

Impact of Human Resource Development Interventions on Organizational Effectiveness: A Study on Indian Cement Industry

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(Roll Number: 512SM1006)

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under the supervision of

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This is to certify that the work presented in the dissertation entitled *Impact of Human Resource Development Interventions on Organizational Effectiveness: A Study on Indian Cement Industry* submitted by *Rama Krishna Gupta P*, Roll Number 512SM1006, is a record of original research carried out by him under my supervision and guidance in partial fulfilment of the requirements of the degree of *Doctor of Philosophy* in *School of Management*. Neither this dissertation nor any part of it has been submitted earlier for any degree or diploma to any institute or university in India or abroad.

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Dedication

*This work is dedicated to my father Sasi Bhusahan Rao Potnuru
and my mother Uma Devi Potnuru*

Declaration of Originality

I, *Rama Krishna Gupta P*, Roll Number 512SM1006 hereby declare that this dissertation entitled *Impact of human resource development interventions on organizational effectiveness: A study on Indian cement industry* presents my original work carried out as a doctoral student of NIT Rourkela and, to the best of my knowledge, contains no material previously published or written by another person, nor any material presented by me for the award of any degree or diploma of NIT Rourkela or any other institution. Any contribution made to this research by others, with whom I have worked at NIT Rourkela or elsewhere, is explicitly acknowledged in the dissertation. Works of other authors cited in this dissertation have been duly acknowledged under the sections “Reference”. I have also submitted my original research records to the scrutiny committee for evaluation of my dissertation.

I am fully aware that in case of any non-compliance detected in future, the Senate of NIT Rourkela may withdraw the degree awarded to me on the basis of the present dissertation.

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Abstract

Cement industry is one of the key industries playing a vital role in the growth and development of the nation. Cement is the most preferred building material in India and its demand in the economy can be linked to the economic development activity in the country. There has been tremendous growth of activities in the Indian cement industry in terms of modernization, in order to keep pace with such modernization due to technological development; a strong manpower base equipped with latest development has to be built within Cement industry. Human Resource Development (HRD) interventions have to be implemented to update knowledge and improve the skills of personnel at all levels including the fresh talents in the industry.

Seminal works in developed countries have advocated that organizational performance is influenced by employee competencies through the implementation of HRD interventions. However, the past studies emphasizing on HRD interventions to enhance employee competencies are scarce in India. Thus, this research examined the impact of HRD interventions on employee competencies towards building organizational effectiveness in Indian cement industry. Specifically, the study focuses on gauging the perceptions of employees of Indian cement manufacturing units on HRD interventions, organizational learning culture, employee competencies and organizational effectiveness to build a logical relationship among the variables.

A survey was conducted among the employees of Indian cement industry situated in two Indian states Andhra Pradesh and Odisha. The selected cement manufacturing plants for the study are Jaypee Balaji Cement Plant (a unit of Jaypee Group), Madras Cements Ltd. (a unit of Ramco Group), OCL India Ltd. (a unit of Dalmia Bharat Group), Bargarh Cement Ltd. (a unit of the Associated Cement Companies Ltd.), and Jharsuguda Cement Works (a unit of Ultratech Cement Ltd.). A structured questionnaire comprising of eighty six items was administered among nine hundred fifty two respondents by adopting the method of simple random sampling. In the process of opinion survey, six hundred fifty three useful responses were retrieved owing to a response rate of sixty eight per cent. The responses obtained were subjected to analysis by using SPSS 20 and AMOS 20. The preliminary analysis of data was conducted by using the descriptive statistics, correlation and regression analysis. Then, the hypothesized research model was validated by using statistical tools such as exploratory factor analysis and structural equation modelling.

The findings reveal that HRD interventions have a significant association with employee competencies. Similarly, found that organizational learning culture significantly moderates the relationship between HRD interventions and employee competencies. Further, employee competencies are significantly associated with goal oriented and competing values approach to organizational effectiveness. Along with these employee competencies partially mediated the relationship between HRD interventions and goal oriented approach to organizational effectiveness and fully mediated with competing values approach to organizational effectiveness.

Thus, this research provides a holistic framework that may act as a blueprint for cement manufacturing organizations to assess and improve employee competencies as well as improve organizational effectiveness. Further, the study may also provide substantial evidence to the HRD managers for improvement of HRD practices and development of organizational learning culture through appropriate policies and procedures at the workplace along with enhancement of employee competencies towards significant outcome of organizational effectiveness.

Keywords: HRD Interventions, Organizational Learning Culture, Employee Competencies, Organizational Effectiveness, Cement Industry, India.

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Abbreviations

AGFI	Adjusted goodness-of-fit index
AMOS	Analysis of Moment Structure
ASTD	American Society of Training and Development
AVE	Average Variance Extracted
BRIC	Brazil, Russia, India, and China
CAGR	Compounded Annual Growth Rate
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMB	Common Method Bias
CM	Career Management
CMIE	Centre for Monitoring Indian Economy
CR	Construct Reliability
CRISIL	Credit Rating Information Services of India Limited
CVAOE	Competing Values Approach to Organizational Effectiveness
EFA	Exploratory Factor Analysis
EE	Employee Empowerment
EC	Employee Competencies
GDP	Gross Domestic Product
GFI	Goodness-of-fit Index
GOAOE	Goal Oriented Approach to Organizational Effectiveness
IMF	International Monetary Fund
KMO	Kaiser–Meyer–Olkin
NFI	Normed Fit Index
NSDC	National Skill Development Corporation
OLC	Organizational Learning Culture
PNFI	Parsimonious Normed Fit Index
PA	Performance Appraisal
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modelling
SPSS	Statistical Package for Social Sciences
STEM	Science, Technology, Engineering, and Math
TLI	Tucker Lewis index
TB	Team Building
TD	Training and Development
USGS	United States Geological Survey
VIF	Variance Inflation Factor

Chapter 1

Introduction

There has been tremendous growth of activities in the Indian cement industry in terms of internal factors like modernization and changing work environment. In addition, rapid changes in external factors, such as globalization and technological innovations are compelling organizations to constantly search for innovative ways to enhance organizational effectiveness. Georgopoulos and Tannenbaum, (1957), defined organizational effectiveness as “the extent to which an organization as a social system, given certain resources and means, fulfils its objectives without incapacitating its means and resources and without placing undue strain upon its members.” The analysis of factors that explain the competitive advantage of companies have revealed that employee competencies are the resources that enable organizations to maintain their competitive edge and enhance organizational effectiveness (Diaz-Fernandez et al., 2014; Youndt et al., 2004). Chen and Naquin (2006) defined employee competencies as, “the underlying individual work-related characteristics like skills, knowledge, attitudes, beliefs, motives, and traits that enable successful job performance, where “successful” is understood to be in keeping with the organization’s strategic functions.” Enhancing the knowledge level, skill level and quality of the workforce is an important aspect of survival of the Indian cement organization. The recruitment of competent workforce adapting to changing business environment is the most difficult one. The cement manufacturing organizations have to implement different HRD interventions to develop their workforce competence and to enhance organizational effectiveness. HRD interventions refers to the programs, which are designed to be strategically oriented to organizational process for managing the development of human resources to contribute to the overall success of the organization (Werner and DeSimone, 2006). Thus, the present study highlights the aspects of long-term sustainability of Indian cement organizations by examining the relationship between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness. The introductory chapter begins with a background of the study. It also presents the statement of the problem and the significance of the study. Further, this chapter illustrates the purpose, objectives of the study and the research questions. Finally, it provides an outline of the thesis structure.

1.1 Background of the Research

India is the second largest producer of cement in the world and a vital part of its economy, providing employment to more than a million people, directly or indirectly. India has a lot of potential for development in the infrastructure and construction sector. Some of the recent major government initiatives such as development of hundred smart cities are expected to provide a major boost to the sector. The Indian cement industry is running towards modernization of cement plant, and demanding additional technical manpower at all levels. Singh (2003), and Mohideen and Alphonse (2015) in their study of Indian cement industries had cautioned that, the availability of skilled workforce has become one of the major challenges of this industry and there is a big shortfall between availability and demand of competent manpower. Further, technological changes are taking place in every department of cement manufacturing units at a rapid pace. Recent studies (Roy, 2004; Singh and Banerjee, 2005; Babu and Reddy, 2013; Vijayalakshmi, 2012; Kumar, 2015) on Indian cement manufacturing plants has suggested that the skills and knowledge of manpower already employed in existing cement plants, have to be upgraded in areas like operations, utilization of alternate and unconventional raw materials, energy conservation, quality control and pollution control. Thus, the Indian cement industry need to focus on human resource development interventions for enhancement of employee competencies as a result of which organizational effectiveness can be achieved.

Human resource development was the basic component for employees to acquire competencies that, in turn significantly improve organizational performance. As stated by Haslinda (2009), HRD interventions improve employees' capabilities on the job performance, productivity and efficiency, as well as enhance the quality of goods and services. Scholars investigating the outcome of HRD interventions reports that it improves employees' capabilities on the job, productivity, and efficiency (Haslinda, 2009). Yuvaraj and Mulugeta (2013) also provided a similar result that explains HRD interventions continuously improve employees' capability and performance through the existing practices of training, career development, performance appraisal and management, and organization development as the key components of HRD. In this study, focus was given to examine five interventions: training, career management, performance appraisal, team building and employee empowerment that were being widely implemented in Indian cement manufacturing industries.

According to Lawler and Ledford (1997), when an organization has a suitable strategy and competent employees, rendering to changing business environment is considered an effective organization. Whereas, the achievement of the anticipated strategic results depends upon employee's cohesion, communication, coordination, commitment and enhancement of appropriate competencies (Cartwright and Baron, 2002). Nilsson and Ellstrom (2012) had suggested that developing HRD strategies in an organization is an opportunity for employees to enrich their competencies that contribute in aggregate to organizational effectiveness. Eminent researchers have suggested that the selection of a suitable candidate for the appropriate position should be combined with the development and enhancement of employee competencies that are relevant to the business strategies and objectives. This is regarded as very crucial for improved employee performance, higher productivity, and assist in building a core competence of an organization which can lead to organizational effectiveness (Collings and Mellahi, 2009; Lewis and Heckman, 2006; Tarique and Schuler, 2010).

Human resource development alone is not sufficient to enhance employee competencies to a greater level because not all knowledge and skills obtained from human resource development programs is properly transferred (Froehlich et al., 2014). Thus, an organization should create a learning culture in the organization, so that employee can share, acquire and create knowledge and skills, which can modify the behaviour of the employees. Organizational learning culture refers to a set of norms and values about the functioning of an organization that supports systematic organizational learning so that individual learning, teamwork, collaboration, creativity, and knowledge distribution have collective meaning and value (Torres-Coronas and Arias-Oliva 2008: 177).

1.2 Statement of the Research Problem

The cement industry in India has undergone a paradigm shift in recent years. India is the second largest producer and consumer of cement in the world, after China. Currently, the housing sector is the biggest demand booster for cement, accounting 67% of the total consumption. The other major consumers include infrastructure at 13%, commercial construction at 11%, followed by industrial construction at 9% (Outlookmoney, 2016). According to Centre for Monitoring Indian Economy (CMIE) report, the real estate sector alone is likely to see project completions worth Rs. 20000 billion during 2016-18. It also expects activity to pick-up in the roads and highways construction space during the same period. About 8,314 km of roads is expected to be constructed during 2016-18. During the

subsequent year, infrastructure companies are expected to construct 8,624 kms of road. This is much more than 3,400-4,500 km of road network added in each of the preceding five years. To meet the rise in demand, cement companies are expected to add 56 million tons (MT) capacity over the next three years. The cement capacity in India may register a growth of eight per cent by next year-end to 395 MT from the current level of 366 MT. It may increase further to 421 MT by the end of 2018. The country's per capita consumption stands at around 190 kg. The Union Budget of India 2017-18 has made provisions of Rs. 2413.87 billion for the transportation sector that includes railways, roadways and shipping. As far as the roadways are concerned, there has been a considerable increase in the budget allocation from Rs. 579.76 billion in 2016-17 to Rs. 649 billion in 2017-18. According to the Union Budget of India 2016-17, funds of Rs. 190 billion were allocated for the development of infrastructure in rural areas. Hence, such initiatives signifies the fact that infrastructure development is one of the focus-areas for the Indian government. These government initiatives for the development of infrastructure would drive the growth of cement industry in India.

The cement industry provides direct employment to approximately 1.4 million persons, while also creating indirect employment through process machinery manufacture, raw materials and other sources. It is estimated that one million tons of cement production provide employment to around 50,000 persons. The future scenario of the industry demands additional technical manpower at all levels, suitably trained in the operation and management of modern cement plants. However, the availability of competent manpower is one of the major challenges faced by the cement industry presently. Further, technological changes are taking place in every department of cement manufacturing plants at a rapid pace. Consequently, the skills of manpower already employed in existing cement plants, has to be upgraded. As per the "Report on working group on cement industry for XII five year plans (2012-2017)" published by Ministry of Commerce and Industry, Govt. of India, estimated that in a one MT per annum cement production in modern cement plant require around 400 skilled technical workers. Out of this 400, around 150 will be at managerial and supervisory levels. It is estimated that the cement industry will require a total of 43,000 skilled technical workers for about 108 million tonnes of greenfield expansion, 17,000 for about 42 million tonnes of brownfield expansion and 6,000 for 3000 MW captive power plant operation. Accordingly, about 66,000 additional technical workers, including 23,000 engineers and supervisors, will be required to attain the targeted

capacity additions. In addition, the industry will require about 50,000 unskilled workers; this does not include the replacement demand of personnel that would arise in the plants already in existence.

A recent report by the National Skill Development Corporation (NSDC) on “human resource and skill requirement in the construction materials and building hardware” has clearly outlined skills required by the employees as per the technological changes, and their skill gaps in the Indian cement industry. The report has divided the employees of cement industry into three levels: managerial, supervisory and workmen. In the managerial level, the report has found that employees are inefficient to lead plant expansion initiatives, lack necessary skills to keep track of international trends in the cement industry, and inability to coordinate between various departments. At the supervisory level, the identified skill gaps are incompetent to manage workman and maintain discipline, insufficient technical knowledge, and inability to undertake and ensure preventive maintenance. Lastly, the report indicates that the workforce is unable to understand the technicalities of the work being done, possess inadequate knowledge of quality tools and latest manufacturing techniques and lack of ability to practice safety measures. Hence, the present circumstance of employee’s skill gap raises the importance of human resource development in the Indian cement industry for organizational effectiveness.

Recent studies (Long et al., 2013; Jiang and Liu, 2015; Delery and Gupta, 2016) on various manufacturing sectors have advocated that organizational effectiveness is highly influenced by employee competencies. Prior research studies have focused on human resource development and its impact on organizational effectiveness by referring the Indian cement industry. The majority of researchers has examined this relationship by focusing on a single component of human resource development such as training (Babu and Reddy, 2013; Vijayalakshmi, 2012; Kumar, 2015; Singh and Banerjee, 2005), performance management (Mohideen and Alphonse, 2015; Rathod, 2012), and team building (Trehan and Setia, 2014). However, there is a lack of concrete studies that have empirically validated the effect of human resource development components or interventions on organizational effectiveness, especially in the Indian context.

The early streams of human resource development research have investigated the effect of HRD practices on organizational performance. The first research stream examined the different HRD practices (such as performance management, training, career development,

etc.) individually and assessed the corresponding effect of such practices on firm performance. The second stream of research accented the combined effect of interrelated HRD practices rather than, any specific practice on organizational performance. Prior researchers duly established the importance of human resource development and organizational performance linkage by focusing on single output such as employee productivity. Despite a considerable amount of work in the human resource development field, the relationship between human resource development and organizational effectiveness is still unexplored and demands in-depth analysis. A seminal work of Marsick and Watkins's (2003) on organizational learning culture is perhaps the most significant contribution in establishing human resource development and organizational performance linkage. They highlighted organizational learning culture as a vital component of human resource development that significantly affects the employee-related outcomes within the organization. Empirical support for the impact of HRD interventions as an individual way or the combined way on organizational effectiveness has been found lacking (Alagaraja, 2013; Katou, 2009).

In the light of the above discussion, comprehensive understanding of HRD interventions and organizational effectiveness linkage, particularly in the context of Indian cement industry has become highly essential. The insights gathered from empirical validation of this linkage would assist the HRD managers, policy makers, and government for formulating policies and procedures for development of employee competencies.

1.3 Research Questions

This research will strive towards finding the answers to the following research questions:

- Is there any relationship between HRD interventions and employee competencies?
- Does organizational learning culture will moderate the relationship between HRD interventions and employee competencies?
- Is there any relationship existing between employee competencies and goal-oriented approach to organizational effectiveness?
- Do employee competencies affect competing values approach to organizational effectiveness?
- Does employee competency play a mediating role in between HRD interventions and goal oriented approach to organizational effectiveness?

