reported. According to Sekaran and Bougie (2010) personally administered survey data may produce high correlations among

measurements, in part, because the data shares a common methodological variance and thus errors in measurement are correlated with each other. Issues of reliability and validity can be controlled by replicating the survey with a new sample; however, again the lack of sufficient data and time made this impossible. This limitation should also be addressed in the future research.

Because the study was the effort of a single researcher, it was constrained by the resources available in term of time and expense. Although the research questions have been answered and the study objectives achieved, yet these limitations of resources must be acknowledged. The limitations of this research must be addressed in the future research.

10.5 Avenues for Future Research

The findings and the limitations of the study recommend the following opportunities for the future research.

First, this study examined direct relationships between dependent and independent variables. A key issue for future researchers concerns the examination of more sophisticated relationships between antecedents and outcomes. This study investigated the direct relationships between investments in human resource development and the benefits which organisations can reap from such investments. However, a range of more complicated relationships may exist. In this regard, future research might develop a new theoretical framework with which to appraise investment in human capital for different types of predictors.

Second, this thesis represents a first attempt to research on human resource accounting within the manufacturing sector using mainly a quantitative approach. Acknowledging the difficulties of such research in the manufacturing organisations of Pakistan, this study should be considered a first attempt to address the problem in a scholarly fashion. More empirical validation of the results is therefore needed. For example, comparing the results between manufacturing and service organisations within the same area may give very useful insights into the effect of human resource development on an organisation. Comparative studies are therefore suggested for the future.

Third, the sample in this study involved only large companies registered on the stock exchange (see Chapter 5). A larger sample, covering small and medium-size companies, and foreign joint venture organisations, would provide a valuable contribution to the theory. On the other hand, a larger sample targeting neighbouring countries would provide a basis for comparison, and a valuable theoretical contribution to aspects such as the mechanisms used to appraise investments in human resource development adopted in these countries.

Fourth, this research is based on a snapshot, with all its data collected within a fixed period of time. In future longitudinal studies might be carried out to show if and how organisations that were once on the verge of failure have managed to turn their situations around through investments in human resources.

Fifth, future studies might consider using a different research paradigm that can benefit from both quantitative and qualitative techniques. Triangulation may add

to an understanding of the impact on organisations of investment in human resource development. It would be particularly beneficial to use quantitative surveys alongside in-depth case studies, to provide a more nuanced picture and to shed light on processes and other aspects that cannot be captured by the questionnaire survey alone.

Finally, researchers with specific interests in human resource accounting or human capital development should remember that any study that can help to produce hard evidence on how business performance can be improved through investing in human resources that will be of great benefit to both theory and practice. Such a topic is likely to remain a fertile ground for research for the foreseeable future.

10.6 Epilogue

In conclusion, this study provides evidence of an association between investments made in the development of human capital and the benefits which organisations can reap. The independent variable, namely IHCD, has a positive impact on organisational performance in the shape of improved outcomes over the long-term. Enterprises that invest greatly in developing their human resources have reaped huge returns in the shape of both profits and growth. Organisations that take their training and development programmes seriously, conduct a proper analysis before investing in these programmes, and invest in human resource development in the most appropriate manner, can earn much higher returns. Additionally, the framework developed in this study may contribute to more

effective management by helping managers to choose between alternative investments in HCD and the evaluation of human resource development programmes. This study is purely applied in nature, as it offers an opportunity for enterprises to assess their human resource development programmes and find a way to better invest in the development of their most valuable assets. This thesis presents ground-breaking work in Pakistan and it thereby contributes to the existing global literature on management accounting in general and on human resource accounting in particular. It provides new directions for further research in this area by encouraging a debate about the importance of investing in the development of human resources for enterprises.

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Appendices

Appendix I: Letter for Data Collection from University of Bedfordshire

University of Bedfordshire

Research Graduate School
Park Square Luton
Bedfordshire LU1 3JU
United Kingdom
rgsoffice@beds.ac.uk
www.beds.ac.uk

UKBA Sponsor Licence Number: DA8AR2CH7

Student Name: Naveed Iqbal

Nationality: Pakistani

To Whom It May Concern

11th May 2011

Dear Sir or Madam,

NAVEED IQBAL

I am writing with reference to the postgraduate student named above.

Qualification Aim:	PhD	**Student Ref:**	0816894
Course type:	Postgraduate research	**Passport Number:**	FG1338922
Route of Study:	Adult Student	**Visa number:**	006543198
Actual Start Date:	18/Jan/2010	**End Date:**	17/Jan/2014
Mode of study:	Full time	**Campus:**	Luton

Director of Studies: Prof Magdy Abdel Kader

Naveed Iqbal is currently registered as a student on a PhD degree in the Business and Management Institute here at the University of Bedfordshire.

Naveed Iqbal has confirmed they will be leaving the UK on 4th June 2011 and returning on 29th September 2011 the purpose of this trip is final data collection.
This has been approved by the student's Director of Studies as indicated above.

Yours faithfully,

University of
Bedfordshire
Research
Graduate
School

Professor Angus Duncan
Head of Research Graduate School
University of Bedfordshire
Luton
LU1 3JU

INVESTOR IN PEOPLE

Registered Office
Park Square Luton
Bedfordshire LU1 3JU
England

Vice Chancellor
Professor Les Ebdon CBE

Appendix II: Letter from SECP

SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN

SECP

No. EMD/Misc/2011/75 /

June 30, 2011

TO WHOM IT MAY CONCERN

This is to certify that **Mr. Naveed Iqbal** is a permanent faculty member of the "University of the Punjab", Pakistan. He is studying Ph.D at the Business School of University of Bedfordshire, United Kingdom (UK), since January 2010. He has been studying abroad on a scholarship programme under the Faculty Development Program of Higher Education Commission (HEC). In accordance with aforesaid programme, "University of the Punjab, Pakistan" is responsible for all the payment covering his tuition fees and monthly allowance for his living expenses during his stay in UK.

2.   In accordance with the aforesaid programme, Mr. Iqbal is conducting a research which is based on developing a framework of accounting for appraising of the investment made in human resource development by the manufacturing organizations operating in Pakistan. Therefore, in order to collect the data from the manufacturing organizations for his research, Mr. Iqbal is currently on a field trip to Pakistan.

3.   Your assistance and cooperation in this regard would be highly appreciated.

Yours truly,

30/06/2011

Moeed Hassan
Assistant Director (Enforcement)

NIC Building, 63 Jinnah Avenue, Islamabad.
PABX: 051-9207091-4, Fax: 9218592 & 9204915, E-mail: webmaster@secp.gov.pk Website: www.secp.gov.pk

Appendix III: Research Survey Consent Form

Title of Research: A Framework of Management Accounting for Assessing the Impact of Investment in Human Capital Development on Organisational Performance in Pakistan

Researcher: Naveed Iqbal, PhD Student, Business School, University of Bedfordshire, UK.

Contact Information: Naveed.Iqbal@beds.ac.uk

Purpose of the Research: This thesis aims to empirically examine the impact of human capital development on the enterprises. It is based on some conceptual aspects of human resource accounting that how investments in the development of human capital can be measured to investigate the financial returns for the organisations.

What is involved in participating?

I will ask you to participate in questionnaire survey. If you are agree then please complete this consent form and send it back to us.

Your participation is voluntary and you can choose to decline to answer any question or even to withdraw at any point form the project. Anything you say will only be attributed to you with your permission: if not, the information will be reported in such a way as to make direct association with yourself impossible.

Confidentiality also means that the questionnaire will be coded and stored in such a way as to make it impossible to identify them directly with any individual (e.g. they will be organised by number rather than by name)

Consent: (Please tick on appropriate box)

I have read the above information and I am agree to participate in this study   ☐

Participant's signature: _____

Date: _____

Appendix IV: Cover Letter of Questionnaire

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Business and Management Research Institute

Dear Sir,

The Research Survey on Accounting for Human Capital Development in the Pakistani Manufacturing Organisations

We are conducting a study which aims to examine empirically that whether investment made in human resource development has any effect on the bottom line of the business of enterprises. This study will help organisations to understand the importance and benefits of human resource development.

This ground breaking research in Pakistani manufacturing sector will be conducted on primary hands on approach. We have short listed your esteemed organisation based on its credibility, performance, size, structure and qualified human resource. To accomplish our goal of data collection, we would like to request you to fill the enclosed questionnaire.

We assure you that all the data collected for this study would be kept confidential and only used for research purposes. This first of its kind research in Pakistan will enable us to understand and evaluate the benefits and importance of investment in human resource development. Your contribution to this research will open new horizons for economic development in Pakistan.

Sincerely

Naveed Iqbal Chaudhry

PhD Scholar

Registered Office
Park Square Luton
Bedfordshire LU1 3JU
England, UK

Appendix V: Questionnaire

Section One: The purpose of this section is to obtain general information related to your manufacturing organisation and yourself as an anonymous participant in this research.

Q l: What type of products do you manufacture in your industry? (Please tick one)

Sr.	Sector	
1	Textile	
2	Paper and Board	
3	Sugar and Allied Sector	
4	Cement Sector	
5	Engineering Sector	
6	Chemical and Pharmaceuticals	
7	Leather and Sports Goods	
8	Fuel and Energy Sector	
9	Auto and Allied Sector	
10	Cables and Electric Goods Sector	
11	Miscellaneous (please specify Name_____)	

Q2: What is the total number of employees in your organisation?

☐   Less than 500

☐   501 to 1000

☐   1001 to 1500

☐   1501 to 2000

☐   2001 to 2500

☐   2501 to 3000

☐   Above 3000

Q3: Which of the following latest systems of manufacturing do you use in your production process?

Methods	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Material requirement planning (MRP)					
Computer aided design (CAD)					
Flexible manufacturing systems (FMS),					
Automated materials handling					
Computer-aided test/inspection					
Compute based trainings					

Q4: Do you have Human Resource Department in your organisation?

☐ Yes   ☐ No

-If **Yes** please answer to Question 4 and 5
- If **No,** please go to Question 5

Q54: How long has your human resource development department been established?

☐ Less than five years   ☐ 6 to 10 years   ☐ above 10 years

Q6: How many employees in your human resource development department are responsible for human capital development programmes?

☐ Less than 10 employees   ☐ 11 to 20 employees   ☐ bove 20 employees

Q7: If your answer to Question 3 is **No** *then who is responsible for human capital development programmes in your organisation.*

☐ Accounting department

☐ Administration department

☐ Finance department

☐ Production department

☐ Other (name please_____)

Part two: Personal Information

Q8: What is your nationality?

☐ Pakistani   ☐ Non- Pakistani

Q9: What is your Gender?

☐ Male   ☐ Female

Q10: What is your highest level of formal education?

☐ Less than graduation

☐ University graduation

☐ Master degree

☐ MPhil

☐ PhD

☐ Other (name please_____)

Q11: What is your age?

☐ Less than 25 years

☐ 26 to 30 years

☐ 31 to 35 years

☐ 36 to 40 years

☐ 41 to 45 years

☐ Above 45 years

Q12: How many years of work experience do you have in total? | _____year |

Q13: For how many years you are working in the current organisation? | _____year |

Q14: What is the level of your job in this organisation?

☐ Top Level

☐ Middle Level

☐ Lower level

> **Section Two:** The purpose of this section is to obtain information related to, your organisation's training and development plan and policy

Q15: Does your organisation have any invest plan for human resource development programs?

☐ Yes   ☐ No

-If **No** then please go to question 19

Q16: *How do you describe this plan with reference to time horizon?*

☐ Long term (over 5 years)
☐ Medium term (1-5years)
☐ Short term (less than one year)

Q17: What is the nature of training and development policy in your organisation?

☐ Formal (written)   ☐ nformal (unwritten)

Q18: Who is responsible for formulating human capital development plans policies in your organisation?

☐ Human resource department
☐ Head of particular department
☐ Board of directors
☐ Others (name please_____)

Q19: What percentage of your plan can you reasonably expect to see implemented?
☐ *Less than 30%*
☐ 30 to 50%
☐ 50 to 70%
☐ 70 to 90%
☐ Above 90%

<div style="border: 1px solid black; padding: 10px;">

Section Three: The purpose of this section is to understand how human capital development plans are implemented in your organisation.

</div>

Q20: Do you conduct formal training and development needs assessments in your organisation?

☐ Never ☐ Seldom ☐ Sometimes ☐ Usually ☐ Always

Q21: Which of the following methods do you use to determine training needs?

Methods	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Questionnaire					
Personal Interview					
Direct Observation					
Human Resource committee					
Performance appraisal reports					
Others					

Q22: When is need analysis conducted for human resources in your organisation?

Circumstances	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
At the time of recruiting a new employee					
When employees need training about new equipment or new working method					
When performance efficiency assessments are made					
When employees are upgraded to fill vacant positions					
When a particular department requires it					
When employees requires it					

Q23: Which of the following forms of training and development methods does your organisation use?

☐ On- the-Job ☐ Off-the-Job

Q24: Which of the following training methods are used in your organisation?

Tools	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Lecturers					
Management Games					
Case Study					
Special Projects					
Group Discussion					
Role playing					
Brainstorming					
Field Visits					
Audio video aids					
Rotations					
Computer Based					

Section Four: The purpose of this section is to highlight details about the investment made in the human capital development by your organisation.

Q25: Does your organisation invest in human resource development programs?

☐ Never ☐ Seldom ☐ Sometimes ☐ Usually ☐ Always

Q26: How much money did your organisation spend on human capital development programmes in a year?

☐ Less than Rs 10,00,000
☐ 10,00,000 to 20,00,000
☐ 20,00,000 to 30,00,000
☐ 30,00,000 to 40,00,000
☐ 40,00,000 to 50,00,000
☐ Above Rs 50,00,000

Q27: What percentage of your total organisation's budget does the training and development investment represent?

☐ Less than 10%   ☐ 10 – 20%   ☐ 20 – 30%   ☐ 30 – 40%   ☐ Above 40%

Q28: How adequate is your budget for achieving the objectives of the training and Development programmes?

☐ Very adequate   ☐ Adequate   ☐ Do not know   ☐ Inadequate   ☐ Very inadequate

---

Section Five: The purpose of this section is to highlight details about the ways of evaluation or measurement of investment made in the human capital development by your organisation.

Q29: Do you evaluate your training and development programmes in your organisation?

☐ Never   ☐ Seldom   ☐ Sometimes   ☐ Usually   ☐ Always

Q30: Which department is involved in the evaluation of the investment made in human resource development programs?

☐ Human Resource Department
☐ Accounting Department
☐ Other (name please_____)

Q31: How frequently investment in human resource development programs is evaluated in your organisation?