- Whether employee competencies play a mediating role in between HRD interventions and competing values approach to organizational effectiveness?

1.4 Justification of the Study

India today is the second fastest growing economy in the world with the cement and construction sector being the prime movers. The Indian cement industry with a total installed capacity of more than 350 million tonnes is the second largest producer in the world and has been growing at a rate of 9 to 10 per cent per annum. The net profit growth rate of cement firms was 85%, which has contributed around 8% to the GDP of India. With a large percentage of Indian population being below the age of 25, the construction activity is expected to make a significant contribution in the context of growing housing needs, development of roads and other infrastructure, urbanization, etc.

Cement manufacturing is increasingly mechanised and computer simulation oriented. There is also an impetus towards the promotion of nanotechnology based production methodologies. This demands the creation of new jobs and increased skill sets in order to match the changing characteristics of production. However, the existing skills set of human resources is different in present scenario, has huge gap between skills required and skills possessed. The changing organizational context is also forcing employees to learn while working, where the organization has to implement policies and procedures to enhance organizational learning culture. Thus, the cement industry needs adequate strategies for enhancing the employee competencies to improve their organizational effectiveness.

Several scholars in the field of HRD (Alagaraja 2013; Alagaraja et al., 2015; Clardy 2008) examined and worked towards establishing a linkage between HRD and organizational performance. The study conducted by Alagaraja et al., (2015) contributed five important approaches for examining the linkage: (i) best-fit model (strategy based), (ii) best-fit approach (characteristics of the organization based), (iii) best-practice model (adoption by other firms based), (iv) combination of best-fit approach, (v) best-practice model and stake holder's perception based. Grounded on above-mentioned approaches, we found, prior research in HRD has conceptualized and empirically established a positive relationship between single or interrelated sets of HRD practices and organizational effectiveness (Colbert et al., 2014; Rahman et al., 2013). Employee involvement (Riordan et al., 2005), employee communication (Chen, 2008), personality (Colbert et al., 2014), knowledge

management process (Rahman et al., 2013) are some of the components that bridged the relationship between HRD and organizational effectiveness.

Diverse studies have explored the constructs like HRD interventions, employee competencies, organizational learning culture, and organizational effectiveness; whereas limited studies have investigated these four constructs simultaneously to reflect the organizational dynamics. However, the past studies have hardly reflected on the moderating role of organizational learning culture in enhancing employee competencies through HRD interventions as evidenced through the extant review of existing literature relating to the scope of the study. It was observed that this would be an important research gap, which needs immediate attention to be given in the present scenario.

Despite the well-known fact that HRD interventions contribute to employee competencies, the role of organizational learning culture cannot be undermined. The conducive environment for sharing and acquiring of knowledge can happen in the presence of favourable organizational learning culture. However, the relationship between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness is still in the early stages of exploration in the Indian context. To address this issue, the present study intends to explore the direct relationship between HRD interventions and employee competencies, and simultaneously examination of the moderating role of organizational learning culture on above relationship. In addition, the present study has examined the mediating role of employee competencies in between HRD interventions and organizational effectiveness.

1.5 Scope of the Study

India's cement production has increased at a compounded annual growth rate (CAGR) of 6.7 % to 270.32 million tonnes over FY07–15. As per the 12th Five Year Plan, cement production is expected to reach 407 million tonnes by FY17. In total, 188 large cement plants cumulatively account for 97 % of the total installed capacity in the country, while 365 small plants make up the rest. Among these 188 large cement plants, 77 plants are located in the states of Andhra Pradesh, Rajasthan and Tamil Nadu. In the context of this study, selection of cement manufacturing plants in India were grounded on following points: (i) based on region wise cement consumption and demand, (ii) based on cement production in million tons in cement manufacturing plants, (iii) technology up gradation in the manufacturing process, and (iv) convenience to conduct the survey. According to

CRISIL (2014), cement report on country's region-wise (East, West, South, North, and Central), cement demand has shown substantial growth in the demand for cement. Among the five regions, South with 16% and East with 9.5% of CAGR stands on the top of cement demand for the next five years. The major demand drivers of these regions are (a) construction of new capital Amaravathi for the state of Andhra Pradesh (b) construction of irrigation and power projects and individual housing projects and (c) demand in the eastern region is largely driven by several industrial projects that are being implemented in the mineral resource rich state of Odisha. Thus, based on cement consumption and region-wide demand, two states have been chosen for the study such as Andhra Pradesh (Southern region) and Odisha (Eastern region). In addition, the selection of cement manufacturing companies is based on cement plants having a production of above four million tons per annum, plant undergone for technology up gradation in the manufacturing process and at the same time convenience for data collection. Hence, based on the above-mentioned criteria, the study was conducted in various cement manufacturing plants located in major parts of Andhra Pradesh (Jaggayyapet and Vishakhapatnam) and Odisha (Rajgangpur, Jharsuguda, and Bargarh). The selected cement manufacturing plants for the study are Jaypee Balaji Cement Plant (a unit of Jaypee Group), Madras Cements Ltd. (a unit of Ramco Group), OCL India Ltd. (a unit of Dalmia Bharat Group), Bargarh Cement Ltd. (a unit of the Associated Cement Companies Ltd.), and Jharsuguda Cement Works (a unit of Ultratech Cement Ltd.).

1.6 Significance of the Study

This study integrates the resource-based view and organizational perspective of performance to create a strong theoretical foundation by exploring the effects of HRD interventions and organizational learning culture on employee competencies and its influence on employees' perceived organizational effectiveness. The significance of the study is four fold. First two provides theoretical significances and last two provides practical significances.

First, this study provides empirical evidences to bridge the knowledge gaps with regard to the relationship between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness. Even though HRD interventions and organizational learning culture are considered critical concepts and practices for modern organizations, most of the existing literature focuses on the conceptual level and consider

commitment, turnover, productivity, profitability as primary outcome variables. Few studies have attempted to examine the moderating role of organizational learning culture on individual outcomes such as commitment, engagement, and satisfaction. Thus, the significance of the study lies in providing empirical validation of the moderating role of organizational learning culture towards the relationship of HRD interventions and employee competencies, and the mediating role of employee competencies towards indirect relationship between HRD interventions and organizational effectiveness.

Second, organizational effectiveness is difficult to define, is constantly changing and usually requires the organization to determine what is to be measured for effectiveness (Reimann, 1975; Roy and Dugal, 2005). Due to the complexity in defining organizational effectiveness, researchers began to develop models, which are used to measure the effectiveness of an organization rather than defining it (Baruch and Ramalho, 2006). These models can be one dimensional or multi-dimensional in nature. In order to facilitate a better understanding of the relationship between employee competencies and organizational effectiveness, the present research included the views of senior corporate executives. Based on discussions with senior executives of the cement-manufacturing plants and a panel of experts, it was conceptualized that organizational effectiveness as a multi-dimensional construct involving two distinct approaches, i.e. goal oriented and competing values approach. The goal-oriented approach mainly focused on operational processes consisting of three critical factors, namely, resource optimization, cohesive workforce, product quality and productivity. Competing value approach relates to the three vital factors such as adaptation, innovation and flexibility, which are crucial for sustainability of the organizations in the dynamic business environment. Therefore, the significance of the study lies in validating the relationship between employee competencies and the two approaches of organizational effectiveness simultaneously.

Third, from a practical perspective, this study can provide valuable information to organizations and HRD practitioners in order to improve the influence of HRD interventions and organizational learning culture on employee competencies and its impact on organizational effectiveness. The study helps in identifying the most influential HRD interventions and highlights the importance of organizational learning culture. Accordingly, organizations can draw insights and develop specific requirements and

conditions needed for providing a culture of learning and sharing. In addition, it would assist the HRD managers in constructing a framework to enrich employee competencies.

Lastly, the cement manufacturing plants located in the different states of India like Andhra Pradesh, Telangana, Odisha etc. are considered as appropriate cases to supplement the study. According to a recent report, “Skill gap assessment for the state of Odisha: A district-wise analysis” and “Skill gap assessment for the state of Andhra Pradesh: A district-wise analysis” published by the National Skill Development Corporation has found that there is a considerable gap between demand and supply of skilled manpower. In addition, the availability of skilled manpower around these cement manufacturing plants is low. Therefore, the present study may assist the government and policy makers to formulate initiatives or policies, as per the requirements of the cement industry for development of the existing workforce.

1.7 Originality and Motivation behind the Study

- The review of literature illustrates that there is a lack of research on the impact of HRD interventions on organizational effectiveness with reference to the Indian cement industry. The Indian research (Rathod, 2012; Delery and Gupta, 2016) in this area has focussed on the relationship between a single set of HRD practices rather than the combined effect of HRD interventions with the outcomes of organizational effectiveness, which was found to be an interesting area.
- Prior research works (Colbert et al., 2014; Jiang and Liu, 2015; Rahman et al., 2013) in HRD have conceptualized and empirically established a positive relationship between single or interrelated sets of HRD practices and organizational effectiveness. Employee involvement (Riordan et al., 2005), employee communication (Chen, 2008), personality (Colbert et al., 2014) and knowledge management process (Rahman et al., 2013) are some of the components that bridged the relationship between HRD and organizational effectiveness. Nevertheless, as per the resource based view (RBV) employee competencies play an important role in the development of competitive advantage and enhancement of organizational effectiveness, which call for the study in the linkage of HRD and organizational effectiveness.

- The role of HRD interventions has become utmost important, as it shapes the overall competencies of the employee. Furthermore, this prevailing process may be ‘moderated’ by organisational contextual variables such as management style and organisational learning culture (Joo and Shim, 2010; Škerlavaj et al., 2010). Diverse studies have explored the constructs like HRD interventions, employee competencies, organizational learning culture, and organizational effectiveness; whereas limited studies have investigated these four constructs simultaneously to reflect the organizational dynamics. However, the previous studies scarcely reflected upon the moderating role of organizational learning culture in enhancing employee competencies through HRD interventions. It was observed that this is an important area, which is unexplored and needs immediate attention to be given in the present scenario.
- To facilitate a better understanding of the relationship between employee competencies and organizational effectiveness, the present research included the perspectives of corporate executives. This study conceptualized organizational effectiveness as a multi-dimensional construct involving two distinct approaches, i.e. goal oriented approach to organizational effectiveness that include the attributes: optimization of resources, cohesive workforce and product quality and productivity. Attributes of competing values approach to organizational effectiveness consists of organizational adaptation, flexibility and innovation.
- A serious limitation pointed out by reviewing the contemporary works of eminent researchers that the link between HRD and organizational performance is considered as a “black box”, i.e., lack of clarity regarding ‘what exactly leads to what’ (Grehert, 2005; Glaveli and Karassavidou, 2011). According to Garavan et al., (2000) and Katou, (2009) empirical work in this area is lacking and there are no models yet that properly evaluate the extent to which HRD improve organizational effectiveness. In fact, there is little empirical support indicating that HRD and organizational effectiveness linkages were mediated by leadership (Alagaraja et al., 2015), self-efficacy (Chaudhary et al., 2012), and commitment (Joo and Park, 2010). Nevertheless, the HRD scholars (Alagaraja et al., 2015; Sung and Choi, 2014) have encouraged for further research on the linkage

between HRD interventions and organizational effectiveness by examining the mediating role of employee competencies.

- The present research uniquely investigated the moderating role of organizational learning culture in between the relationship of HRD interventions and employee competencies. The moderating effect of organizational learning culture elucidates whether it influences the strength of the relationship in between HRD interventions and organizational learning culture.
- The research made a novel attempt to explore the underlying mechanism or process by which HRD interventions have influenced the goal-oriented and competing values approach to organizational effectiveness through the mediating effect of employee competencies. In this respect, mediation analysis will facilitate a comprehensive understanding of the linkage between HRD interventions and goal oriented and competing values approach to organizational effectiveness.
- Lastly, the study has examined the moderating effect of organizational learning culture on the mediating role of employee competencies in between the relationships of HRD interventions and the two approaches of organizational effectiveness namely goal oriented and competing values approach. Accordingly, the moderated mediation has confirmed that the organizational learning culture strengthens the mediating effect of employee competencies on the above relationships.

1.8 Objectives of the Study

The primary purpose of this research is to examine the relationship between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness. The specific objectives of the study are as follows:

- To study the impact of HRD interventions on enhancement of competencies of employees of the cement industry.
- To assess the moderating role organizational learning culture in between the relationship of HRD interventions and employee competencies.
- To investigate the role of employee competencies in enhancing the goal oriented approach to organizational effectiveness.
- To confirm the influence of employee competencies on improving the competing values approach to organizational effectiveness.

- To explore the mediating role of employee competencies in between the association of HRD interventions and goal oriented approach to organizational effectiveness.
- To examine the mediating role of employee competencies in between the association of HRD interventions and competing values approach to organizational effectiveness.
- To propose a derived model establishing the relationship between HRD interventions, organizational learning culture, employee competencies, goal oriented approach and competing values approach to organizational effectiveness based on empirical findings.

1.9 Theoretical Contribution

- The review of the extant literature in the area of HRD interventions and employee competencies revealed several studies that have explored the role of training and development (Maheshwari and Vohra, 2015), career management (Guan et al., 2015), performance appraisal (Saunila et al., 2015), team building (Tannenbaum et al., 2012) and employee empowerment (Luoh et al., 2014) towards enhancement of employee competencies. However, this research explores the combined impact of all HRD interventions on employee competencies.
- The present study argues that the relationship between HRD interventions and employee competencies can be strengthened by the contextual factor organizational learning culture. Therefore, emphasis was given to examining the moderating role of organizational learning culture between the relationship of HRD interventions and employee competencies. This is a novel attempt in comparison with existing literature.
- This study also offers important contributions to the HRD literature. Incorporating HRD interventions within a competency based theory framework is generative in terms of helping us to understand the underlying mechanism (employee competencies) through which HRD interventions affect organizational effectiveness. By examining employee competencies as mediator between HRD interventions and goal-oriented approach and competing values approach to organizational effectiveness, is a unique attempt in the existing literature relating to the HRD and organizational effectiveness.

- A majority of HRD and organizational effectiveness studies in the manufacturing sector has been conducted on employees in Western and the Middle East countries and very limited in the Indian context. However, this study explored the relationship between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness in cement manufacturing units located in the Indian states of Andhra Pradesh and Odisha. Thus, this study is a sincere attempt to cover the existing literature gap and contributes to the body of knowledge of HRD and organizational effectiveness in the manufacturing sector of India.
- The present study innovatively measured organizational effectiveness as a multi-dimensional construct involving two distinct approaches: goal oriented approach and competing values approach to organizational effectiveness. Thus, the present research contributes to the existing literature of organizational effectiveness by assessing two models simultaneously.

1.10 Thesis Structure

The proposed research work has been lucidly described in seven chapters. The comprehensive framework and the content of the chapters are illustrated below.

Chapter 1: **Introduction**

This is the introductory chapter that comprises of the background, statement of the research problem, research questions, the scope of the study, justification of the study, significance of the study, research objectives, and thesis structure.

Chapter 2: **HRD Practices of Global and Indian Cement Manufacturing Units**

This chapter will provide an insight on existing HRD practices of different cement manufacturing organizations across the globe. It also illustrates in detail about the HRD interventions implemented in the organisations, which have been selected for the purpose of this empirical study.

Chapter 3: **Review of Literature and Hypotheses**

This chapter illustrates about the theoretical background and historical development of human resource development interventions, and brief description of independent and dependent variables. It further presents extant literature that has explored the relationship between HRD

interventions, employee competencies, organizational learning culture and organizational effectiveness. It also illuminates on the existing gaps in the literature and presents the hypothesised research model for the study.

Chapter 4: **Research Design and Methodology**

This chapter provides a detailed description of the research settings and multivariate techniques adopted for the analysis of the obtained data.

Chapter 5: **Data Analysis, Interpretation and Outcomes**

This chapter illustrates a systematic description of the procedures for data analysis. It investigates the relationships among the study variables and tests the research hypotheses to derive the outcomes of the study. It compares the findings of the research with contemporary literature.

Chapter 6: **Conclusion**

This concluding chapter reflects the summary, suggestions, implications, limitations, conclusion, and scope for further research.

Chapter 2

HRD Practices of Global and Indian Cement Manufacturing Units

This chapter provides an overview of global and Indian cement industry. It provides the outline of cement consumption around the world and in India. It further draws insights from international and Indian cement organization's HRD initiatives to enhance employee's competencies towards of organizational effectiveness. Furthermore, it discusses some of the benchmarked HRD practices/interventions and adoptions of these measures by the Indian cement manufacturing organizations.