☐ After every investment   ☐ Monthly   ☐ Quarterly   ☐ Half Yearly   ☐ Yearly

Q32: Which types of tools are used to collect data regarding evaluation of the investment made on human resource development in your Organisation?

Tools	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Questionnaire					
Interview					
Test					
Observation					
Attitude Survey					
Performance Appraisal Reports					
Others					

Q33: Which evaluation model is used for evaluation of human resource development programs in your organisation?

Model Used	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Kirkpatrick's four level model					
CIRO Model (cost, input, reaction, outcome)					
Investor in people					
Benchmarking					
Cost Benefit Analysis					
Human Resource Accounting (BCR, PBP, BLE, ROI, WACC etc)					

Q34: Which of the following inputs of the investment made of human resources are measured in your organisation?

Inputs	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Training and development expenditures					
Number of employees receiving training					

Training expenditure per employee					
Training hours					
Trainers' fee					
Travelling and daily allowance					
Number of courses offered					
Course development cost					
Cost of facilities and equipment					

Q35: Which of the following outputs of the investment made on human resources are measured in your organisation?

Outputs	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Job satisfaction					
Customer satisfaction					
Increase in productivity					
Reduction work in process time					
Reduction in repairs and returns					
Reduction in HR issues					
Increase in sales					
Increase in profitability					

Q36: What type of challenges does your organisation face while evaluating human resource development programs?

Challenges	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Cost of doing evaluation well					
Determining impact on financial performance					
Time required to do evaluation					
Identifying appropriate qualitative measure					

Finding appropriate quantitative evaluation methods					
Getting trainees and managers participation					
Involvement of top management					
Finding qualified evaluation professionals					
Translating results in top management's language					
Determining actions based on evaluation					

Q37: Does your organisation face following difficulties in obtaining information about the human resource development programs?

Difficulties	Never (1)	Seldom (2)	Sometimes (3)	Usually (4)	Always (5)
Latest advancement in evaluation techniques					
Finding out methods used by other organizations					
Information about evaluation tools					
Information about how to conduct effective evaluation					
Information of available evaluation resources					
Information about outsiders providing evaluation assistance					

Section Six: The purpose of this section is to highlight details about the methods of accounting used for appraising of investment made in the human capital development by your organisation.

Q38: How much cost does your organisation has to incur on training and development of its human resources?

Cost	0 - .5% (1)	0.5 - 1% (2)	1 - 2% (3)	2 - 5% (4)	Above 5% (5)
Cost of Trainers					
Cost of Trainees					
Cost of Facilities and Training Materials					
Travelling and Daily Cost (TADA)					

Miscellaneous Cost					

Q39: How much benefits does (in monetary terms) your organisation expect to earn from the investment made in human resource development programs?

Benefit	**0 - 2%** **(1)**	**2 - 5%** **(2)**	**5 - 8%** **(3)**	**8 -10%** **(4)**	**Above 10%** **(5)**
Increase in revenue or production					
Savings due to reduction in errors and complaints					
Savings due to reduction in repair cost and wastage					
Saving due to reduction in HR issues					
Saving due to reduction in work-in- process time					

Q40: Does your organisation calculate benefit-to-cost ratio before investing in HCD programs.

1	Never	**2**	Seldom	**3**	Sometimes	**4**	Usually	**5**	Always

Q41: What will be the estimated ratio of benefit- to- cost of the investment made in human resource development programs by your organization?

- ☐ 0 to 1 times
- ☐ 1 to 2 times
- ☐ 2 to 4 times
- ☐ 4 to 6 times
- ☐ Above 6 times

Q42: Does your organisation evaluate the impact on the bottom line (overall profitability) of business before investing in HCD programs.

1	Never	**2**	Seldom	**3**	Sometimes	**4**	Usually	**5**	Always

Q43: What will be estimated rate on increase in the overall profitability of your organisation due to the investment made in human capital development?

| 1 | 0%-2% | 2 | 2%-5% | 3 | 15%-8% | 4 | 18%-10% | 5 | Above 10% |

Q44: Does your organisation calculate return on investment before investing in HCD programs.

| 1 | Never | 2 | Seldom | 3 | Sometimes | 4 | Usually | 5 | Always |

Q45: What will be the estimated rate of return on investment (ROI) made in human resource development programs by your organization?

| 1 | 0%-5% | 2 | 5%-10% | 3 | 10%-15% | 4 | 15%-20% | 5 | Above 20% |

Q46: Does your organisation weighted average cost of capital before investing in HCD programs.

| 1 | Never | 2 | Seldom | 3 | Sometimes | 4 | Usually | 5 | Always |

Q47: What will be the estimated rate of weighted average cost of capital (WACC) invested in human resource development programs by your organization.

| 1 | 0%-5% | 2 | 5%-10% | 3 | 10%-15% | 4 | 15%-20% | 5 | Above 20% |

Q48: Does your organisation calculate the estimated payback period before investing in HCD programs.

| 1 | Never | 2 | Seldom | 3 | Sometimes | 4 | Usually | 5 | Always |

Q49: In your opinion, how many years it will take to start getting payback on the investment made in human resource development programs by your organisation?

| 1 | 0-1 year | 2 | 1-5 years | 3 | 5- 10 years | 4 | 10-15 years | 5 | above 15 years |

Q50: Do you think human resources are important for your organisation? If yes then why?

_____

_____

_____

_____

_____

Q51: Do you think that the investment made by your organisation on human resource development is financially viable?

☐ Yes ☐ No

(b) If yes, how does your organisation measure its financial viability?

_____

_____

_____

_____

(Wish you best of luck!)

Appendix VI: Survey Questionnaire Coding and Labelling

Sr. No	Constructs/ Variable Name	Code	No of items	Question Number
1	Organisational Performance	**OP**	8	35
2	Investment in human capital development	**IHCD**	5	38
3	Benefits of Investing in HCD	**BIHCD**	5	39
4	Benefit –to- cost ratio	**BCR**	3	33, 40, 41
5	Payback Period	**PBP**	3	33, 48, 49
6	Bottom- line Evaluation	**BLE**	3	33, 42, 43
7	Return on Investment	**ROI**	2	44, 45
8	Weighted average cost of capital	**WACC**	2	46, 47
9	Organisational size	**OS**	1	2
10	Provisions for Specialist HR department	**PSHRD**	4	4 to 7
11	Policies for HCD	**PHCD**	4	15 , 16, 17 & 19
12	Methods of Human Resource Development	**MHRD**	8	23, 24
13	Use of technology	**UT**	4	3