2.1 An Overview of Global Cement Industry

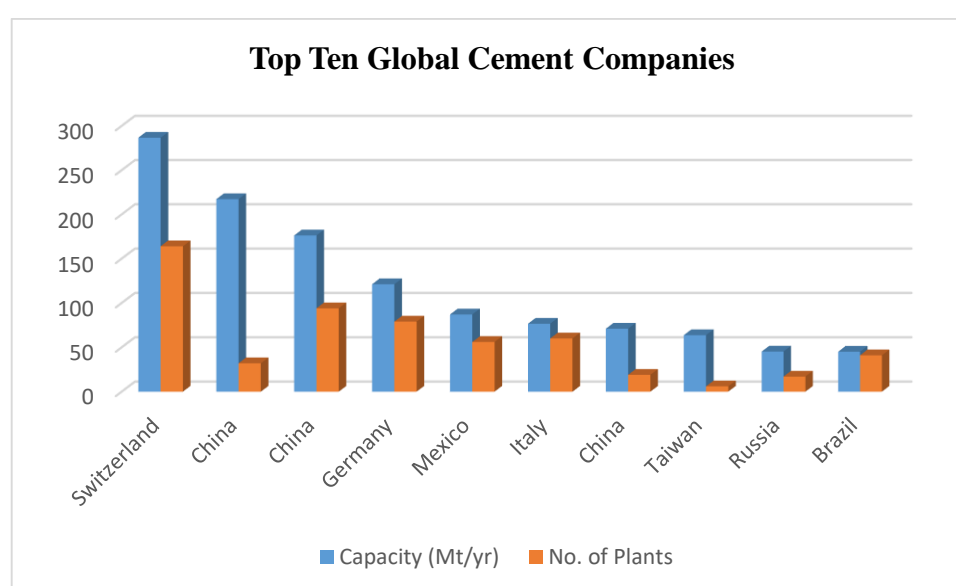
The close relationship between cement consumption and per-capita income means that a country's cement consumption is an excellent indicator of its growth and progress. Regional development depends upon several factors, which include demand, raw material reserves, market access and economic conditions. As such, the global cement industry has undergone major changes in recent years, particularly since the start of the economic crisis in 2008. Emerging markets such as India and China now represent approximately 90% of the worldwide cement market. Economically advanced nations such as Europe and the Americas account for most of the remainder, despite ongoing financial difficulties.

The International Monetary Fund (IMF) in October 2016 published that the global GDP is expected to grow by 3.1% year-on-year, 0.2% lower than its July 2016 forecast and 0.4% lower than its April 2016 outlook. This follows 3.4% growth in 2015. Recovery has remained modest in the advanced economies, while growth in emerging and developing markets is expected to slow for the fifth consecutive year. The devaluation of the Chinese Renminbi and the weakening of emerging market currencies compared to the US Dollar have also stunted global GDP growth. In spite of the financial crisis, global cement production has continued to grow, albeit unevenly. In 2015, the latest year for which full data are available from the United States Geological Survey (USGS), global cement production grew to approximately 4.18Bnt, up from 4.08Bnt in 2014.

Table 2.1: Global Cement Companies (Ranked by Installed Capacity)

Rank	Company	Country	Capacity (Mt/yr)	No. of Plants
1	LafarageHolcim	Switzerland	286.66	164
2	Anhui Conch	China	217.20	32
3	CNBM	China	176.22	94
4	HeidelbergCement	Germany	121.11	79
5	Cemex	Mexico	87.09	56
6	Italcementi	Italy	76.62	60
7	China Resources	China	71.02	19
8	Taiwan Cement	Taiwan	63.72	6
9	Eurocement	Russia	45.18	17
10	Votorantim	Brazil	45.02	41

Source: Global Cement Magazine, 2015

**Figure 2.1: Global Leading Cement Manufacturing Companies**

Source: Compiled by the author.

China and India are by far the largest cement producing countries in the world, followed distantly by the US. China's cement production grew from 2.42Bnt in 2014 to 2.5Bnt in 2015, while India has remained flat at 280Mt. The top 10 cement producing countries in 2015 has changed slightly from 2014; Japan, which produced 58Mt of cement in 2015, was the number 10 cement producing country in 2015, but has now been overtaken by Indonesia, at 60Mt in 2015. Countries with notably large year-on-year increases in cement production in 2015 included Saudi Arabia (10.5%, 63Mt), the US (7.62%, 83.3Mt), Indonesia (7.14%, 60Mt) and Turkey (5.19%, 75Mt). According to the Global Cement Directory 2016, there were 2273 active integrated cement plants around the world in 2016 with 3.75Bnt/yr of capacity. Capacity is highly concentrated in Asia, although it is growing in the Middle East and Africa. In 2016, the top 100 global cement producers had a combined

production capacity of 1.26Bnt/yr from 1110 integrated cement plants, according to the Global Cement Directory 2016. The top 10 cement companies (Table 2.1) had a combined production capacity of 1.19Bnt/yr from 559 cement plants (Figure 2.1).

2.2 An overview of Indian Cement Industry

With nearly 390 million tons of cement production capacity, India is the second largest cement producer in the world and accounts for 6.7 per cent of world cement output. The cement production capacity is estimated to touch 550 million tons by financial year 20. Of the total capacity, 98 per cent lies with the private sector and the rest with the public sector. The top 20 companies account for around 70 per cent of the total production. A total of 188 large cement plants together account for 97 per cent of the total installed capacity in the country, while 365 small plants make up the rest. Of the total 188 large cement plants in India, 77 are located in the states of Andhra Pradesh, Rajasthan and Tamil Nadu. As per the 12th Five Year Plan, cement production in India is expected to reach 407 million tonnes by financial year 2017.

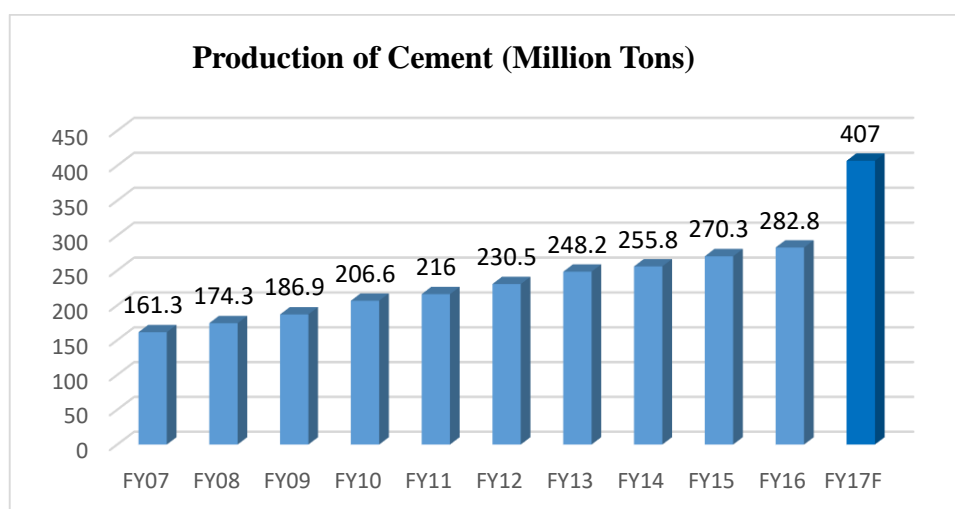


Figure 2.2: Production of Cement in India

Source: Compiled by the author.

The cement production increased at a compounded annual growth rate (CAGR) of 6.4% to 287.79 million tons over the financial year 2007-2016. In August 2016, cement production in the country increased 3.1% in comparison with to 1.4% in July 2016. Figure 2.2 depicts the last ten year trend of cement production in India, which shows the growth rate of CAGR 9.7%. About 60 percent of India's cement consumption is for housing, with infrastructure and new manufacturing facilities each contributing 20 percent. Currently, the country's

cement industry has an installed capacity of over 350 million tonnes per annum, but the domestic consumption of cement in financial year 2016 was around 300 million tons. Figure 2.3 shows the Indian cement consumption from years 2009 to 2016. As a result, the cement market in India remained very competitive.

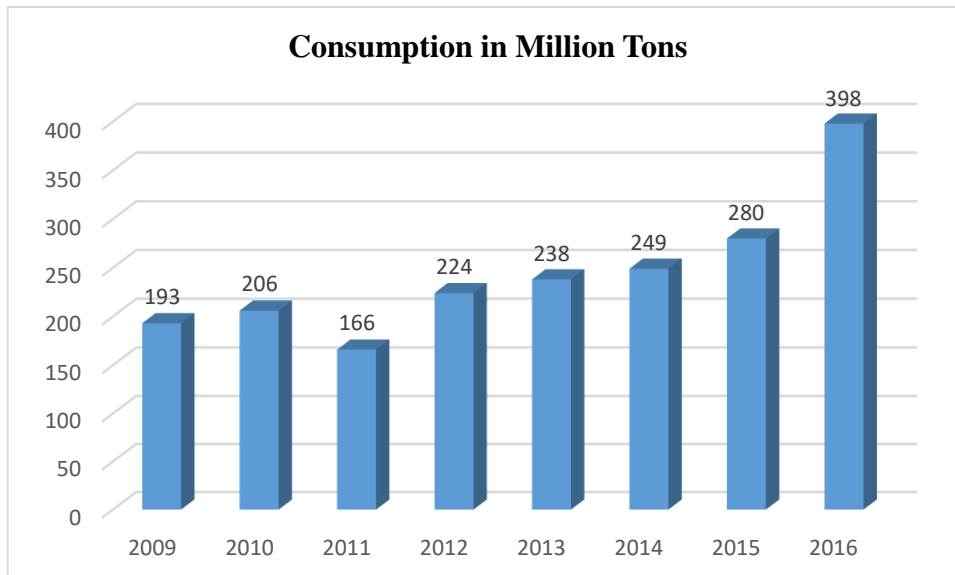


Figure 2.3: Cement Consumption in India

Source: Compiled by the author.

After witnessing slow growth for several quarters, Indian cement industry demand rose by the faster pace of around 9 per cent in Q1 2016 because of pick-up in demand from infrastructure projects backed by the Government spend, and anticipation of the above normal monsoon forecast accelerated the rural and commercial demand. However, between April and June 2016, cement demand improved by 4.4 percent, even as the real estate sector, which consumes large amounts of cement is not showing much growth. However, consistent with the positive outlook for the Indian economy, the industry anticipates a similar revival in demand for cement and concrete. Signs of increased construction activity have been witnessed in industrial and commercial segments as well as from many housing and mid-income housing schemes across India. Besides this, there are strong indicators of an uptrend in demand for cement and concrete from projects such as concrete roads, flyovers & bridges, power plants, irrigation projects, ports, railways and metro projects.

The year 2016 brought back the good times for the Indian cement industry as cement manufacture started showing improvement from the first half of the calendar year, while primary fuels like coal and crude oil tumbled to multi-year low. The cement industry's medium to long-term outlook looks optimistic, as demand for cement is likely to get boost

from industrial and commercial segments as well as from mass housing and mid-income housing schemes across the country. In order to achieve the Government's vision of “Housing for All” by 2022, where 11 million houses have to be constructed at an investment of \$ 2 trillion (Rs 13,600 billion), is going to drive cement consumption in the coming year. Though housing segment remained the most significant demand driver for cement industry, progress in infrastructure activities is likely to fuel cement consumption in short-run on account of massive investment in infra projects like freight corridors (Western and Eastern), railways, smart cities, metro railways, roads and highways, among others. The government under its current fiscal year's budget has allocated Rs. 2, 21,000 billion for infrastructure sector, a crucial move to revive investments in the sector with the participation of the private players. Moreover, the government plans to expand the capacity of the railways and the facilities for handling and storage to ease the transportation of cement and reduce transportation costs.

2.3 An Overview of Global Cement Consumption

Cement is the binder that holds together urban centers around the world. To make it, limestone, sand, and other additives are combined in rotating kilns at temperatures of up to 1450°C. This process yields a granular intermediate known as clinker, which is then ground in mills to produce cement powder. The final cement mix will include around 5% gypsum and may include other non-clinker mineral by-products like limestone, slag, and ash from coal-fired power plants. The process of making clinker, and hence cement, demands around 100–350 kg of coal per tonne of clinker. Thus, the cement industry has historically been a major user of fossil fuels, especially coal. Since 1950, the cement industry has seen massive growth as our world has urbanized. From 133 million tons in 1950, production has increased more than sevenfold to one billion tons in the 33 years to 1983, before hitting 2 billion tons in 2004, 3 billion tons in 2010, and 4 billion tons in 2013. In 2014, around 4.2 billion tons of cement were produced. Since its cyclical peak in 2006, cement consumption among developed economies has declined by roughly 119 million metric tons. Cement consumption among developed economies is expected to remain flat in 2013. This reflects roughly a 4.8 million metric ton decline in consumption among Euro-Zone countries, flat conditions among other Europe, and modest gains in North America. It is expected that 2016 and 2017 will represent the trough point of the cycle at a little more than 480 million metric tons. Ongoing distress is expected to characterize the housing and non-residential sectors, among several Euro Zone economies. Slow economic growth and fragile labour

markets in these markets are expected to delay the recovery in construction. While the near-term growth conditions expected for the United States' market can hardly be considered robust, growth is quite strong in comparison to its European counterparts and is expected to accelerate in 2014 and beyond. The prospects for substantive volume growth in cement consumption among developed economies may not materialize until late 2014-2015.

Cement consumption among emerging and transitional economies grew by an estimated 4.8% in 2012, or roughly 158 million metric tons. China and India accounted for the bulk of these gains. Cement consumption among developed economies declined 5.2% in 2010, or by roughly 8.0 million metric tons. World cement consumption is expected to record sustained growth during 2014-2017, but at a less robust pace than previously expected. While much attention is given to the fragile economic conditions among the developed economies, these countries account for only ten percent of global cement consumption. The Chinese cement market accounts for more than 59% of world consumption. India accounts for another 7% of world cement consumption. Despite the global economic slowdown, relatively strong, although slowing, growth in India and China, is expected to account for more than two thirds of world cement consumption, and is expected to mask harsh conditions that are expected to characterize many of the industrialized economies' cement markets.

2.4 HRD Practices of Global Cement Industry

In developed economies, cement manufacturers are grappling with aging workforces; talent shortages in science, technology, engineering, and math (STEM); and outdated employee value propositions. At the same time, they are trying to preserve and transfer knowledge, re-skill their workforces, and build new capabilities. In the U.S., Japan, Germany, and the U.K., more than half the working population will be older than 40 by 2017, posing a significant loss of institutional knowledge as older workers retire, and a near-term affordability dilemma, since their seniority commands higher wages and benefits. Meanwhile, there is mounting concern over the lack of qualified young people entering the manufacturing sector; the decline in employment stability and outdated and misaligned value propositions in the sector have lowered its career appeal. To add to this challenge, more expertise is needed on the factory floor than ever before. Cement manufacturing itself is becoming more technologically complex with the adoption of ever more sophisticated machinery, robotics, and process-control software. These developments significantly raise

the skill bar—inflicting a double whammy from both the talent demand and supply sides. In the U.S., for example, the National Center for Education Statistics found that manufacturers have already faced moderate to serious skills shortages across their operations.

Emerging-economy cement manufacturers are confronting their own obstacles in developing high-end workforces. The talent pools in the BRIC nations (Brazil, Russia, India, and China) are becoming shallower, with companies in every industry, reporting that the lack of skilled employees and rapidly rising salary expectations are crimping their ability to operate and expand. In high-growth manufacturing centers like Shanghai, the war for talent is further fuel by consistently high employee attrition rates, despite large pay increases and other benefits. The lack of managerial talent is particularly critical among manufacturers in many emerging economies. Leadership pipelines are underdeveloped, and there is a shortage of managerial professionals who know how to work in global teams and understand the norms of leadership in multinational corporations. As a result, manufacturers are being forced to bid up for the few qualified local candidates or import highly expensive expatriate managers. Emerging-economy manufacturers are further challenged by the knowledge management requirements of globally dispersed business models. Many companies do not yet have the organizational structures or processes for managing knowledge-intensive work globally. Like developed-economy manufacturers, manufacturing units in emerging economies must raise their appeal among younger workers. By 2025, 60-75 percent of the workforce in the BRIC countries will be members of Generation Y, people born roughly between the late 1970s and the late 1990s who bring drastically different priorities and expectations to work than older population segments. In short, manufacturers based in both developed and emerging economies are struggling to develop workforces capable of capturing global opportunities. The following sections represent the HRD practices in cement manufacturing organizations around the world to develop a competent workforce. The organizations are chosen based on the highest number of cement plants in the country, high in cement production and effective HRD measures implemented in the organization for development of employee competencies towards building their organizational effectiveness.

2.4.1 LafargeHolcim, Switzerland

LafargeHolcim is a manufacturer of building materials (primarily cement, aggregates and concrete) which claims to be the largest in the world, with a presence in 90 countries and 115,000 employees. It was formed by the merger on 10 July 2015 of cement companies Holcim and Lafarge which had combined net sales of euro 27 billion in 2014. The new company has a manufacturing capacity of 368.5 million tons a year. LafargeHolcim is the industry benchmark in research and development (R&D) and serves from the individual homebuilders to the largest and most complex project with the widest range of value adding products, innovative services and comprehensive building solutions. With a commitment to drive sustainable solutions for better building and infrastructure and to contribute to a higher quality of life, the group is best positioned to meet the challenges of increasing urbanization. To create value, LafaragHolcim deliver cost leadership, implement the most advanced operating models across all product lines and make an optimal use of capital and resources, while leading operations in a safe way. LafarageHolcim intend to capitalize on professional teams, assets, technologies, innovation in industrial operations, and strong operating models to replicate best practices across the business in all geographic markets. A fundamental value of LafargeHolcim is providing working conditions that adhere to the best health and safety standards. It is entrenched corporate culture at all levels, from management to operation, from offices and industrial sites to roads. The organization believes that offering supportive working conditions and building diverse and inclusive teams are the best ways to create an engaged workforce that will generate value to all stakeholders. It respects and values different ideas, experiences, and perspective and provide an inclusive working environment for everyone. The firm has focused on strategic HRD interventions such as: training and development, performance management, employee engagement for enhancement of employee’s skills and knowledge, its objectives and outcomes are depicted in table 2.2.

Table 2.2: HRD practices at LafargeHolcim, Switzerland

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Training and Development	➤ Structured training and refresher program.	➤ Prepare professionals to face new challenges.
	➤ Internal training for employees.	➤ 90% of employees participated in internal training
	➤ External training for employees.	➤ 53% of employees participated in external training.

Performance Management	<ul style="list-style-type: none"> ➤ Review of the performance evaluation model and remuneration policy. 	<ul style="list-style-type: none"> ➤ Employee behaviours are aligned with the desired culture and business goals. ➤ Encourage and reward behaviour to achieve the organization's objectives in line with its strategy. ➤ Make the employees professionally more skilled and aware of the challenges
Sales Force Effectiveness Program	<ul style="list-style-type: none"> ➤ Established Marketing Academy, managed in collaboration with Hautes Etudes Commerciales de (HEC) Paris, with the aim of transforming our approach with increased balance between 'push and pull marketing'. 	<ul style="list-style-type: none"> ➤ The Sales Force Effectiveness program continued, with the participation of 2,403 sales representatives and managers
Employee Engagement	<ul style="list-style-type: none"> ➤ As part of the formal engagement process, a methodology agreement was signed in May with the European Works Council to detail the procedure and involvement of employee representatives at each step of the project. 	<ul style="list-style-type: none"> ➤ In 2014 the Group's employee turnover rate reduced, although the number of employees voluntarily leaving increased slightly. ➤ Lafarge is recognized as an Employer of Choice in five countries – an increase of 2 from last year. Twenty entities, including Malaysia, China, Bangladesh and Zambia, surveyed their employees for their feedback, a 29% increase on 2013.

Source: LafargeHolcim Sustainability Report (2015)

2.4.2 Heidelberg Cement, Germany

Heidelberg Cement is a German multinational building materials company headquartered in Heidelberg, Germany. It is a Deutscher Aktienindex (DAX) 30 Corporation. On 1st July, 2016, Heidelberg Cement AG completed the acquisition of a 45% shareholding in Italcementi. With the acquisition, Heidelberg Cement becomes the number 1 producer of aggregates, the number 2 in cement and number 3 in ready-mixed concrete worldwide. The enlarged Group has activities in around 60 countries with 63,000 employees working at more than 3,000 production sites. Heidelberg Cement operates 156 cement plants with an annual cement capacity of 197 million tonnes, more than 1,700 ready-mixed concrete

production sites and over 600 aggregates quarries. To succeed in the global marketplace and master the challenges of the future, Heidelberg cement is reliant on motivated and skilled leaders. They offer training programmes specially adapted to the needs of the company in order to prepare executives for future roles. In addition to courses that develop skills in leadership, strategy, and accounting, they offer specialized courses in various areas, including technical fields. The organization has focused on several areas like personnel development, training and development, and career development that benefits the employees of the organization in enhancing their competencies, which are illustrated in table 2.3.

Table 2.3: HRD practices at Heidelberg Cement, Germany

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Development of Young Employees	<ul style="list-style-type: none"> ➤ Offers International Training Programmes in technology, sales, HR, finance, IT and purchasing for highly motivated and qualified University graduates. 	<ul style="list-style-type: none"> ➤ In 2015, hired 296 recent graduates. Participants take part in a multi-stage training process both in Germany and abroad that includes courses in management and leadership.
Training and Career Development	<ul style="list-style-type: none"> ➤ Training is provided in the classic disciplines such as strategy, leadership and management, and special training options are offered in the area of engineering ➤ Technical and mechanical skills are indispensable for ensuring that process engineering and maintenance activities are properly carried out at our plants. Besides professional training, we therefore offer master craftsman courses every year at the Verein Deutscher Zementwerke (VDZ). 	<ul style="list-style-type: none"> ➤ In Germany as a whole, 5% of employees are involved in training programmes (2014: 5%). Around 80% of the people who complete their traineeships are retained as permanent employees (2014: 84%). ➤ As was the case in the previous year, occupational safety was a key focus Group-wide training and career development programmes in 2015. Around 50% of all the training measures were devoted to this topic. Other focal points included specialist career development (30%) and advanced management training (6%). Each of the Group's full-time employees spent 31 hours on training measures on average.

Source: Heidelberg Cement Sustainability Report (2015)

2.4.3 Eurocement, Russia

Eurocement group was formed in 2002 following the merger of Rosuglesbit and Shtern-cement. The company originally had four plants: Maltsovsky Portland cement, Mikhailov cement, Lipetsk cement, and Savinsky cement. However, since 2005, following the purchase of seven additional cement plants, Eurocement group has become a leading company in the Russian cement market. The Eurocement group is the biggest supplier of cement, ready-mix concrete and aggregates in Russia. It has 16 cement plants across Russia, Ukraine and Uzbekistan as well as several concrete mix plants, concrete goods factories and aggregate-mining quarries. The group's annual production is 40 MT of cement and 10 Mcm of concrete. Aggregate resources: Carbonate rock explored reserves amount to 2.8 billion tonnes; granite explored reserves amount to 1.8 billion tonnes. The principles of personnel management based on the principles of social partnership: (a) provide conditions for employee's effective and safe work. (b) Offer each employee opportunities for creative, professional development, self-fulfilment and career advancement. (c) Provide access to each employees to social programs holding. (d) Provide decent and fair wages (e) build a transport system of motivation of employees, which is based- Assessment of the effectiveness and contribution of the employees to the overall success of the company. Table 2.4 shows the initiatives that Eurocement has taken for the improvement of employee competencies and illustrates the objectives of individual initiatives.

Table 2.4: HRD practices at Eurocement, Russia

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Corporate University Training	<ul style="list-style-type: none"> ➤ On the basis of the new high-tech plant holding "Eurocement Group" in the village of Voronezh region Podgorensky Corporate University was inaugurated in October 2013. Corporate University Training classes are equipped with the most modern technological equipment, which gives the opportunity to combine theoretical and practical training. 	<ul style="list-style-type: none"> ➤ Systemic training of managers and technicians. ➤ Seminars and conferences on new technologies and technical solutions in the production of cement and building materials. ➤ Creating a scientific and technological basis for the development and implementation of advanced technological solutions for the cement industry
Global Programme for Young	<ul style="list-style-type: none"> ➤ The program combines the three elements of young specialists of 	<ul style="list-style-type: none"> ➤ "EVROstart" - an element of integration into the profession. In

Professionals: “Generation E”	<p>the Holding "Eurocement Group": integrated into the profession, adaptation and training, as well as scholarships and involvement in innovative activities.</p> <ul style="list-style-type: none"> ➤ The "Generation E" is designed for different categories of young people - students and post-graduate students of universities to young professionals have already started working in the Holding. 	<p>this area there is the dedication of young professionals in the profession, getting acquainted with the production processes of enterprises and their adaptation to the corporate culture of "Eurocement Group".</p> <ul style="list-style-type: none"> ➤ "EVROnastavnik" - an element of professional adaptation. In this area for young professionals, but who came to work on the enterprise of the Holding Company, assigned to a mentor from among experienced workers, which give them professional advice and help to join the team. ➤ "EVROmysl" - an element of stimulating intra-innovation. In this area young professional on a competitive basis to submit project proposals aimed at improving production efficiency, reduce costs, introduction of new forms and methods of work, the use of advanced technologies. The format of the - in-plant and corporate-wide scientific and technical conferences. Best Deals subsequently implemented in production.
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Source: EUROCEMENT, Russia (Official website: <http://www.eurocement.ru/>)

2.4.4 Adelaide Brighton Cement, Australia

Adelaide Brighton Cement (ABC) is an Australian manufacturer of cement, lime and dry blended products. ABC operates manufacturing and distribution facilities in South Australia, the Northern Territory, Fyansford, Victoria and New South Wales. Associated brands and companies include Geelong Cement, Cockburn Cement, Sunstate Cement, Northern Cement, Independent Cement & Lime, and Building Product Supplies. It is listed on the Australian Stock Exchange as Adelaide Brighton Limited (ABC). Adelaide Brighton is a leading integrated construction materials and industrial lime producer, which supplies a range of products in building, construction, infrastructure and mineral processing markets throughout Australia. The Company’s principal activities include the production,

importation, distribution and marketing of clinker, cement, industrial lime, premixed concrete, construction aggregates and concrete products. Adelaide Brighton originated in 1882 and is now an S&P/ASX100 company with 1,400 employees and operations in all Australian states and territories. Adelaide Brighton employs a diverse workforce of more than 1400 people across approximately 100 locations throughout Australia. In Adelaide Brighton, commitment to health and safety is an essential and integral part of the way they do business. Adelaide Brighton is “Safe, Sustainable Production”. The initiatives of Adelaide for leveraging employee’s skills and knowledge are discussed in table 2.5.

Table 2.5: HRD practices at Adelaide Brighton Ltd., Australia

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Developing a Diverse Workforce	<ul style="list-style-type: none"> ➤ Promoting a culture of diversity and inclusion through proactive engagement with our people. ➤ Developing inclusive leaders who value diversity of opinion and challenge the status quo ➤ Building talent pipelines through investment in skills and capabilities. ➤ Encourage flexible work practices, which enable our people to balance life and work responsibilities. 	<ul style="list-style-type: none"> ➤ Adelaide Brighton is committed to the promotion of diversity within our organization, and we recognize that removing barriers to diversity enables us to attract and retain the best people with the appropriate skills to contribute to the continuing success of our business.
Safety Training	<ul style="list-style-type: none"> ➤ During 2015 launched Safety Vision and Strategy “Safety Leaders -Everyone, Everyday” for employees. This program encompasses the actions and behaviours will enable Adelaide Brighton to build on the great work in safety so far and deliver a mature, robust safety culture. 	<ul style="list-style-type: none"> ➤ In 2015, recorded a lost time injury frequency rate of 2.3 as of December (compared with 1.8 as at December 2014) and a restricted duty frequency rate of 19.79, an increase from 17.8 in the previous year.
Leadership Training	<ul style="list-style-type: none"> ➤ Inclusive leadership training was delivered to leaders from across the business with a focus on unconscious bias 	<ul style="list-style-type: none"> ➤ Development of future leaders.
Junior Cooperative Scholarship	<ul style="list-style-type: none"> ➤ Sponsor a Junior Cooperative Scholarship at the University of Technology Sydney 	<ul style="list-style-type: none"> ➤ To support students who are enrolled in the Bachelor of Engineering and have an interest in civil and environmental engineering. The Scholarship provides financial support and a 24-week internship within Adelaide Brighton.

Source: Adelaide Brighton Cement Sustainability Report (2016)

2.4.5 Pretoria Portland Cement Company, South Africa

Pretoria Portland Cement Ltd. (PPC Ltd.) is a South African cement producing company with eight manufacturing facilities and three milling depots in South Africa, Botswana and Zimbabwe. These facilities are capable of producing more than seven million tons of cement products each year. The company supplies cement to the building and construction industry, concrete product manufacturers, and hardware stores. Related products sold include aggregates from the company's Gauteng quarries at Mooiplaas and Laezonia, and in Botswana. With the acquisition of Safika Cement and Pronto Readymix (including Ulula Ash), PPC now supplies from nine cement manufacturing factories, four milling plants, five blending facilities and nine ready-mix batching plants. These are in South Africa, Botswana, Zimbabwe and Rwanda, producing around eight million tonnes of cement products each year and half a million tonnes of fly ash. PPC also produces aggregates, metallurgical-grade lime, burnt dolomite and limestone. Our Mooiplaas aggregates quarry in Gauteng has the largest aggregate production capacity in South Africa. Table 2.6 shows the HRD practices of Pretoria Portland Cement Company for enhancement of employee competencies.

Table 2.6: HRD practices at Pretoria Portland Cement Company, South Africa

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Leadership Talent Development Programme	<ul style="list-style-type: none"> ➤ Started a new leadership development initiative in partnership with the Gordon Institute of Business (GIBS). 	<ul style="list-style-type: none"> ➤ A style of leadership that will underpin a multinational, multicultural and high-performance company. ➤ Providing a forum for strategic decision making so that socially grounded leadership is a default approach rather than a legislative driven strategy
Technical Skills Academy	<ul style="list-style-type: none"> ➤ The Technical Skills Academy provides training and trade tests as a decentralized trade test centre and is fully accredited by Merseta (sector education and training authority for manufacturing, engineering and related services). 	<ul style="list-style-type: none"> ➤ TSA again retained its MQA accreditation and ISO 9001:2008 certification during the review period. Since 2002, TSA has successfully trained 208 engineering learners.

Empowering people	<ul style="list-style-type: none"> ➤ PPC's Kambuku philosophy concentrates on maintaining a strong foundation to continuously grow and empower employees in support of PPC's REAL (relevant, empowered, actualized and lasting) transformation philosophy 	<ul style="list-style-type: none"> ➤ PPC announced the second phase of its BBBEE transaction in 2012, which resulted in effective black ownership of PPC's South African operations increasing to 26%. This transaction supported the conversion of our mining rights, and placed around 7% of the company's ownership in the hands of South African employees.
Executive development Programme for Manufacturing Business	<ul style="list-style-type: none"> ➤ The PPC Women's Forum was launched in 2011 to attract, nurture and advance female talent to lead PPC. As part of its objective in developing female leadership, the forum is supporting a joint development initiative between the Manufacturing Circle and GIBS. 	<ul style="list-style-type: none"> ➤ This executive development programme focuses specifically on manufacturing and the role of women and is facilitated over ten months in three phases: business and manufacturing in SA 2013 to 2020; strategy and innovation in manufacturing business; and shaping the future.

Source: Pretoria Portland Cement Company Sustainability Report (2015)

2.4.6 Anhui Conch Cement, China

Anhui Conch Cement Company Limited was founded on September 1, 1997. Listed in Hong Kong on October 21, 1997, it pioneered the overseas listed company in the Chinese cement industry. The company mainly engaged in the production and sales of cement and commodity clinker, is also the largest single brand supplier all over the world. After years of rapid development, the capacity is continuously rising, the level of technology and equipment is improving, and the development areas are expanding. The production lines of the company all adopt the advanced technology of new dry process with cement, with the features of high production, low energy consumption, high degree of automation, high labour productivity and good environmental protection. The high-grade cement and commodity clinker of "CONCH" brand are the company's leading products. The State Trademark Office also recognizes the brand "CONCH" as a well-known trademark. General Administration of Quality Supervision, Inspection and Quarantine approve "CONCH" Brand Cement for inspection-free product, it is long-term and widely used in

remarkable landmark projects, such as The Beijing–Shanghai High-Speed Railway, Hangzhou Bay Cross-sea Bridge, Shanghai Oriental Pearl TV Tower. Meanwhile, the products are exported to more than 20 countries and regions in U.S., Europe, Africa, and Asia. Relying on advanced technology, excellent quality, superior service, perfect sales network, strong manufacture and supply capacity, as well as professional technical support, Conch Cement Company is achieving the management tenet of "Top Quality and Sincere Service". Table 2.7 shows the HRD practices of Anhui Conch for enhancement of employee competencies.

Table 2.7: HRD practices at Anhui Conch Cement, China

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Training and Development	<ul style="list-style-type: none"> ➤ Investment in education, training and development ➤ Monthly reviews of the training plans ➤ Continuing education 	<ul style="list-style-type: none"> ➤ Prepare professionals to face new challenges. ➤ 90% of employees participated in internal training
Team Building	<ul style="list-style-type: none"> ➤ Team building programme for employees to experience teamwork adventures 	<ul style="list-style-type: none"> ➤ Participants in the team were able to recognise their ability for Creative thinking, Leadership, Negotiating, Decision making, Strategic planning.
Health and Safety	<ul style="list-style-type: none"> ➤ Review of the safety, health and environment management methodology. 	<ul style="list-style-type: none"> ➤ Reduce the number of work related accident leaves by 30%. ➤ Monitor and address the workplace-related risks.