Appendix VII: Graphical Results of Normality and Outliers Detection

A – Organisational Performance Normality Q-Q plot and Box plot
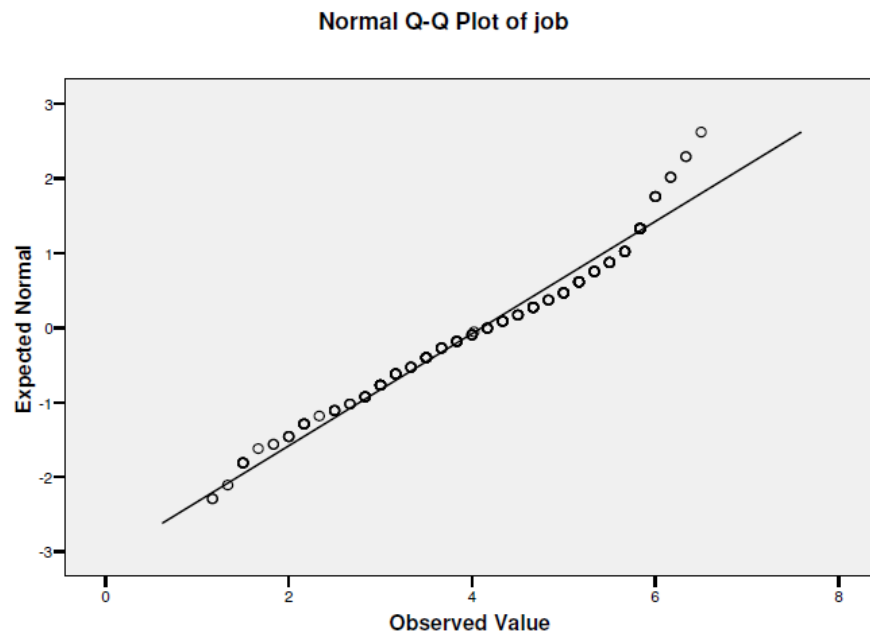
Outlier detection Box plot
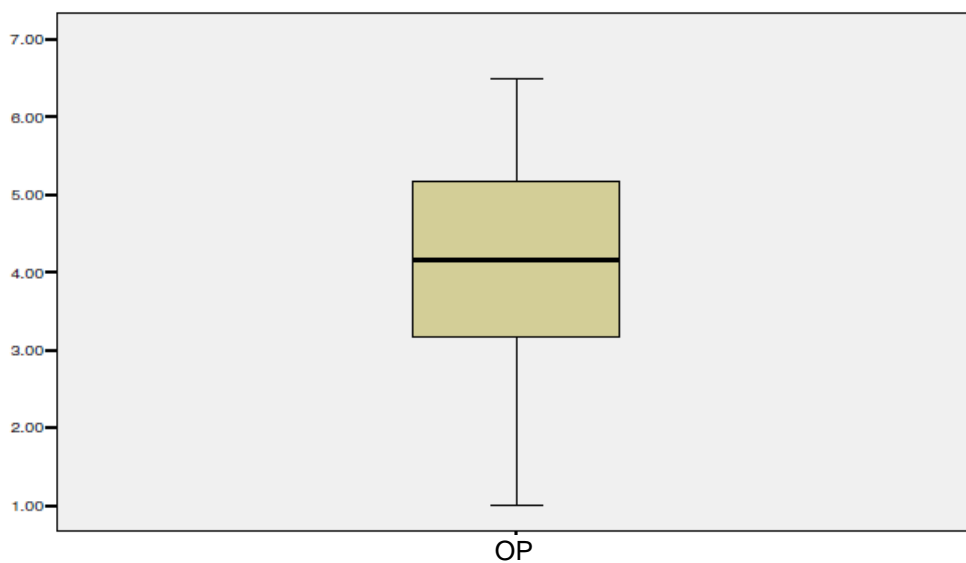
B – IHCD Normality Q-Q plot and Box plot

Outlier detection Box Plot

IHCD

C – Appraisal of IHCD Normality Q-Q plot and Box plot

Outlier detection Box Plot

AIHCD

D- HR Sophistication Normality Q-Q plot and Box plot

Outlier detection Box Plot

Appendix VIII: List of Interview Questions

University of Bedfordshire
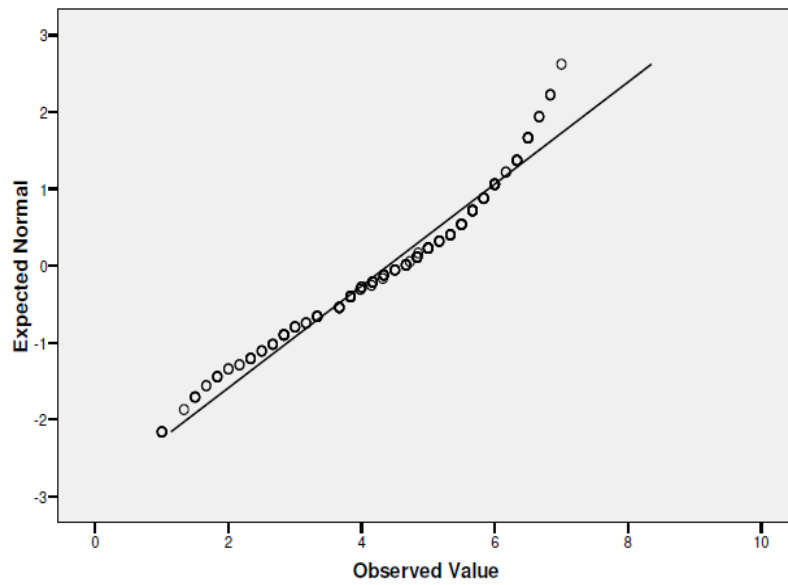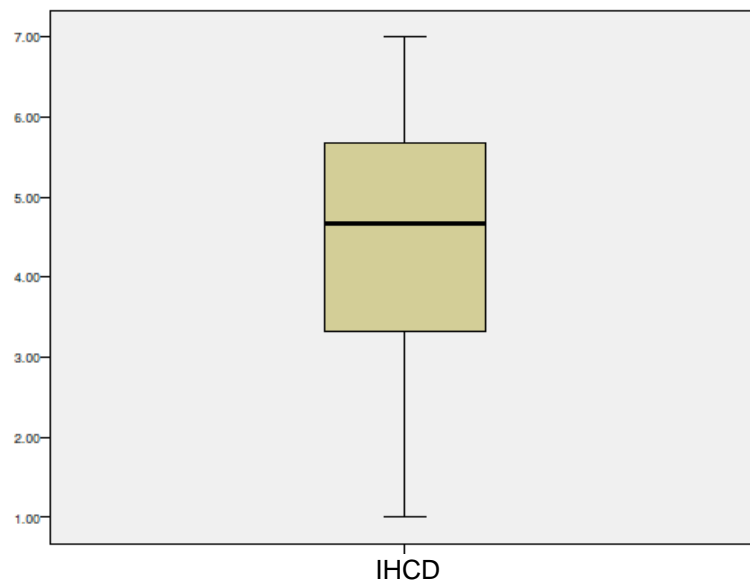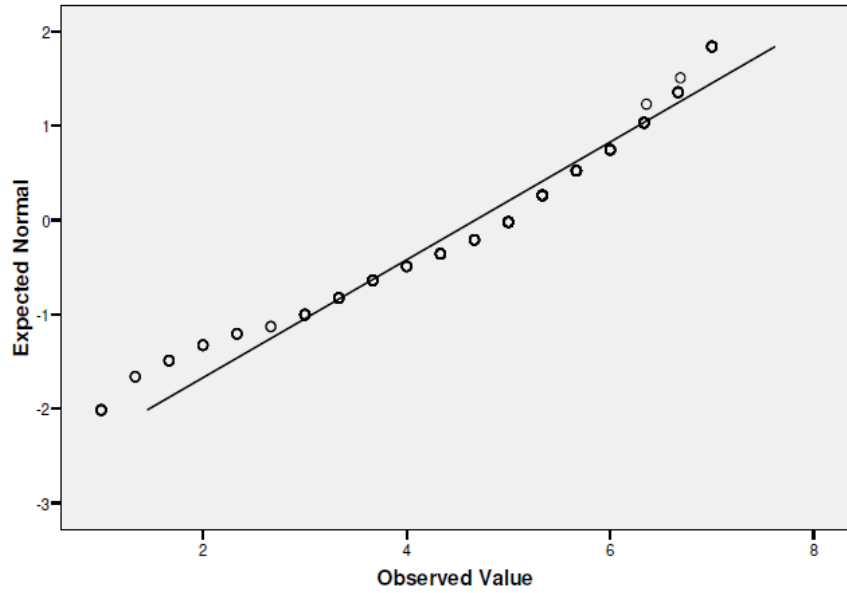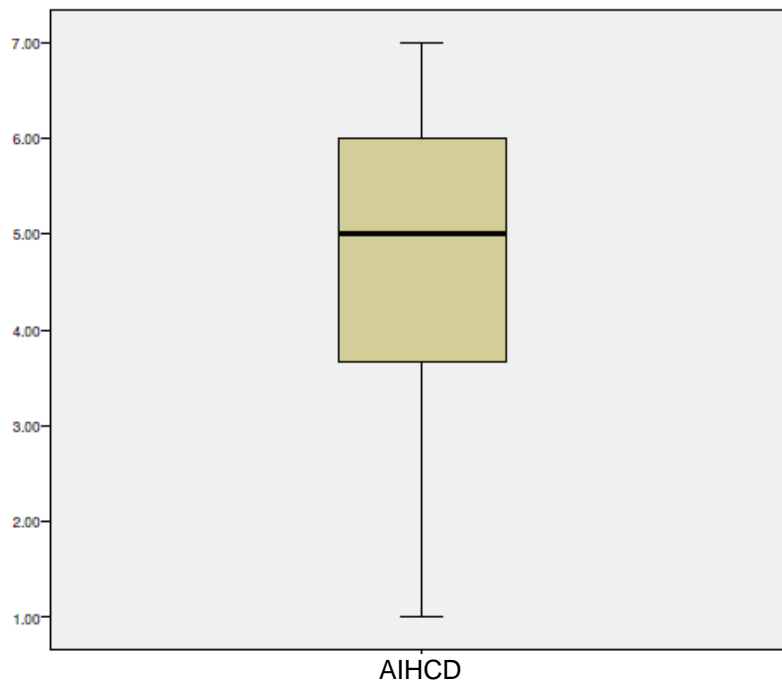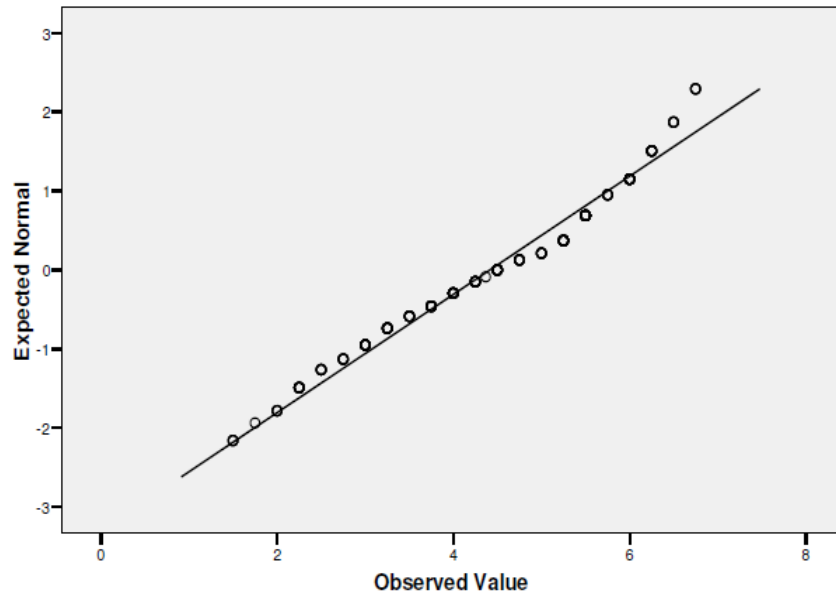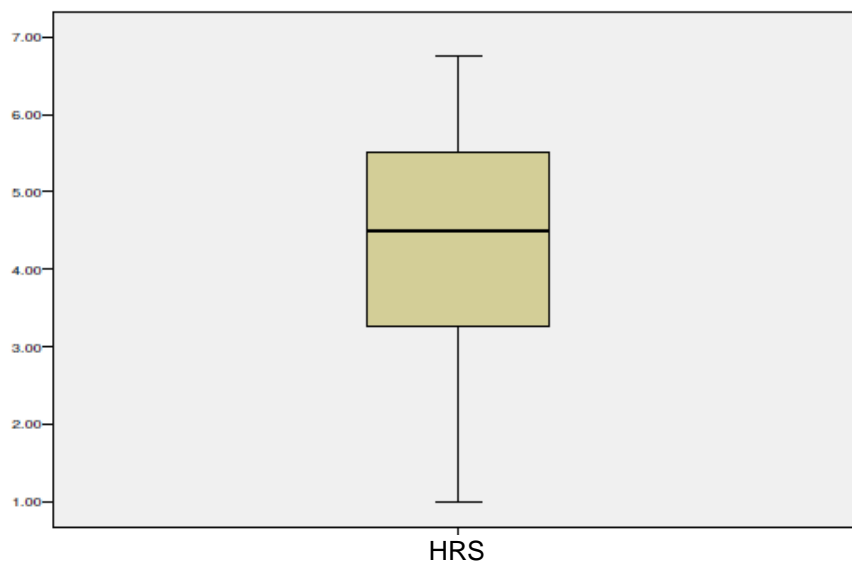
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The List of Interview Questions

Hello Dear Sir, my name is Naveed Iqbal and I am a PhD student in Management Accounting. As part of the research for my thesis, I am undertaking a study entitled, "A Framework of Management Accounting for Assessing the Impact of Investment in Human Capital Development on Organisational Performance in Pakistan".

I am thankful to you for agreeing to participate in this study.

Date: ------------------------------

Start time of interview---------------------------------

Finish time of interview-------------------------------

- What are the major financial investment appraisal measures of human resource accounting formally used in your organisation for appraisal of investments made in human capital development and their impact on the organisational performance?

- What are the aims of their usage, please explain?

- What are the main factors that affect your performance evaluation measures usage, please explain?

- What would you say about the general trend of results for investing in human resource development programmes on your organisational performance during last years as compare to your competitors?

- What are the major effects of using investment and performance evaluations on your organisation's performance?

- Please explain in depth the benefits of using a list of financial and non-financial measures used your organisation for measuring organisational performance?

- Are there any difficulties or problems that your organisation faced in its current performance measurement and investment evaluations systems? If "yes" what are these difficulties or problems and are there any solutions?