Source: Anhui Conch Cement (2016) (Official website: <http://english.conch.cn/>)

2.4.7 Cemex, Mexico

Cemex S.A.B. de C.V., known as Cemex, is a Mexican multinational building materials company headquartered in San Pedro, near Monterrey, Mexico. It manufactures and distributes cement, ready-mix concrete and aggregates in more than 50 countries. It is the second largest building materials company worldwide, only after LafargeHolcim. Lorenzo Zambrano was the chairperson and chief executive officer until his death on May 12, 2014. About one-third of the company's sales comes from its Mexico operations, a quarter from its plants in the U.S., 15% from Spain, and smaller percentages of its plants around the world. Cemex currently operates on four continents, with 66 cement plants, 2,000 ready-mix-concrete facilities, 400 quarries, 260 distribution centers and 80 marine terminals. The

company's world headquarters are in San Pedro Garza García, a city that is part of the Monterrey metropolitan area in the northeastern Mexican state of Nuevo León. Table 2.8 shows the HRD practices of Cemex for enhancement of employee competencies.

Table 2.8: HRD practices at Cemex, Mexico

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Training and Development	<ul style="list-style-type: none"> ➤ Invested approximately US\$19.4 million on employee training. ➤ Management Training Program. 	<ul style="list-style-type: none"> ➤ In 2015, approximately 25,000 employees dedicated an average of 22 hours each to training, including online and led-instructor courses.
Career Development	<ul style="list-style-type: none"> ➤ Invested more than US\$1.2 million in scholarships for 280 employees. 	
Team Building	<ul style="list-style-type: none"> ➤ ACHIEVE is for middle managers. The program reinforces team building and leadership skills, bringing CEMEX leaders from across the globe together to develop ideas focusing on customer centricity. 	<ul style="list-style-type: none"> ➤ In 2015, 57 participants from all CEMEX regions participated and presented their plans.
Health and Safety Training	<ul style="list-style-type: none"> ➤ CEMEX ensures all employees have the correct knowledge, skills and experience to perform their jobs safely through the investment in programs that provide employees at all levels with health and safety (H&S) training. 	<ul style="list-style-type: none"> ➤ Representing every position in our company, 61% of our employees – workers, line supervisors, managers and union representatives – are a part of H&S committee that meet regularly to discuss employee concerns, review, and enforce health and safety practices and programs.

Source: CEMEX Sustainability Report (2015)

2.5 HRD Practices of Indian Cement Industry

The cement industry provides direct employment to approximately 1.4 million persons, while also creating indirect employment through process machinery manufacture, raw materials and other sources. It is estimated that one million tons of cement production provide employment to around 50,000 persons. The future scenario of the industry demands additional technical work force at all levels, suitably trained in the operation and management of modern cement plants. However, the availability of competent workforce

is one of the major challenges faced by the cement industry presently. Further, technological changes are taking place in every department of cement manufacturing plants at a rapid pace. Consequently, the skills of work force already employed in existing cement plants, has to be upgraded. As per the “Report on the working group on cement industry for XII five year plans (2012-2017)” published by Ministry of Commerce and Industry, estimated that in a one MT per annum cement production in modern cement plant to require around 400 skilled technical workers. Out of this 400, around 150 will be at managerial and supervisory levels. It is estimated that the cement industry will require a total of 43,000 skilled technical workers for about 108 million tonnes of greenfield expansion, 17,000 for about 42 million tonnes of brownfield expansion and 6,000 for 3000 MW captive power plant operation. Accordingly, about 66,000 additional technical workers, including 23,000 engineers and supervisors, will be required to attain the targeted capacity additions. In addition, the industry will require about 50,000 unskilled workers; this does not include the replacement demand of personnel that would arise in the plants already in existence.

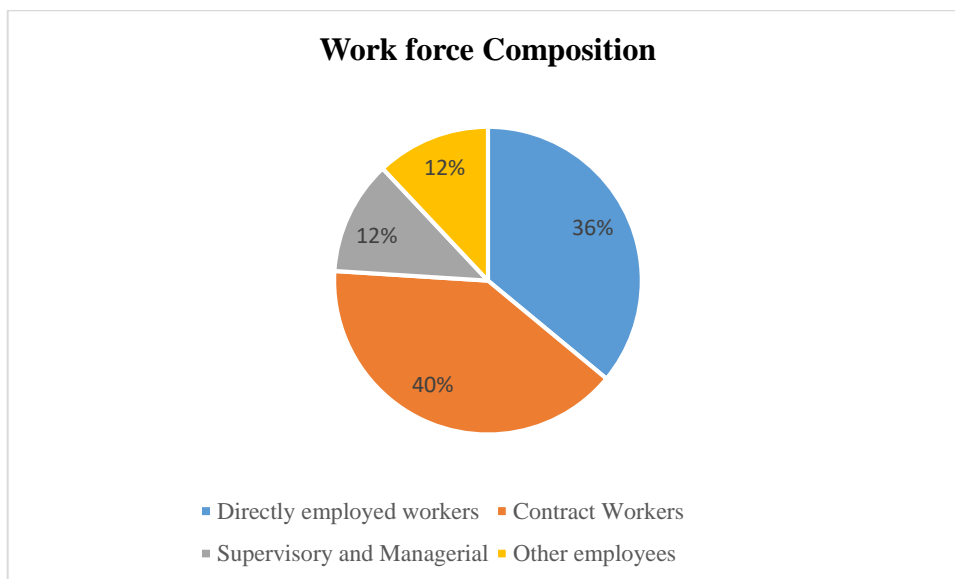


Figure 2.4: Workforce Composition of Indian Cement Industry

Source: Compiled by the author.

A recent report by the National Skill Development Corporation (NSDC) on “human resource and skill requirement in the construction materials and building hardware” has clearly outlined skills required by the employees as per the technological changes, and their skill gaps in the Indian cement industry. The report has divided the employees of cement industry into three levels: managerial, supervisory and workers. In the managerial level, the report has found that employees are inefficient to lead plant expansion initiatives, lack

necessary skills to keep track of international trends in the cement industry, and inability to coordinate between various departments. At the supervisory level, the identified skill gaps are incompetent to manage worker and maintain discipline, insufficient technical knowledge, and inability to undertake and ensure preventive maintenance. Lastly, the report indicates that the workforce is unable to understand the technicalities of the work being done, possess inadequate knowledge of quality tools and latest manufacturing techniques and lack of ability to practice safety measures. As per NSDC the workforce composition of Indian cement industry consists of directly employed workers (36%), contract worker (40%), supervisory and managerial (12%), and other employees (12%). The workforce composition is shown in figure 2.4. Supervisory and managerial levels constitutes about 12% of the total workforce. The working group for the twelfth plan estimates an additional requirement of 23000 engineers and supervisors in order to cope with the envisaged capacity expansions. The new plants that will be developed on the basis of state-of-the-art technologies, skilling up of supervisory roles at plants become crucial for sustainability of the organizations.

2.5.1 OCL India Ltd., Rajgangpur

The company was incorporated in 1949 and the cement plant went on stream during 1951. During the year Dalmia Bharat Cement Limited, a subsidiary of Dalmia Bharat Limited acquired the balance promoter shareholding in OCL India Ltd. and increased its stake in the company from 48.4% to 74.6%. The company has contributed towards nation building and has supplied cement to many landmark projects, one of which is Hirakud Dam in Odisha. The Company has 6.7 million tons of installed capacity with manufacturing plants in Odisha and West Bengal. The plant serves primarily four states in Eastern India – Odisha, West Bengal, Bihar and Jharkhand. OCL India has one of the most modern dry process cement plants in India. ‘Konark’ cement brand manufactured by OCL is amongst the market leader in Eastern India and has emerged as a premium brand. Total installed cement capacity is 6.7 million tons with manufacturing plants located in Odisha (Rajgangpur & Kapilas) and West Bengal (Medinipur). OCL India treats its human capital to be the core enabler of its business fortunes. Making continued investment in the capability development and career progression aspect of its employees, the company remains committed to provide them an encouraging, equitable and safe work environment. With the addition of a new plant, the Company’s resource pool expanded to 1484 employees. Table

2.9 shows the HRD practices of OCL India Ltd., Rajgangpur for enhancement of employee competencies.

Table 2.9: HRD practices at OCL India Ltd., Rajgangpur

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Leadership Development Program for senior, middle and supervisory Management	<ul style="list-style-type: none"> ➤ The leadership development is a strategic HR process that supports the leadership team in finding best young leaders for challenging projects and potential successors to be included in the succession plans. 	<ul style="list-style-type: none"> ➤ Identifying pockets of talent throughout an organization and directing them through career development and succession planning programs. ➤ Assist employees in developing and increasing their self-awareness, so that they have a better understanding of their own strengths and weaknesses.
Effective Team Building	<ul style="list-style-type: none"> ➤ At regular intervals conducting team building workshops 	<ul style="list-style-type: none"> ➤ The main goals of team building are to improve productivity and motivation. ➤ Taking employees out of the office helps groups break down political and personal barriers, eliminate distractions, and have fun.
Change Management	<ul style="list-style-type: none"> ➤ Change management workshops are conducted at regular intervals from external sources 	<ul style="list-style-type: none"> ➤ Understand foundational aspects of change management and the critical role managers play in the change process. ➤ Create action plans to move employees' past barrier points and to the desired future state
Basic Management Skill Program	<ul style="list-style-type: none"> ➤ This programme is designed to give supervisors, manager's key learning, and new skills, which will enable them to improve and continue to drive performance through people with the overall aim of helping them to engage more effectively with their teams and colleagues. 	<ul style="list-style-type: none"> ➤ To raise levels of employee Motivation. ➤ To increase readiness of employees to accept change. ➤ To improve the quality of all managerial decisions. ➤ To develop teamwork and morale. ➤ Further development of employees

Source: OCL India Ltd Annual Report (2015)

2.5.2 ACC Ltd. (Vishakhapatnam and Bergarh)

ACC Limited (Formerly known as The Associated Cement Companies Limited) one of the largest producers of cement in India. ACC Limited is India's foremost manufacturer of cement and ready mixed concrete with 17 modern cement factories, more than 50 ready mixed concrete plants, a vast distribution network of over 9,000 dealers and a countrywide spread of sales offices. The company has been a trendsetter and noted benchmark in cement and concrete technology since it was established in 1936. ACC has a unique track record of innovative research, product development and specialized consultancy services. The name ACC is synonymous with cement and enjoys a high level of equity in the Indian market. The company has clearly stated guidelines for all major people processes such as recruitment, separation, career advancement, performance appraisal, professional and employee ethics, and code of conduct. Above all the company's people policies and processes enshrine equal opportunities to all and non-discrimination with regard to gender, caste, creed, ideology or other opinion, whether social, political or religious. As a result, ACC employees represent different ethnic, cultural and religious backgrounds from all parts of the country. The Human Resource management system provides due processes for employee consultation and participation in organizational development and policy formulation. At plants and mines, there are recognized trade unions affiliated to various central trade union bodies. About 52% of permanent employees are members of recognized employee associations. Table 2.10 shows the HRD practices of ACC Ltd., Vishakhapatnam and Bergarh for enhancement of employee competencies.

Table 2.10: HRD practices at ACC Ltd., (Vishakhapatnam and Bergarh)

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Performance Management System (PMS)	<ul style="list-style-type: none"> ➤ ACC's Performance Management System (PMS) work online through the intranet portal called "Accelerate" to which all Management Staff are given access. 	<ul style="list-style-type: none"> ➤ Individual Key Performance Indicators (KPI) are determined by employees themselves, which are reviewed online by their immediate manager and reviewer, checked and then accepted for implementation. ➤ The PMS in ACC is comprehensive and designed to provide ample opportunities to reward

		good performance, develop and motivate others and retain good talent through performance linked incentives, letters of appreciation, special increments and instant awards.
Learning & Development	➤ Learning & Development at ACC is a benchmark process. The pool of human resources, especially the young talent, is exposed to a variety of training development programs to enhance their technical and functional capabilities.	➤ In 2015, our learning Academy at Thane received the Golden Peacock National Training Award of the Institute of Directors.
Employee Engagement	➤ To maintain proactive industrial relations, a great deal of time is spent in engaging Unions and sharing relevant information with them to enable them to participate in the growth journey.	➤ Employee feedback through various surveys that were conducted show that our employees experience a greater sense of engagement.
Training and Development Programs	➤ The pool of human resources, especially the young talent, is exposed to a variety of training development programs to enhance their technical and functional capabilities.	➤ On an average, an employee received 37 training hours during the year.

Source: ACC Ltd Sustainable Report (2014 and 2015)

2.5.3 UltraTech Cement Ltd., Jharsuguda

UltraTech Cement Ltd. is the largest manufacturer of grey cement, ready mix concrete (RMC) and white cement in India. It is also one of the leading cement producers globally. UltraTech as a brand embodies 'strength', 'reliability' and 'innovation'. Together, these attributes inspire engineers to stretch the limits of their imagination to create homes, buildings and structures that define the new India. The company has an installed capacity of 69.3 Million Tonnes Per Annum (MTPA) of grey cement. UltraTech Cement has 12 integrated plants, one clinkerisation plant, 19 grinding units and seven bulk terminals. Its operations span across India, UAE, Bahrain, Bangladesh and Sri Lanka. UltraTech Cement is also India's largest exporter of cement reaching out to meet the demand in countries around the Indian Ocean and the Middle East. In the white cement segment, UltraTech goes to market under the brand name of Birla White. It has a white cement plant with a capacity of 0.56 MTPA and two WallCare putty plants with a combined capacity of 0.8 MTPA. Behind UltraTech Cement's success is a highly motivated and dynamic team comprising of

more than 14,000 employees that's spread across 5 countries and is constantly growing. People are the most valuable resource at UltraTech Cement. Cementing ties with this vast 'Talent Pool', UltraTech believes in providing them a world of opportunities in an environment that is nurturing and empowering. Encouraging a spirit of camaraderie, which helps to create careers that are personally rewarding and professionally enriching is the essence of the people experience at UltraTech. The competent and willing employees are key agents of change. At UltraTech, safety training and capability building are driven as a separate stream. A team consisting of cross-functional representatives and led by a senior leader (Functional Head) works at each Unit to impart safety training. Table 2.11 shows the HRD practices of UltraTech Cement Ltd. Jharsuguda for enhancement of employee competencies.

Table 2.11: HRD practices at UltraTech Cement Ltd., Jharsuguda

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Employee Engagement	<ul style="list-style-type: none"> ➤ At UltraTech, we want our employees to have absolute clarity about their role in the organization's overall growth. Hence, the Lakshya programme was introduced during the reporting period. Lakshya helps develop employee KPIs with direct linkage to UltraTech's business goals 	<ul style="list-style-type: none"> ➤ Finalization of all functional objectives of an employee in alignment with the unit objectives. ➤ Revising the Key Performance Indicators (KPIs) so that they are in line with the revamped functional objectives
Employee Development	<ul style="list-style-type: none"> ➤ Executive Education ➤ Online MBA 	<ul style="list-style-type: none"> ➤ Under an ongoing partnership with the Birla Institute of Technology and Science (BITS), our employees are encouraged to pursue a degree in subjects such as Power and Process Engineering. ➤ E-learning modules provide employees the opportunity to upgrade their skills while on the job. Several of our management cadre employees have seized the opportunity and completed their online MBA course from U21, Singapore.
Leadership Development	<ul style="list-style-type: none"> ➤ Identify potential leaders from our existing workforce and nurture them through a variety of projects and programmes like "STEP UP", 	<ul style="list-style-type: none"> ➤ 'Step Up' is a programme that prepares Departmental Heads to graduate towards becoming Functional Heads.

	“TURNING POINT”, “THE CUTTING EDGE”	<ul style="list-style-type: none"> ➤ ‘Turning Point’ trains Departmental Heads to become efficient Cost Centre Heads. ➤ “The Cutting Edge’ prepares Functional Heads to take on P&L roles
S.T.E.P. in the Right Direction	<ul style="list-style-type: none"> ➤ Frontline Sales and Technical Education Program (Front S.T.E.P) - a programme to develop frontline Long Armed Sales Force (LASF), Long Armed Technical Force (LATF) and Mobile Lab Engineers (MLEs). 	<ul style="list-style-type: none"> ➤ Front S.T.E.P consists of three levels – Basic, Intermediate and Advanced. Each level has two sessions. An assessment after each module determines which participants are ready to move to the next module. After the final assessment, there is a Graduation Ceremony, wherein certificates are awarded to participants.