Thank you,
Naveed Iqbal

INVESTORS IN PEOPLE | Gold

POSITIVE ABOUT DISABLED PEOPLE

THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2011

Registered Office
Park Square Luton
Bedfordshire LU1 3JU
England

Vice Chancellor
Professor Les Ebdon CBE DL

Appendix IX: List of Surveyed Organisations

SR NO	COMPANIES	DATE
1	A.A. COTTON MILLS LTD	09-06-11
2	A.A. SPINNING MILLS LTD	09-06-11
3	A.J. TEXTILE MILLS LTD	09-06-11
4	ABBOTT LABORATORIES (PAKISTAN) LIMITED	09-06-11
5	ABDULLAH SHAH GHAZI SUGAR MILLS LIMITED	09-06-11
6	ABSON INDUSTRIES LIMITED	09-06-11
7	ABU BAKAR TEXTILE MILLS	09-06-11
8	ACRO SPINNING & WEAVING MILLS LIMITED	11-06-11
9	ACRO TEXTILE MILLS LTD	11-06-11
10	ADAM SUGAR MILLS LIMITED	11-06-11
11	ADOS PAKISTAN LIMITED	11-06-11
12	AGRIAUTO INDUSTRIES LIMITED	11-06-11
13	AHMAD HASSAN TEXTILE MILLS LTD	11-06-11
14	AHMED FINE TEXTILE MILLS LTD	13-06-11
15	AHMED ORIENTAL TEXTILE MILLS LTD	13-06-11
16	AISHA STEEL MILLS LIMITED	13-06-11
17	AKRAM COTTON MILLS LTD	13-06-11
18	AKZO NOBEL PAKISTAN LIMITED	13-06-11
19	AL-ABBAS CEMENT INDUSTRIES LIMITED	13-06-11
20	AL-ABID SILK MILLS LIMITED	14-06-11
21	AL-GHAZI TRACTORS LIMITED	14-06-11
22	AL-NASR TEXTILES LTD	14-06-11
23	AL-NOOR SUGAR MILLS LIMITED	14-06-11
24	AL-ZAMIN TEXTILE MILLS LTD	14-06-11
25	AMTEX LIMITED	15-06-11
26	ANMOL TEXTILE MILLS LTD	15-06-11
27	ANSARI SUGAR MILLS LIMITED	15-06-11
28	ANWAR TEXTILE MILLS LTD	15-06-11
29	APOLLO TEXTILE MILLS LTD	15-06-11
30	ARAIN MILLS LIMITED	15-06-11
31	ARAIN TEXTILE MILLS LTD	16-06-11
32	ARSHAD TEXTILE MILLS LTD	16-06-11
33	ARSHAD USMAN TEXTILE MILLS	16-06-11
34	ARUJ GARMENT ACCESSORIES LIMITED	16-06-11
35	ASHIANA COTTON PRODUCTS LTD	16-06-11
36	ASIAN FOOD INDUSTRIES LTD.	18-06-11
37	ATLAS BATTERY LIMITED	18-06-11
38	ATLAS HONDA LIMITED	18-06-11
39	ATTOCK REFINERY LIMITED	18-06-11
40	AYESHA SPINNING MILLS LTD	18-06-11

41	AYESHA TEXTILE MILLS LTD	20-06-11
42	BABA FARID SUGAR MILLS LIMITED	20-06-11
43	BABRI COTTON MILLS LTD	20-06-11
44	BALOCHISTAN GLASS LIMITED	21-06-11
45	BALOCHISTAN PARTICLE BOARD LIMITED	21-06-11
46	BANNU WOOLEN MILLS LTD	21-06-11
47	BARKAT TEXTILE MILLS LTD	21-06-11
48	BATA PAKISTAN LIMITED	21-06-11
49	BAWANY SUGAR MILLS LIMITED	22-06-11
50	BELA AUTOMOTIVE LIMITED	22-06-11
51	BESTWAY CEMENT LIMITED	22-06-11
52	BHANERO TEXTILE MILLS LTD	22-06-11
53	BILAL FIBRES LTD	23-06-11
54	BLESSED TEXTILES LIMITED	23-06-11
55	BOLAN CASTING LIMITED	23-06-11
56	BUXLY PAINTS LIMITED	23-06-11
57	BYCO PETROLEUM PAKISTAN LIMITED	25-06-11
58	CENTURY PAPER & BOARD MILLS LIMITED	25-06-11
59	CHAKWAL SPINNING MILLS LTD	25-06-11
60	CHAKWAL TEXTILE MILLS LTD.	25-06-11
61	CHASHMA SUGAR MILLS LIMITED	25-06-11
62	CHAUDHRY SUGAR MILLS LTD	25-06-11
63	CHENAB LIMITED	27-06-11
64	CHERAT CEMENT COMPANY LIMITED	27-06-11
65	CHERAT PACKAGING LIMITED	27-06-11
66	CHINIOT TEXTILE MILLS LTD	27-06-11
67	COLGATE- PALMOLIVE (PAKISTAN) LIMITED	27-06-11
68	COLONY MILLS LTD	27-06-11
69	CRESCENT BAHUMAN LIMITED	28-06-11
70	CRESCENT COTTON MILLS LTD.	28-06-11
71	CRESCENT FIBRES LIMITED	28-06-11
72	CRESCENT JUTE PRODUCTS LIMITED	28-06-11
73	CRESCENT STEEL & ALLIED PRODUCTS LIMITED	28-06-11
74	CRESCENT TEXTILE MILLS LTD	30-06-11
75	D. G. KHAN CEMENT COMPANY LIMITED	30-06-11
76	D.M. TEXTILE MILLS LIMITED	30-06-11
77	D.S. INDUSTRIES LTD	30-06-11
78	D.S. TEXTILES LTD	30-06-11
79	DADABHOY CEMENT INDUSTRIES LIMITED	30-06-11
80	DADABHOY SACK LIMITED	02-07-11
81	DANDOT CEMENT COMPANY LIMITED	02-07-11
82	DAR-ES-SALAAM TEXTILE MILLS LTD	02-07-11
83	DATA AGRO LIMITED	02-07-11

84	DAWOOD HERCULES CORPORATION LIMITED	02-07-11
85	DAWOOD LAWRENCEPUR LIMITED	02-07-11
86	DESCON CHEMICALS LIMITED	04-07-11
87	DESCON OXYCHEM LIMITED	04-07-11
88	DEWAN AUTOMOTIVE ENGINEERING LIMITED	04-07-11
89	DEWAN CEMENT LIMITED	04-07-11
90	DEWAN FAROOQ MOTORS LIMITED	04-07-11
91	DEWAN FAROOQUE SPINNING MILLS LTD	04-07-11
92	DEWAN SUGAR MILLS LIMITED	04-07-11
93	DEWAN TEXTILE MILLS LTD	05-07-11
94	DIAMOND FABRICS LIMITED	05-07-11
95	DIAMOND INDUSTRIES LIMITED	05-07-11
96	DIN TEXTILE MILLS LTD	05-07-11
97	DYNEA PAKISTAN LIMITED	05-07-11
98	EASTERN SPINNING MILLS LTD.	05-07-11
99	EJAZ SPINNING MILLS LTD	06-07-11
100	EJAZ TEXTILE MILLS LTD	06-07-11
101	ELLCOT SPINNING MILLS LTD	06-07-11
102	EMCO INDUSTRIES LTD	06-07-11
103	ENGRO CORPORATION LIMITED	06-07-11
104	ENGRO FOODS LIMITED	06-07-11
105	ENGRO POLYMER & CHEMICALS LIMITED	06-07-11
106	EXIDE PAKISTAN LIMITED	07-07-11
107	FAISAL SPINNING MILLS LTD	07-07-11
108	FARAN SUGAR MILLS LIMITED	07-07-11
109	FATEH TEXTILE MILLS LTD	07-07-11
110	FATIMA FERTILIZER COMPANY LTD.	07-07-11
111	FAUJI CEMENT COMPANY LIMITED	09-07-11
112	FAUJI FERTILIZER BIN QASIM LIMITED	09-07-11
113	FAUJI FERTILIZER COMPANY LIMITED	09-07-11
114	FAZAL CLOTH MILLS LTD	09-07-11
115	FECTO CEMENT LIMITED	09-07-11
116	FEROZSONS LABORATORIES LIMITED	11-07-11
117	FLYING CEMENT COMPANY LIMITED	11-07-11
118	FRONTIER CERAMICS LIMITED	11-07-11
119	GADOON TEXTILE MILLS LTD	11-07-11
120	GAMMON PAKISTAN LIMITED	11-07-11
121	GHANDARA NISSAN LIMITED	11-07-11
122	GHANDHARA INDUSTRIES LIMITED	12-07-11
123	GHANI AUTOMOBILE INDUSTRIES LIMITED	12-07-11
124	GHANI GLASS LIMITED	12-07-11
125	GHANI VALUE GLASS LIMITED	12-07-11
126	GHARIBWAL CEMENT LIMITED	12-07-11

127	GHAZI FABRICS INTERNATIONAL LTD	13-07-11
128	GILLETTE PAKISTAN LIMITED	13-07-11
129	GLAMOUR TEXTILE MILLS LTD	13-07-11
130	GLAXO SMITH KLINE PAKISTAN LIMITED	13-07-11
131	GLOBE TEXTILE MILLS (OE) LTD	13-07-11
132	GOLDEN TEXTILE MILLS LTD.	13-07-11
133	GUL AHMED TEXTILE MILLS LTD	14-07-11
134	GULISTAN FIBERS LIMITED	14-07-11
135	GULISTAN SPINNING MILLS LTD	14-07-11
136	GULISTAN TEXTILE MILLS LTD.	14-07-11
137	GULSHAN WEAVING MILLS LTD	14-07-11
138	HABIB HASEEB SPINNING MILLS LTD	16-07-11
139	HABIB SUGAR MILLS LIMITED	16-07-11
140	HALA ENTERPRISES LIMITED	16-07-11
141	HASEEB WAQAS SUGAR MILLS LIMITED	16-07-11
142	HASHMI CAN COMPANY LIMITED	16-07-11
143	HIGHNOON LABORATORIES LIMITED	18-07-11
144	HINOPAK MOTORS LIMITED	18-07-11
145	HIRA TERRY MILLS LTD	18-07-11
146	HIRA TEXTILE MILLS LTD	18-07-11
147	HONDA ATLAS CARS (PAKISTAN) LIMITED	18-07-11
148	HUFFAZ SEAMLESS PIPE INDUSTRIES LIMITED	19-07-11
149	HUSEIN SUGAR MILLS LIMITED	19-07-11
150	HUSSAIN MILLS LTD	19-07-11
151	IBRAHIM FIBRES LIMITED	19-07-11
152	ICC TEXTILES LIMITED	20-07-11
153	ICI PAKISTAN LIMITED	20-07-11
154	IDEAL SPINNING MILLS LTD	20-07-11
155	IDREES TEXTILE MILLS LTD	20-07-11
156	IMPERIAL TEXTILE MILLS LTD	21-07-11
157	INDUS MOTOR COMPANY LIMITED	21-07-11
158	ISHAQ TEXTILE MILLS LIMITED	21-07-11
159	ISMAIL INDUSTRIES LIMITED	21-07-11
160	ITTEHAD CHEMICAL LIMITED	21-07-11
161	JAMHOOR TEXTILE MILLS LTD	23-07-11
162	JDW SUGAR MILLS LIMITED	23-07-11
163	JOHNSON AND PHILLIPS (PAKISTAN) LIMITED	23-07-11
164	JUBILEE SPINNING & WEAVING MILLS LTD	23-07-11
165	KARAM CERAMICS LIMITED	23-07-11
166	KASHIR TEXTILE MILLS LTD.	25-07-11
167	KOHAT CEMENT COMPANY LIMITED	25-07-11
168	KOHAT TEXTILE MILLS LTD.	25-07-11
169	KOHINOOR MILLS LTD	25-07-11

170	KOHINOOR SPINNING MILLS LTD	26-07-11
171	KOHINOOR SUGAR MILLS LIMITED	26-07-11
172	KOHINOOR TEXTILE MILLS LTD.	26-07-11
173	LAFARGE PAKISTAN CEMENT LIMITED	26-07-11
174	LEINER PAK GELATINE LIMITED	27-07-11
175	LUCKY CEMENT LIMITED	27-07-11
176	MACPAC FILMS LIMITED	27-07-11
177	MANDVIWALA MAUSER PLASTIC INDUSTRIES LIMITED	27-07-11
178	MAPLE LEAF CEMENT FACTORY LIMITED	27-07-11
179	MARGALLA TEXTILE MILLS LTD	28-07-11
180	MARHABA TEXTILE LTD	28-07-11
181	MASOOD FABRICS LTD	28-07-11
182	MASOOD SPININNG MILLS LTD.	28-07-11
183	MASOOD TEXTILE MILLS LTD	30-07-11
184	MASTER TEXTILE MILLS LIMITED	30-07-11
185	MAYFAIR LIMITED	30-07-11
186	MEHTABI SPINNING MILLS	30-07-11
187	MERIT PACKAGING LIMITED	30-07-11
188	MIAN TEXTILE INDUSTRIES LTD	01-08-11
189	MILLAT EQUIPMENT LIMITED	01-08-11
190	MILLAT TRACTORS LIMITED	01-08-11
191	MIRPURKHAS SUGAR MILLS LIMITED	01-08-11
192	MIRZA SUGAR MILLS LIMITED	02-08-11
193	MITCHELL'S FRUIT FARMS LIMITED	02-08-11
194	MONNOO INDUSTRIES LTD	02-08-11
195	MONNOOWAL TEXTILE MILLS LTD	02-08-11
196	MURREE BREWERY COMPANY LIMITED	02-08-11
197	MUSTEHKAM CEMENT LIMITED	03-08-11
198	NAGINA COTTON MILLS LIMITED	03-08-11
199	NATIONAL FOODS LIMITED	03-08-11
200	NIMIR INDUSTRIAL CHEMICALS LIMITED	03-08-11
201	NISHAT (CHUNIAN) LIMITED	03-08-11
202	NISHAT MILLS LIMITED	04-08-11
203	NOON SUGAR MILLS LIMITED	04-08-11
204	NOON TEXTILE MILLS LTD	04-08-11
205	OIL AND GAS DEVELOPMENT COMPANY LIMITED	04-08-11
206	OLYMPIA BLENDED FIBRE MILLS LTD.	06-08-11
207	OLYMPIA SPINNING & WEAVING MILLS LTD	06-08-11
208	OLYMPIA TEXTILE MILLS LIMITED	06-08-11
209	ORIENT TEXTILE MILLS LTD.	06-08-11
210	PACKAGES LIMITED	06-08-11
211	PAK ELEKTRON LIMITED	08-08-11
212	PAK KUWAIT TEXTILES LTD	08-08-11