Source: UltraTech Cement Ltd Sustainability Report (2014 and 2015)

2.5.4 The Ramco Cements Ltd., Jaggayyapet

The Ramco Cements Limited (formerly Madras Cements Ltd) is the flagship company of the Ramco Group, a business group based in Chennai, South India. It is the fifth largest cement producer in India. The company also produces ready mix concrete, dry mortar products, and operates wind farms. It manufactures and markets Portland cement, blast furnace slag cement, white cement and Pozzolana cement. The company has production facilities at Alathiyur, Chengalpet, Kolaghat, Medavakkam, Sriperumpudur, Vijayawada, Virudhunagar and Vizag in India. Ramco opened its first wind farm at Muppandal in 1993. In 1995, Ramco Cements installed 69 additional windmills at Poolavadi near Coimbatore. As of 2015, the total installed windmill capacity is with 159.185 MW with 229 individual units. The company has 2,846 employees as on 31st March, 2016. The prevailing industrial relations climate in all the units continues to be cordial and healthy. Employees at all levels are extending their full support, are actively participating in the various programmes for energy conservation, and cost reduction. There is a special thrust on human resources development with a view to promoting creativity and group effort. Table 2.12 shows the HRD practices of Ramco Cement Ltd., Jaggayyapet for enhancement of employee competencies.

Table 2.12: HRD practices at The Ramco Cement Ltd., Jaggayyapet

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Exceeded
Team Building	<ul style="list-style-type: none"> ➤ Team building workshop has been specifically designed to develop employee's teambuilding and leadership skills. 	<ul style="list-style-type: none"> ➤ To provide an opportunity for participants to develop meaningful relationships with one another. ➤ To provide participants with the basic understanding and principles needed for effective teamwork
Involvement and Engagement	<ul style="list-style-type: none"> ➤ Conduct sessions to gather input and engage all employees. 	<ul style="list-style-type: none"> ➤ Provide employees with the opportunity to connect and have a better understanding of organizational goals. ➤ Staff-driven working group for designing a plan to evaluate and improve communication system, provide explicit opportunities for developing skills and higher education.
Performance Evaluation and Rewards	<ul style="list-style-type: none"> ➤ Review of the performance evaluation model and remuneration policy. ➤ Implementation of new evaluation support system 	<ul style="list-style-type: none"> ➤ Employee behaviour is aligned with the desired culture and business goals. ➤ Make the employees professionally more skilled and aware of the challenges. ➤ Encourage and reward to achieve the organization's objectives.
Training	<ul style="list-style-type: none"> ➤ Unit manager development programme that uses simulations, peer-training and technical and practical learning techniques 	<ul style="list-style-type: none"> ➤ Develop key managerial skills in junior and middle management. ➤ Improve technical and management skills of emerging managers

Source: Ramco Cement Ltd, (2016), (Official website: <http://www.ramcocements.in/1home.aspx>)

2.5.5 The Jaypee Group (Jaypee Cement), Jaggayyapet

Jaypee group is the third largest cement producer in the country. The groups cement facilities are located in the Satna Cluster, which has one of the highest cement production growth rates in India. The group produces a special blend of Portland Pozzolana Cement

under the brand name ‘Jaypee Cement’. Its cement division currently operates modern, computerized process control cement plants with an aggregate capacity of (commissioned/under commissioned) of 28.80 million tons per annum in 2012. The company is in the midst of capacity expansion of its cement business in Northern, Southern, Central, Eastern and Western parts of the country and has achieved 41.40 million tons per annum in total cement capacity (commissioned/under commissioned) in 2013 with Captive Thermal Power plants totalling 672 MW. Keeping pace with the advancements in the IT industry, all the 260 cement dumps are networked using TDM/TDMAVSATs along with a dedicated hub to provide 24/7 connectivity between the plants and all the 120 points of cement distribution in order to ensure “track – the – truck” initiative and provide seamless integration. This initiative is the first of its kind in the cement industry in India. In the near future, the group plans to expand its cement capacities via acquisition and Greenfield additions to maximize economies of scale and build on vision to focus on large size plants from inception. The Group is committed towards the safety and health of employees and the public. Table 2.13 shows the HRD practices of Jaypee Cement, Jaggayyapet, for enhancement of employee competencies.

Table 2.13: HRD practices at Jaypee Cement, Jaggayyapet

Focus Areas	Practices/Interventions/Initiatives	Objectives Achieved/Outcomes Excepted
Training and Development	<ul style="list-style-type: none"> ➤ Various training programs are undertaken. ➤ Structure Training Plan ➤ Future Managerial Cadre Program ➤ Computer Literacy Campaign ➤ External Training Programs for Senior Executives 	<ul style="list-style-type: none"> ➤ Structure Training Plan: It is an in – house training programs which focus on the technical side of various disciplines like civil, mechanical and electrical. ➤ Future Managerial Cadre Program: does the development of managerial cadre. “Select Cadre” from the existing pool of engineers and managers and do direct recruitment through campus interviews from Institutions of repute. ➤ Computer Literacy Campaign (CLC): Different aspects of Computer operations are

		covered to make the employees catch up with the present trends.
		➤ External Training Programs for Senior Executives: In order to keep pace with the changing times and to spot opportunities and perceive possible threats, existing skills need to be continually updated. Senior executives within the organization are continually upgrading through various short duration courses.
Employee Engagement	<ul style="list-style-type: none"> ➤ Introduction of the ‘cascade’ process to communicate management messages throughout the organization, and invite feedback. ➤ Offer the employees regular opportunities to step out of their daily work routine to meet colleagues from other parts of the business, learn from them and discuss relevant business topics. 	➤ Employees across the organization rated health, safety and communications as highest in favour of the company in the latest survey conducted.
Team building	➤ Team building programme for employees to experience team work adventures	➤ Participants in the team were able to recognize their ability for creative thinking, leadership skills, negotiating, decision-making, and strategic planning.

Source: Jaypee Group (2016) (official website:<http://www.jalindia.com/cement.html>)

2.6 Benchmarked HRD Interventions

The discussions in the preceding sections have provided ample evidence regarding the prominence of HRD interventions in global and Indian cement manufacturing organizations for the enhancement of employee competencies and organizational effectiveness. Hence, these benchmarked measures or interventions can be presumed as the predictors of enhanced competency of the employees in Indian cement manufacturing organizations. The summary of these constructive and value adding practices are explained below.

- The cement manufacturing process all over the world is changing rapidly with the adoption of the updated technology, which require skilled and knowledgeable employees to perform. Therefore, for the cement organizations' primary focus is on training and development initiatives for the enhancement of employee's skills and knowledge as per the requirements of the changing operational environment.
- Initiatives to improve teamwork and communication are prolific in international organizations. Organizations conduct numerous events to instil team spirit among the employees. They also encourage usage of online and offline platforms to gather employee feedback and instil the culture of open communication.
- Career management assists in building a partnership between the organization and its employees, enriching their knowledge, skills and abilities, by improving individual competencies, allowing in simultaneous organizational effectiveness.
- Implementation of performance management systems provides the employees with the opportunity to connect and have a better understanding of organizational goals and individual goals. It provides many opportunities to reward good performance develop and motivate employees through performance-linked incentives, special increments and instant awards.

This chapter exemplifies the organizational measures in International and Indian cement manufacturing organizations to enhance employee competencies and organizational effectiveness. The cases of seven global cement-manufacturing organizations have been discussed to understand the HRD initiatives that have enabled the organization to enhance employee competencies. Considerable efforts have also been made to identify benchmarked HRD interventions that can be adopted by the Indian organizations. The efforts of the Indian cement manufacturing organization on effective implementation of benchmarked HRD interventions would augment employee competencies and therefore, help in the enhancement of productivity and product quality and improve organizational settings in adapting to changing environment.

Chapter 3

Review of Literature and Hypotheses

The review of literature relating to the study is primarily focused on four areas: HRD interventions, organizational learning culture, employee competencies and organizational effectiveness. The literature review is served as a foundation for the establishment of a research model showing the linkage between HRD interventions and organizational effectiveness. All reviews relating to this study are mainly drawn from peer-reviewed journal articles and unpublished dissertations. The sources of the research articles relating to this study are the most scholarly databases like ScienceDirect, Sage, Wiley, Emerald, PsyINFO, ProQuest, SSRN, JSTOR, etc. The variables were reviewed to the extent that they were relevant to the objectives of the study. Review of literature begins with the historical development and definition of HRD. It also provides comprehensive review of HRD studies related to employees working in Indian cement industry. Next, a brief overview on study variables (independent and dependent) were provided. It further presents extant literature that has explored relationships between HRD interventions, organizational learning culture, employee competencies, and organizational effectiveness, and respective hypotheses are drawn based on logical relationships between the study variables. Finally, this chapter explores the research gap in the existing literature and proposes a hypothesised research model for empirical validation through the analysis of primary data.

3.1 Historical Development and Definition of HRD

Human resource development began long time ago. As Nadler and Nadler, (1990) said, “HRD is probably as old as the existence of people on this earth, since from the earliest time it has been necessary for people to learn the competencies needed for survival”. Alagaraja and Dooley (2003) trace the development of HRD to the work of the toolmaker in constructing human axes leading to the development of agriculture and animal husbandry in the era of 5 million to 3000 BC. Swanson and Holton (2001) trace the roots of HRD back to legacy of the Greeks and Romans (400 BC – 300 AD).

The industrial revolution and the creation of new social class workers was one of the most significant events from 1763-1871 AD. Emergence of manufacturing systems brought the tendency to work in a group under one building. The need for formal training and learning among the workers has developed, which was different from the old system i.e., learning

from old employees (Alagaraja and Dooley, 2003). Even the old workers need to learn new skills to retain their job. The world war and aftermath (1917- till to date) has changed the industrial era furthermore, developments in the fields of mechanics, communication systems, and technology created a new era of manufacturing and production. Industrial relations between the employer and employees were formalized and the role of the government in providing the legal framework for the welfare of its citizens came into existence (Lee, 2013). Concepts of scientific management and Hawthorne effort developed the field of industrial psychology for the purpose of increase in production. HRD was viewed as an essential tool for the company. Researchers/consultants were called in to consider various ways in which the workplace (including people) could be manipulated to increase production. The physical aspects of the workplace gain prominence along with psychological aspects, leading to development of industrial psychology. During 1960s and 1970s, training and development expanded to include interpersonal skills such as coaching, group process, facilitation and problem solving. Harbison and Myers (1964) coined the term human resource development from the perspective based on development economies and human theories (Russ-Eft, 2014). In late 1970s and early 1980s, discussions centred on this rapidly expanding field. As a result, American Society of Training and Development (ASTD) approved the term “human resource development” to encompass this growth and change (Warner and DeSimone, 2006).

Human resource development defined as a set of systematic and planned activities designed by an organization to provide its members with the opportunities to learn necessary skills to meet the current and future job demands (Werner and DeSimone, 2006). It is necessary to recognize the alternative definitions of HRD that have been presented over the years. Table 3.1 provides the summary of historical development of HRD definitions. HRD is concerned with creating a climate of work culture, productivity and integration by building the capabilities of people, preparing them for change, and improving productive and achieving organizational goals in a dynamic and competitive business environment (Garavan, 2007).

Table 3.1: Definitions of Human Resource Development

<i>Author and Year</i>	<i>Definition</i>
Harbison and Myers (1964)	“HRD is the process of increasing the knowledge, the skills, and the capacities of all the people in a society”.
Nadler (1970)	“HRD is a series of organized activities conducted within a specified time and designed to produce behavioural change”.

Craig (1976)	“The HRD focus is on the central goal of developing human potential in every aspect of lifelong learning”.
Jones (1981)	“HRD is a systematic expansion of people’s work-related abilities, focused on the attainment of both organisation and personal goals”.
Chalofsky and Lincoln (1983)	“The discipline of HRD is the study of how individuals and groups in an organisation change through learning”.
McLagan (1989)	“HRD is the integrated use of training and development, career development, and organisational development to improve individual and organisational effectiveness”.
Smith (1990)	“HRD is the process of determining the optimum methods of developing and improving the human resources of an organization and the systematic improvement of the performance and productivity of employees through training, education and development and leadership for the mutual attainment of organizational and personal goals”.
Marsick and Watkins (1994)	“HRD as a combination of training, career development and organizational development offers the theoretical integration need to envision a learning organization, but it should positioned to act strategically throughout the organization”.
Swanson (1995)	“HRD is a process of developing and unleashing human expertise through organization development and personnel training and development for improving performance”.
Hamlin (2004)	“HRD encompasses planned activities and process designed to enhance organizational and individual learning, develop human potential, maximise organizational effectiveness and performance, and help bring about effective and beneficial change within and beyond the boundaries of organization”.
Swanson and Holoton (2009)	“HRD is a process of developing and unleashing expertise for improving organizational system, work process, team and individual performance”.

Source: Compiled by the author.

3.2 HRD Studies and Indian Cement Industry

The Indian cement industry is heading towards modernization of cement plant and demanding competent workforce at all levels (Singh, 2003). Mohideen and Alphonse (2015) in their study of Indian cement industries had cautioned that, the availability of skilled workforce has become one of the major challenges of Indian cement industry and there is a big shortfall between availability and demand of competent work force. Further, technological changes are taking place in every department of cement manufacturing unit at a rapid pace. Recent studies (Delery and Gupta, 2016) on various Indian cement manufacturing units have advocated that organizational effectiveness is highly influenced

by employee competencies. Babu and Reddy (2013) and Kumar (2015) in their recent studies on Indian cement manufacturing plants have suggested that the skills and knowledge of manpower already employed in existing cement plants, have to be upgraded in areas like operations, utilization of alternate and unconventional raw materials, energy conservation, quality control and pollution control. Prior research on Indian cement industry have focused on human resource development and its influence on the organizational effectiveness, but majority of researchers have examined this relationship by focusing on a single component of human resource development. A study conducted by Vijayalakshmi (2008) showing the impact of training and development on employee self-efficacy of cement manufacturing units, found that, there is significant relationship between these two variables. Similar results were also found by Babu and Reddy (2013), showing substantial relationship between training and employee performance in Indian cement industry. Whereas, Singh and Banerjee (2005) examined the association of performance management on employee productivity and found it to be significant. A similar study by Kumar (2015) also found that performance management has significant and positive impact on productivity and product quality. Trehan and Setia (2014) found that employee empowerment would help the employees of this industry to become competent and committed workforce.

A recent study by Sivakumar and Kumar (2016) on Tamilnadu cement industries found that there is a significant association between training and organizational productivity. Similarly, Olekar and Pushapavathi (2014) conducted a study by selecting the cement industries in Gulbarag and Yadgiri district of Karnataka found that performance appraisal significantly influences employee performance. Further, empirical study by Hosmani and Hameed (2013) on cement manufacturing units in the Gulbarag district, Karnataka found that performance appraisal and training highly influences employee performance. Vijeta and Raman (2011) conducted a study on cement industry in Dhanbad and provided evidence for supporting the linkage between training and organizational development. Along the same lines, Sasirekha and Ashok (2013) carried out an empirical study considering cement-manufacturing units and found that career development influences employee development. Whereas, Shivaramakrishnan and Sulaiman (2014) explored the relationship between potential appraisal and employee capabilities of the cement-manufacturing organizations, found that, there is a significant relationship between these two variables. Balaji and Karthikeyan (2014) in their recent study conducted in the cement

manufacturing plants found that career management significantly influences the employee performance. Similarly, Satyanarayana and Reddy (2012) found that there is a significant association between organizational support for career development and employee competencies. Srivastava et al., (2010) indicated the broad usage of employee career counselling help the employees to enhance their abilities and competencies for optimum performance. However, there is a lack of concrete studies that have empirically validated the effect of HRD interventions on organizational effectiveness, especially in the Indian context.

3.3 An Overview of Study Variables

Organizational effectiveness has an influence over rapidly accelerating rate of technological innovations and competitive environment that made the companies to focus on strategic HRD interventions (Birdi, 2005; Brooks and Nafukho, 2006). While investigating the outcome of HRD interventions, scholars found that it improves employees' capabilities on the job, productivity and efficiency (Haslinda, 2009). The general purpose of HRD interventions is to have a pool of competent and qualified employees to perform the assigned jobs and contribute towards sustainability of the organization. Contemporary research has essentially either been concerned with the analysis of relationships of HRD interventions, individually or considered as a system, together with the strategy (Marler, 2012). The relation of the HRD interventions and organizational performance has been analysed focusing on employee performance (Kabanoff and Brown, 2008; Song et al., 2009), but very few works has been specifically conducted on HRD interventions, employee competencies and organizational effectiveness. Human resource development alone is not sufficient to enhance employee competencies to a greater level because not all knowledge and skills obtained from HRD interventions is properly transferred (Froehlich et al., 2014). This organizational learning culture can modify the behaviour of the employees and can directly or indirectly influence employee competencies, thereby enhancing organizational effectiveness. Thus, an organization should create a learning culture in the organization, so that the employees can share, acquire and create knowledge and skills. To examine the impact of HRD interventions on organizational effectiveness, the study has selected a set of independent and dependent variables namely: HRD interventions, organizational learning culture, employee competencies, and organizational effectiveness. The variables used in this study are illustrated in the following sections.

3.3.1 Human Resource Development Interventions

Organizations are continuously focusing on development of human resources as an important input for effectiveness and efficiency measures because of the increasing importance of HRD interventions towards organizational effectiveness (Garavan, 2007). According to Werner and DeSimone (2006), “HRD interventions are the programs, which are designed to be strategically oriented to organizational process for managing the development of human resources to contribute to the overall success of the organization”. The rationale for using HRD interventions is to support business objectives is quite straightforward: enhancing or unleashing needed employee expertise through HRD (Chermack and Kasshanna, 2007). From organizational strategic perspective, HRD interventions have explicit as well as implicit goals. The implicit goals are job involvement, engagement, commitment, and satisfaction. Whereas the explicit goals are cognitive behavioural outcomes (Hesketh and Ivancic, 2002, Rowold, 2008). HRD interventions continuously improve employee’s expertise and performance through the existing practices of training and development, career development, performance appraisal and organizational development (Yuvaraj and Mulugeta, 2013). Proper implementation of HRD interventions serves to enhance the employee competencies and organizational effectiveness, which would assist in building a strong competitive advantage in the dynamic business environment. The key HRD interventions, which are identified and relevant for this study by keeping in view the cement-manufacturing units, are such as: training and development, career management, performance appraisal, team building and employee empowerment.

Training and Development

“Training” refers to a systematic approach to learning and development to improve individual, team, and organizational effectiveness, whereas, “development” refers to activities leading to the acquisition of new knowledge or skills for the purpose of personal growth (Aguinis and Kraiger, 2009). Training and development defined as a process of systematically developing work-related knowledge and expertise in people for improving performance (Swanson, 2009). The effective implementation of training and development measures in an organization benefits the teams and individuals through improving the performance (Diamantidis and Chatzoglou, 2014). It not only improves performance but also shows the direct impact on tacit skills, adaptive expertise, technical skills (Salas, et al., 2012) and indirect impact on commitment, engagement and planning (Newman et al.,

2011). At organizational level, training and development support in increasing organizational performance through direct impact on reduced cost, improved quality and quantity, and indirectly on profitability, productivity (Jiang et al., 2012). Hence, training and development plays a key role in strategic HRD, contributing to the competitiveness, and very success of the business (Nolan and Garavan, 2016).

Career Management

Organizational career management is also called as “organizational support for career development” or “organizational sponsorship” and refers to the programs, processes, and assistance provided by the organizations to support and enhance their employees’ career success (Barnett and Bradley, 2007; Ng et al., 2005). Whereas, Cummings and Worley (2005) states, “career management helps individuals achieve their career objectives. It follows closely from career planning and includes organizational practices that help employees implement those plans. These may include skills training, performance feedback, planned job rotation, mentoring and continuing education”. Career development involves a person’s creation of career pattern, decision-making style, and integration of life roles, value expression and life-role self-concepts (Niles and Bowsbey, 2002: 15). It assists in building a partnership between the organization and its employees, enriching their knowledge, skills, and abilities, allowing in simultaneous enhancement of organizational effectiveness (De Vos and Dries, 2013). An effective career management will benefit the organization in attracting and retaining high competent employees, increase in employee job satisfaction, and alignment of organizational needs with individual needs and enhancement of organizational effectiveness (Egan et al., 2006).

Performance Appraisal

The performance appraisal measure is a systematic and periodic process that assesses an employee's job performance and productivity in relation to certain pre-established criteria and organizational objectives (DeNisi, and Smith, 2014). DeNisi and Pritchard (2006), stated, “performance appraisal is a discrete, formal, organizationally sanctioned event, usually not occurring more frequently than once or twice a year, which has clearly stated performance dimensions and/or criteria that are used in the evaluation process”. Performance appraisal has increasingly become a part of a strategic approach to integrating HRD activities and business policies and presently seen as a generic function covering a diversity of activities through which organizations seek to evaluate employees and develop their competency and enhance performance (Kuvaas, 2006 and Fletcher and Williams,

1996). Effective implementation of performance appraisal system increases the productivity of the employees by providing timely feedback to the employees (Shrivastava and Purang, 2011) and helps the organization to make decisions about the worker's professional development and promotions (Kuvaas and Dysvik, 2010).

Team Building

Klein et al., (2009) define team building as “the formal and informal team-level interventions that focus on improving social relations and clarifying roles as well as solving task and interpersonal problems that affect team functioning”. In this intervention, team members experimentally learn, by examining their structures, norms, values, and interpersonal dynamics, to increase their skills for effective performance (Senécal et al., 2008). In the literature, there is consensus that there are four approaches/components to team building (i) goal setting, (ii) role-clarification, (iii) interpersonal relations and (iv) problem solving. A brief explanation is presented below.

- (i) **Goal Setting:** This component is designed specifically to strengthen a team member's motivation to achieve team goals and objectives (Salas et al., 2004). Team members are expected to become involved in action planning to identify ways to achieve those goals (Aga et al., 2016).
- (ii) **Role-Clarification:** It entails clarifying individual role expectations, group norms and shared responsibilities of team member (Klein et al., 2009). Role clarification can be used to improve team and individual characteristics (i.e., by reducing role ambiguity) and work structure by negotiating, defining, and adjusting team member roles (Mathieu and Schulze, 2006).
- (iii) **Interpersonal Relations:** It is based on the assumption that teams with fewer interpersonal conflicts function more effectively than teams with greater number of interpersonal conflicts. It involves an increase in teamwork skills, such as mutual supportiveness, communication and sharing of feelings (Aga et al., 2016).
- (iv) **Problem Solving:** The fourth component emphasizes on the identification of major problems in the team's tasks in order to enhance task-related skills. It is an intervention, in which team members identify major problems, generate relevant information, engage in problem solving, action planning, implementation and evaluation of action plans (Aga et al., 2016; Beebe and Masterson, 2015).

Effective team building intervention in an organization enhances an individual's cognitive outcome like teamwork competencies and affective outcomes like trust and team potency, whereas, at team level, the outcomes are coordination and effective communication (Tannenbaum et al., 2012). At the organization level, team effort helps to solve various problems of the organization, such as conflict among organizational members, unclear roles and assignments, lack of innovation in solving problems, etc., that upsurge the performance of the organization (Stone, 2010).

Employee Empowerment

An employee empowerment approach is composed of practices aimed at sharing information, job related knowledge and authority with employees (Fernandez and Moldogaziev, 2013). Baird and Wang, (2010) stated, "The basic objective of empowerment is redistribution of power between management and employees – most commonly in the form of increasing employee authority, responsibility, and influencing commitment". In the literature, empowerment defined in two perspectives: psychological perspective and managerial perspective. From a psychological perspective, empowerment is a motivational akin to a state of mind or set of cognitions (Fernandez and Moldogaziev, 2013). Spritzer (1995) and Dust et al., (2014) described employee empowerment as a four dimensional motivational construct composed of four cognitions those are meaning, competence, self-determination, and impact, that reflect an active rather than a passive orientation towards a work role. From a managerial perspective, employee empowerment is a relational construct that describes how those with power in organizations share power, information, resources, and rewards with those lacking them (Gomez and Rosen, 2001; Fernandez and Moldogaziev, 2013). Bowen and Lawler (1995) defines empowerment as sharing with front-line employees on four organizational ingredients: (i) information about the organization's performance, (ii) knowledge that enables employees to understand and contribute to organizational performance, (iii) rewards based on the organization's performance, and (iv) power to make decisions that influence organizational direction and performance.

3.3.2 Organizational Learning Culture

Organizational culture: Organizational culture is a system of shared assumptions, values, and beliefs, which governs how people behave in organizations (Needle, 2010). According to Cameron and Quinn (2005), organizational culture defines the core values, assumptions, interpretations and approaches that characterize an organization. Whereas Detert et al.,

(2000) defined organizational culture as, “culture consists of some combination of artefacts (also called practices, expressive symbols, or forms), values and beliefs, and underlying assumptions that organizational members share about appropriate behaviour.” These shared values have a strong influence on the people in the organization and dictate how they dress, act, and perform their jobs (Hogan and Coote, 2014). Every organization develops and maintains a unique culture, which provides guidelines and boundaries for the behaviour of the members of the organization (Zheng et al., 2010).

Organizational learning culture: Torres-Coronas and Arias-Oliva (2008: 177) defines organizational learning culture as, “a set of norms and values about the functioning of an organization that support systematic organizational learning so that individual learning, teamwork, collaboration, creativity, and knowledge distribution have collective meaning and value.” It is a complex process that refers to the development of new knowledge and has the potential to change behaviour (Skerlavaj et al., 2007). According to Kandemir and Hult (2005), organizational learning culture has been viewed as a process by which organizations as collectives learn through interaction with their environments and propose that learning might result in new and significant insights and awareness. Transfer of knowledge acquired through HRD programs to organization stakeholders is not as easily achieved (Salas and Kosarzycki 2003). At best, only 15 % of the total learning that takes place during training that transferred at work, as per some optimistic speculations (Cromwell and Kolb 2004). Past research (Kolb and Kolb 2005) has repeatedly highlighted the need for fostering a learning environment in organizations such that employees are motivated to actively learn new things and then share their knowledge with their peer. At the organizational level, research has identified organizational learning culture as a key driver for promoting a sense of healthy knowledge sharing among employees (Confessore and Kops 1998; Garvin 1993). Employees need to first realize that their firm expects them to disseminate the learning generated from a training exercise among the organizational members who did not attend the training (Bunch 2007; Clarke 2004). The objective of building an organizational learning culture in an organization is to expand people’s capacity to create the results they truly desire, the employee’s new and expansive patterns of thinking to be encouraged, collective aspiration to be set free, and employees should be continually learning how to learn together (Senge, 1990:15). According to Marsick and Watkins (2003), organizational learning culture consists of seven interlinked constructs: (a) create continuous learning opportunities, (b) promote inquiry and dialogue, (c) encourage

collaboration and team learning, (d) create systems to capture and share learning, (e) empower people toward a collective vision, (f) connect the organization to its environment, and (g) provide strategic leadership for learning, which helps in building the organization's strategic learning culture. Table 3.2 summarizes the seven dimensions of organizational learning culture.

Organizational learning culture as a moderator is grounded on the signaling theory (Spence, 2002) and experiential learning theory (Kolb 1984). Based on the viewpoint of signaling theory, organizations that cultivate learning culture would give indications to the employees that the management values and supports the exchange of knowledge and skills learnt by them from the HRD programs provided by their organizations (Bloor and Dawson 1994; Spence 2002). Such culture that facilitates knowledge-transfer and idea sharing would positively influence employee competencies. According to the experiential learning theory (Kolb 1984), the process of learning is highly affected by two elements: individual's interaction with different stakeholders and feedback of one's knowledge from their superiors and peers. Referring to this, employees perceptions' that the organization promote sound learning culture through regular feedbacks and mentorship would motivate them to acquire and exchange their skills and knowledge (Clark et al. 1993). Therefore, the learning culture process has been identified as one of the vital and appropriate contextual factor to enhance employee competencies. It is not only important to implement HRD interventions in the organization, but the environment surrounding the individual is also important for enhancing employee competencies (Murray and Donegan, 2003). With similar logic, the study argued that organizational learning culture in an organization would enable, but not directly lead to the enhancement of employee competencies. This is because, as a contextual variable, organizational learning culture may be able to influence the direction and extent of process that are already happening in the organization, but not to cause the process to happen. Thus, it becomes essential to assess the moderating role of organizational learning culture, whether to influence the relationship between HRD interventions and employee competencies. The moderating effects of organizational learning culture would provide significant insights regarding the changes in the direction or extent of the process of HRD interventions toward building of employee competencies.

Table 3.2: Definitions of dimensions of organizational learning culture

<i>Dimension</i>	<i>Definition</i>
Continuous Learning	“Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth”.
Inquiry and Dialogue	“People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation”.
Team Learning	“Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded”.
Embedded System	“Both high- and low-technology systems to share learning are created and integrated with work; access is provided; systems are maintained”.
Empowerment	“People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do”.
System Connection	“People are helped to see the effect of their work on the entire enterprise; people scan the environment and use information to adjust work practices; the organization is linked to its communities”.
Strategic Leadership	“Leaders model, champion, and support learning; leadership uses learning strategically for business results”.

Source: Marsick and Watkins (2003)

3.3.3 Employee Competencies

The word competency was first explained in the book “The Competent Manager” (Boyatzis, 1982: 21) which defines the term as, “an underlying characteristic of a person that could be a motive, trait, and skill aspect of one’s self-image or social role, or a body of knowledge which he or she uses”. A competency is a reliably measurable, relatively enduring (stable) characteristic of a person, team or organization that causes and statistically predicts a measurable level of performance (Berger and Berger, 2010). Some definitions of the term competency are shown in the table 3.3 given below. The term ‘reliably measurable’ means two or more independent observers or methods (tests, surveys) agree statistically that a person demonstrates a competency (Spencer et al., 2008) while ‘relatively enduring’ means a competency measured at one point of time is statistically likely to be demonstrated at a later point of time (Catano et al., 2007). Competency characteristics are content knowledge, behaviour skills, cognitive processing (IQ), personality traits, values, motives, and occasionally other perceptual or sensor motor capabilities that accurately predict some level of performance. Cardy and Selvarajan (2006) has classified competencies into two categories: employee (personal) and organization (corporate). Employee competencies are those characteristics or traits that are acquired by

employees, such as knowledge, skills, ability and personality that differentiate them from average performers (Cardy and Selvarajan, 2006). Organizational competencies are those, which are embedded in the organizational system and structures that tend to exist within the organization, even when an employee leaves (Semeijn et al., 2014). Human capital attributes have been argued to be an important resource of organizational performance because organizations that are able to generate organization specific, valuable, and unique competencies are thought to be in a superior position that enables them to outperform their rivals and succeed in a dynamic business environment (Van Esch et al., 2016).

Table 3.3: Definition of the term Competency

<i>Author and Year</i>	<i>Definition</i>
Bartram (2004)	“Sets of behaviours those are instrumental in the delivery of desired results or outcomes. Also, repertoires of capabilities, activities, processes, and responses available that enable a range of work demands to be met more effectively by some people than by others”.
Campion et al. (2011)	“Collections of knowledge, skills, abilities and other characteristics that are needed for effective performance in the jobs in question”.
Eric Soderquist et al. (2010)	“The knowledge, skills, and abilities that underlie effective or successful job performance, which are observable, measurable, and distinguish superior from average performance”.
Chen and Naquin (2006)	“The underlying individual work-related characteristics (e.g., skills, knowledge, attitudes, beliefs, motives, and traits) that enable successful job performance, where “successful” is understood to be in keeping with the organization’s strategic functions”.

Source: Compiled by the author.

3.3.4 Organizational Effectiveness

The conceptual explanation of organizational effectiveness is most controversial and difficult to define (Reimann, 1975). In early 1960’s to mid-1980, there have been a large number of studies on defining and examining of the factors that influence the organizational effectiveness. Researchers have proposed different models to elucidate and measure organizational effectiveness. There are wide varieties of approaches that researchers attempted to define organizational effectiveness. As per Georgopoulos and Tannenbaum (1957:534), organizational effectiveness defined as “the extent to which an organization as a social system, given certain resources and means, fulfils its objectives without incapacitating its means and resources and without placing undue strain upon its members”.

Whereas, Gaertner and Ramnarayan (1983) has focused on measures of terminal outcomes such as profitability, survival and goal attainment. Recently, another prominent scholar (Semeijn et al., 2014) defined organizational effectiveness as the net satisfaction of all constituents in the process of gathering and transforming inputs into output in an efficient manner. In summary Roy and Dugal (2005) explained, organization which can adapt to change, compete with rivalries, optimize the resources, bring quality products at the right time to the right place, make the right decision in critical times and attract potential personnel; in short, the organization which has the capability to achieve desired goals and objectives of the stakeholders. Organizational effectiveness cannot be measured by a single criterion, as it is a multi-dimensional concept. There are four important approaches for measurement of organizational effectiveness developed in the literature: goal attainment approach; system resource approach; strategic constituency approach; and competing values approach. A brief explanation of each approach is provided below:

- (i) **Goal Attainment Approach:** This is the most widely discussed approach in the evaluation of organizational effectiveness. In this approach, organization views effectiveness in terms of its internal organizational objectives and performance. Goal attainment approach describes that an organization will be effective when it accomplishes its stated goals, and it is applicable only when the organization has a clear set of time bounded and measurable goals and objectives (Perrow, 1961 and Price, 1972). There are some limitations for this approach. What an organization states as its official goals do not always reflect as the organization's actual goals. Hence, organization's official goals are generally influenced by its standards of social desirability. Researchers suggest that goals are dynamic; therefore, they are likely to change over time, primarily because of the political make-up of an organization.
- (ii) **Systems Resources Approach:** This approach was proposed by Yuchtman and Seashore (1967), who viewed an organization as an open system where the organization procures inputs involved in the conversion process (transformation process) and generates output. The important aspect of systems resources approach is the survival of the organization, which depends on attracting the resources and maintaining harmonious relationship with constituencies (stakeholders). A system approach to organizational effectiveness assumes that the organization is composed of interrelated subsystems. If any of these sub systems perform inadequately, it will

affect the performance of the whole system. Robbins (1990) has raised limitations of this approach, indicates measuring specific goals may be easy, compared with trying to measure process variable. The critics of the systems resource approach suggest that its fundamental limitation is that it focuses on the process necessary to achieve effectiveness rather than organizational effectiveness itself.