213	PAK LEATHER CRAFTS LIMITED	08-08-11
214	PAK SUZUKI MOTOR COMPANY LIMITED	08-08-11
215	PAKISTAN CABLES LIMITED	08-08-11
216	PAKISTAN CEMENT COMPANY LIMITED	09-08-11
217	PAKISTAN ENGINEERING COMPANY LIMITED	09-08-11
218	PAKISTAN GUM & CHEMICALS LIMITED	09-08-11
219	PAKISTAN PAPER PRODUCTS LIMITED	09-08-11
220	PAKISTAN PETROLEUM LIMITED	10-08-11
221	PAKISTAN STATE OIL COMPANY LIMITED	10-08-11
222	PAKISTAN SYNTHETICS LIMITED	10-08-11
223	PAKISTAN TOBACCO COMPANY LIMITED	10-08-11
224	PANGRIO SUGAR MILLS LIMITED	11-08-11
225	PATOKI SUGAR MILLS LTD	11-08-11
226	PHILIP MORRIS (PAKISTAN) LIMITED	11-08-11
227	PIONEER CEMENT LIMITED	11-08-11
228	PROSPERITY WEAVING MILLS LTD	11-08-11
229	PUNJAB OIL MILLS LIMITED	13-08-11
230	QUICE FOOD LIMITED	13-08-11
231	QURESHI TEXTILE MILLS LTD	13-08-11
232	RAFHAN MAIZE PRODUCTS COMPANY LIMITED	13-08-11
233	RAI TEXTILE MILLS LTD	13-08-11
234	RAVI SPINNINGS LTD	13-08-11
235	RAVI TEXTILE MILLS LIMITED	15-08-11
236	REGAL CERAMICS LIMITED	15-08-11
237	RESHAM TEXTILE INDUSTRIES LTD.	15-08-11
238	RUPALI POLYESTER LIMITED	15-08-11
239	S.S.OIL MILLS LIMITED	15-08-11
240	SAJJAD TEXTILE MILLS LIMITED	16-08-11
241	SAKRAND SUGAR MILLS LIMITED	16-08-11
242	SALLY TEXTILE MILLS LTD	16-08-11
243	SAMIN TEXTILES LTD.	17-08-11
244	SANGHAR SUGAR MILLS LIMITED	17-08-11
245	SAPPHIRE FIBERS LTD.	17-08-11
246	SAPPHIRE TEXTILE MILLS LIMITED	17-08-11
247	SARDAR CHEMICAL INDUSTRIES LIMITED	17-08-11
248	SARDARPUR TEXTILE MILLS LIMITED	18-08-11
249	SARGODHA SPINNING MILLS LTD	18-08-11
250	SARHAD TEXTILE MILLS LIMITED	18-08-11
251	SARITOW SPINNING MILLS LTD.	20-08-11
252	SAZGAR ENGINEERING WORKS LIMITED	20-08-11
253	SECURITY PAPER LIMITED	20-08-11
254	SERVICE INDUSTRIES LIMITED	20-08-11
255	SERVICE INDUSTRIES TEXTILES LTD	24-08-11

256	SHADAB TEXTILE MILLS LIMITED	24-08-11
257	SHADMAN COTTON MILLS LTD	24-08-11
258	SHAFFI CHEMICAL INDUSTRIES LIMITED	24-08-11
259	SHAFI SPINNING MILLS LTD	27-08-11
260	SHAFI TEXCEL LIMITED	27-08-11
261	SHAHNAWAZ TEXTILES LTD.	27-08-11
262	SHAHTAJ SUGAR MILLS LIMITED	27-08-11
263	SHAHTAJ TEXTILE LTD	05-09-11
264	SHAHZAD TEXTILE MILLS LTD	05-09-11
265	SHAKARGANJ FOODS LIMITED	05-09-11
266	SHAMS TEXTILE MILLS LTD	05-09-11
267	SHEIKHUPURA TEXTILE MILLS LTD	07-09-11
268	SHELL PAKISTAN LIMITED	07-09-11
269	SHEZAN INTERNATIONAL LIMITED	07-09-11
270	SHIELD CORPORATION LIMITED	08-09-11
271	SHOAIB SALMAN TEXTILE MILLS	08-09-11
272	SHUJABAD WEAVING MILLS LTD	08-09-11
273	SIEMENS (PAKISTAN) ENGINEERING COMPANY LIMITED	08-09-11
274	SINDH ABADGAR'S SUGAR MILLS LIMITED	08-09-11
275	SITARA CHEMICAL INDUSTRIES LIMITED	10-09-11
276	SITARA SPINNING MILLS LTD	10-09-11
277	SOHAIL TEXTILE MILLS LIMITED	10-09-11
278	STANDRAD TEXTILE MILLS	10-09-11
279	SUHAIL JUTE MILLS LIMITED	12-09-11
280	SULEMAN SPINNING MILLS LIMITED	12-09-11
281	SUNRAYS TEXTILE MILLS LTD	12-09-11
282	SUPER ASIA MUHAMMAD DIN SONS LIMITED	15-09-11
283	SUPERIOR TEXTILE MILLS LTD	15-09-11
284	SURAJ COTTON MILLS LTD	15-09-11
285	SURAJ GHEE MILLS LTD	19-09-11
286	SYED MATCH COMPANY LIMITED	19-09-11
287	TANDLIANWALA SUGAR MILLS LIMITED	19-09-11
288	TARIQ GLASS INDUSTRIES LIMITED	20-09-11
289	TAXILA ENGINEERING COMPANY LIMITED	20-09-11
290	THE CLIMAX ENGINEERING COMPANY LIMITED	20-09-11
291	THE GENERAL TYRE AND RUBBER COMPANY	20-09-11
292	THE SEARLE COMPANY LIMITED	21-09-11
293	TRANSMISSION ENGINEERING INDUSTRIES LIMITED	21-09-11
294	TREET CORPORATION LIMITED	21-09-11
295	TRI-PACK FILMS LIMITED	22-09-11
296	TRITEX COTTON MILLS LTD	22-09-11
297	UNILEVER PAKISTAN LIMITED	22-09-11
298	YOUSAF WEAVING MILLS LIMITED	22-09-11

299	YUNUS TEXTILE MILLS LTD.	24-09-11
300	ZAHIDJEE TEXTILE MILLS LTD.	24-09-11
301	ZAINAB TEXTILE MILLS LTD	27-09-11
302	ZAMAN TEXTILE MILLS LTD	27-09-11
303	ZEPHYR TEXTILES LIMITED	27-09-11
304	TOYO INTERNATIONAL MOTORCYCLE	28-09-11
305	SUPER ASIA MOTORS (PVT) LTD	28-09-11
306	PAKLITE ELECTRICAL INDUSTRIES	28-09-11
307	MASTER SANITARY FITTINGS INDUSTRIES	28-09-11
308	MASTER TILES & CERAMICS INDS. LTD.	28-09-11
309	HEERA FOOD INDUSTRIES	28-09-11
310	ANCON GROUP OF INDUSTRIES	29-09-11
311	TAMSEEL GROUP OF INDUSTRIES	29-09-11
312	KING BEVERAGES INDUSTRIES LIMITED	29-09-11
313	KHURRAM AZEEM & CO	29-09-11
314	INDUS PLASTIC INDUSTRIES	29-09-11
315	ANCON GROUP OF INDUSTRIES	29-09-11
316	KHADIM HUSSAIN SONS & INTERNATIONAL	29-09-11
317	KAHKASHAN SURGICAL CO	30-09-11
318	BLESS ENGINEERING COMPANY	30-09-11
319	KARIM PAK INDUSTRIES	30-09-11
320	ZULAIKHA TEXTILE MILLS LTD.	30-09-11