(iii) Strategic Constituency Approach: The strategic constituencies' approach of organizational effectiveness proposes that an effective organization is one that satisfies the demands of those constituencies in its environment from whom it requires support for its continued existence (Connolly et al., 1980 and Love and Martin, 1996). Strategic constituency involves all the people that are some how connected to the organization. These people may have different roles such as the users of the services or products of the organization, the resources providers, and facilitators of the organization's output, the main supporters and the dependents of the organization.

(iv) Competing Values Approach: It was developed by Quinn and Rohrbaugh, (1981), analysing relationship among Campbell's (1977) thirty organizational effectiveness criteria. The study suggested that individual or employees evaluate organizational effectiveness based on three basic sets of competing values. Those are (a) means versus ends, (b) people versus organization, and (c) flexibility versus control.

(a) *Means versus ends:* These two variables relate the internal process and outcomes. The former is considered as a long-term variable, whereas later is considered as a short-term variable. This set of competing values compared to the goal attainment approach focuses on the ends and system resource approach emphasis on means.

(b) *People versus organization:* These two variables place an emphasis on the well-being of people and development of the organization. The people – organization dimension is an incompatible dimension of the organization structure. Quinn and Rohrbaugh, (1981:131) said, “these set of values contribute to the well-being and development of people in the organization with an emphasis on the well-being and development of the organization itself”.

(c) *Flexibility versus control:* These competing values were related to the organizational structure, from an emphasis on stability to an emphasis on

flexibility. Flexibility values innovation, adaptation and change. Whereas control favours stability, order and predictability.

3.4 Formulation of Hypotheses

This study has selected a set of independent variables: HRD interventions (training and development, career management, performance management, team building and employee empowerment) and organizational learning culture; and dependent variables: employee competencies and organizational effectiveness. The independent variables are considered necessary for the influence of employee competencies and its impact on organizational effectiveness. In the following sections, the hypotheses are proposed based on the relationship between the study variables.

3.4.1 HRD Interventions and Employee Competencies

Researchers (Sung and Choi, 2014; Zumrah et al., 2013; Garavan et al., 2012) have suggested that organizations should design and implement HRD interventions so that the employees can enhance their individual competencies to meet the performance expectations. Kehoe and Wright (2013), deliberates that HRD was the basic component for employees to acquire competencies that in turn significantly improve organizational performance. Infact, the general purpose of HRD interventions is to produce competent and qualified employees to perform an assigned job and contribute to the organization's business outcomes (Nolan and Garavan, 2016; Garavan et al., 2016). Scholars have investigated the outcome of HRD interventions and reported that these interventions improve employees' capabilities on productivity, and efficiency (Haslinda, 2009). Yuvaraj and Mulugeta (2013) also provided a similar result that explains HRD interventions continuously improve employees' capability and performance through the existing practices of training, career development, performance appraisal and organizational development components of HRD. The study has examined five interventions: training and development, career management, performance appraisal, team building and employee empowerment that were being widely implemented in the selected organizations (Cement manufacturing units). The association between selected HRD interventions and employee competencies are revealed in subsequent reviews. Therefore, based on the above argumentation, it is hypothesized that:

H₁: There is a significant and positive relationship between HRD interventions and enhancement of employee competencies.

Training and development and employee competencies

One of the important HRD interventions in the constantly changing global economic environment is training, in which every individual of the organization has an opportunity to develop their competencies. Employees who participated in training and development programmes apply learned new skills, knowledge and attitude in their everyday work and it was evidenced that they demonstrate better abilities in performing their job (Zumrah et al., 2013). A well-designed and feasible training and development policy in accordance to the needs of the organization can enrich employee commitment and positive job attitude (McGrath, 2012). Further, the role of superiors is crucial in identifying employee's competency gaps and communicating them to training and development department, which in turn provide required training programs to minimize employee competency gaps (Lancaster et al., 2013; Govaerts and Dochy, 2014).

A full-fledged training and development department with the work force of competent professionals contributes towards employee's competencies that include their ability to perform given tasks and apply their specialized knowledge at the work place (Bartlett, 2003; Martin and Hrivnak, 2009; Shen-Miller et al., 2015). In this respect, it is quite necessary that the respective training centres are well equipped with adequate training amenities that can quicken employee-learning process (Ghosh et al., 2011). In addition, it is essential to emphasize on standardized work procedures and methods in training sessions and the training manuals should be provided to the trainees after completion of training, so that they can recall the learned knowledge later (Diamantidis and Chatzoglou, 2014; Brown et al., 2016). As change is inevitable in an organization, periodic and regular need-based training programs can upgrade the employee skills and knowledge and help them to cope up with change (Olsen and Stensaker, 2014). Referring to the traditional talent development process, training is extremely effective in imparting technical competencies (Garavan et al., 2012). As per the views of Hassi and Storti (2011), training and development is also perceived to serve as an opportunity for socialization and establishing relations at the workplace rather than only focusing on the acquisition of knowledge and skills. Continual employee training and development is the most potent tool, which can combat the skill obsolescence and improve employee competencies (Maheshwari and Vohra, 2015). Hence, in the context of emerging paradigm, in the presence of supporting HRD practices, organizations increases their productivity advantage while continuously enhancing the knowledge, skill, capabilities and competence in the self-development of the employees

through investing in education, training and developmental measures (Shin et al., 2012). Therefore, the following hypothesis is suggested.

H_{1a}: Training and development measures are significantly and positively related to enhancement of employee competencies.

Career management and employee competencies

Career management assist in building a partnership between the organization and its employees, enriching their knowledge, skills and abilities, by improving individual competencies, allowing in simultaneous enhancement of organizational effectiveness (Gilley et al., 2009:94). Eminent scholars like Sullivan et al., (2003), and McDonald and Hite (2005) recommend that organizations adopting transparency in career management may help to reduce dissatisfaction and enhance an employee's positive job attitude toward the work. The most common rationale for organizational involvement in individual career planning is that it reduces employees' uncertainty, helps them to plan, and thus yields positive outcomes for individuals (Granrose and Portwood, 1987). An effective career development program help individuals to analyze their abilities and interests to better match their personal needs for career development with the needs of the organization (Gilley et al., 2009:49). Employee's indulgence in professional development can enable them to update knowledge and skills, enhance recognition, career progression, salary enhancement, and improve job satisfaction (Murphy et al., 2006). Srivastava et al. (2010) and (Guan et al., 2015) indicated the broad usage of employee assistance programs, career counselling, learning avenues, skill enhancement and behavioural training assist the employees to utilize their abilities and competencies for optimum performance. Similarly, Sturges et al., (2010), and Crawshaw and Game, (2015) found that encouragement from superiors towards the employee's individual career development opportunities can develop self-motivation and positive job attitude. Further, organizations that provide sponsorships and continuing education facilities to their employees to pursue higher studies can enhance work-related knowledge and skills whereby they can improve their individual performance and commitment (Guan et al., 2015; Clarke, 2013). Uncertainty regarding the consequence of organizational change on employee's career increases the resistance to change. Thus, effective career management programs would make the employee ready for a change by providing organizational prerequisites from employees and competency development programs. The above discussions provide ample evidences to suggest that:

H_{1b}: Career management has a positive and significant relationship with enhancement of employee competencies.

Performance appraisal and employee competencies

According to Kinicki et al., (2013), “a performance appraisal is a systematic and periodic process that assesses an individual employee's job performance and productivity in relation to certain pre-established criteria and organizational objectives”. Human performance is a function of how well individual contributes to the organization in two loosely correlated areas: achieving the results that the company expects and demonstrating the behaviours that the organization requires of all its employees (Berger and Berger, 2011:46). An effective performance appraisal system also fosters the development of employee competencies. A developmental appraisal system helps to identify employees’ strengths and weaknesses, assess and guide training and development needs to increase the skills and competencies required for desirable behaviour (Chiang and Birtch, 2010). Performance feedback communicates organisational expectation and provides employees direction of how to improve their competencies to meet with the needs of the firm (Shipton et al., 2006; Yang and Lin, 2009). Scholars (Jiang et al., 2012; Egan, 2005) also argue that developmental appraisal practices are conducive to creativity and the development of new competencies because in order to advance their performance, employees are motivated to seek new and creative approaches to their work activities. The performance appraisal system is useful to assess the employee’s performance, productivity, and efficiency (DeNisi and Smith, 2014). In particular, it is vital to ensure that employees are aware about the performance appraisal system of the organization such that they can identify their competencies in relation to performance expectations (Sharma et al., 2016; Saratun, 2016).

Further, periodic review of the employee’s performance at regular intervals can assist employees to identify their individual performance-related aspects, thereby, enhance their chances of progress accordingly (Decramer et al., 2012). Subsequently, performance appraisal system has to give due importance on compensation and rewards based on employee performance which can motivate employees towards achieving performance standards (Dusterhoff, 2014; Saunila et al., 2015; Chiang and Birtch, 2010). Moreover, a good appraisal system provides a proper balance between pay and performance related aspects that help to augment employee motivation and positive attitude towards work (Sharma, 2014). Empirical evidence suggests that the integrated human resource and performance appraisal policies have significant influence on employee attitude and

commitment, and these in turn influence the performance of the organization (Bednall et al., 2014). A perfect performance appraisal system (a) increases employee motivation and self-esteem; (b) provides self-insight and development opportunities; and (c) help in identification of required skills and knowledge for future requirements (Campbell, 2015). An effective performance appraisal system not only allows the organization to gain insight about the employees but also help in communicating organizational goals more clearly and motivates them to learn (Aguinis, 2009). Researchers with authority in talent management suggests that effective performance appraisal system provides for the assessment of individual's performance and helps them to develop a set of competencies that organization requires (Berger and Berger, 2010: 47). It is more than appraising individual; it contributes to the achievement of cultural change, where the focus is on high performance, engagement, commitment and involvement (Armstrong, 2009). Based on the above discussion, it can be proposed that:

H_{1c}: Performance appraisal has a positive and significant relationship with enhancement of employee competencies.

Team building and employee competencies

According to LePine et al., (2008), “The practices of team-building components (goal-setting, interpersonal processes, role-clarification, and problem-solving) can lead to improved performance through modification of attitudes, values, problem-solving techniques, and group processes”. In the goal-setting component, team members are introduced to a goal-setting framework and are expected to involve in action planning to identify ways to achieve those goals, which strengthen team member's problem solving skills and motivation (Aga et al., 2016). Team members exposed to role-clarification activities are expected to achieve better understanding of their and others' respective roles and duties within the team (Salas et al., 1999). Interpersonal process component involves an enhancement in team member's interpersonal skills, such as mutual supportiveness, communication and sharing of information (Klein et al., 2009). The fourth component emphasizes the identification of major problems in the team's tasks in order to enhance task-related skills. Team building is an intervention, in which team members identify major problems, generate relevant information, engage in problem solving, action planning, implement and evaluate action plans (Aga et al., 2016; Beebe and Masterson, 2015). When there is a high level of interaction among team members, the cross fertilisation of perspectives not only fosters knowledge sharing among team members but also enhances

interpersonal competencies such as communication, empathy, and coaching (Senecal et al., 2008). Hence, team-building intervention is likely to enhance intellectual and creative competencies as well as interpersonal social competencies (Braun et al., 2013). Team building enhances individual's cognitive outcome like teamwork competencies and affective outcomes like trust and team potency, whereas, at team level the outcomes are coordination, effective communication (Tannenbaum et al., 2012). Shuffler et al., (2011) in their meta-analysis found that an effective team building process has improved affective outcomes (trust, attitude and confidence) and cognitive outcomes (shared knowledge among team members). The above discussion provide ample facts to suggest that:

H_{1a}: Team building is a significant predictor of enhanced employee competencies.

Employee empowerment and employee competencies

Fernandez and Moldogaziev, (2012), have stated that, “employee empowerment is a relational construct that describes how those with power in organizations share power and formal authority with those lacking it”. Organizations have implemented empowerment initiatives based on the premise that when individual employees can participate in decision making and share responsibility, for how work is conducted, outcomes such as performance and employee's knowledge will be enhanced (Maynard et al., 2012). Organizations that encourage harmonious relationships between superiors and subordinates provide employees with the liberty to express their creative suggestions, which help in enriching their self-motivation (Fernandez and Moldogaziev, 2012). When employees are empowered and given the autonomy and flexibility, they are likely to be more motivated and take full responsibility to find new ways and develop new skills to respond to challenges (Luoh et al., 2014). Kanter (1993) and Laschinger (1996) define structural empowerment as workplace structures that enable employees to carry out work in meaningful ways. These structures empower employees by providing access to information required to perform the job effectively, support from peer and supervisor feedback, resources like time and supply to carry out job and opportunity for learning and growth within the organisation (Dainty et al., 2002). Liden et al., (2000) found that empowering working conditions have been positively linked to employee's positive job attitude and tolerant to work pressure and ambiguity. When employees are involved in their work with the spirits of vigour and commitment, it makes a significant difference to their self-motivation and positive job attitude (Manojlovich, 2005). Empowerment can enrich individual's ability to perform their duties successfully, where they have control over their

workload, get support from the peers, feel more rewarded for their accomplishments and are treated fairly (Janssen, 2004). Fernandez and Moldogaziev, (2013), in their empirical study found that there is a positive relationship between employee empowerment and employee's attitude and behaviour. Leach et al., (2003), further indicated that, employee empowerment has a positive impact on job knowledge through an empirical validation. Hence, the following premise is expected:

H_{1e}: Employee empowerment has a significant and positive relationship with enhancement of employee competencies.

3.4.2 Organizational Learning Culture as a moderator

Organizational learning culture has been an influential contextual variable enhancing positive outcomes in the HRD field (Egan et al., 2004; Marsick and Watkins, 2003). Organizations that develop a strong organizational learning culture are good at creating, acquiring and transforming of knowledge, as well as modifying behavior to reflect the new knowledge and insight (Garvin, 1993). Harris and Mossholder (1996) consider organizational learning culture as the heart of human management strategy because of its influence on individual's attitudes and outcomes such as competencies, commitment, satisfaction, retention and performance. Organization learning culture has frequently been conceptualized in the literature (Hahn et al., 2015; Joo and Lim, 2009; Bates and Khasawneh, 2005) as a main or a mediating effect in explaining different outcomes; yet, the construct may turn to play a more important role as moderator. Few studies have examined the moderating effect of organizational learning culture in recent times (Froehlich et al., 2014; Guo et al., 2014; Joo and Shim, 2010 and Joo and Lim, 2009). Organizational learning culture proceeds in a series of organizational transformations or cultural changes in which all kinds of knowledge are recombined to form something new, resulting in a capacity to create and acquire knowledge, and to upgrade the employee's skills, expertise, and competencies (Meeus et al., 2001). The learning culture processes have been noted as one of the vital and appropriate factor to enhance employee competencies and commitment (Hung et al., 2010). It is not only important to implement the HRD interventions in the organizations, but the environment surrounding the individual is also important for enhancing employee competencies (Murray and Donegan, 2003). With similar logic, the study argued that organizational learning culture in an organization would enable, but not directly lead to the enhancement of employee competencies. This is because, as a contextual variable, organizational learning culture may be able to influence

the direction and extent of processes that are already happening in the organization, but not to cause the process to happen, like enhancement of employee competencies. Based on above discussion, it can be inferred that organizational learning culture plays an important moderating role in between HRD interventions and employee competencies. Thus, in the present study, associations between selected HRD interventions, organizational learning culture, and employee competencies are revealed in subsequent reviews. The above discussion present sufficient reasoning to derive the following hypothesis:

H₂: Organizational learning culture will moderate the relationship between HRD interventions and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

The moderating effect of organizational learning culture between training and development and employee competencies

The effective training and development programs in the organization have a positive influence on employee competencies and commitment, but only when it actually instigates greater sharing and utilization of knowledge among employees (Salas et al., 2012). An organization that encourages employees to engage in organization wide learning practices, such as knowledge-sharing systems and suggestion programs, shall effectively increase the capability of employees to access and absorb relevant knowledge which enhance employee competencies (Sung and Choi, 2014). In a recent study, Banerjee et al., (2016) has recommended that successful training and development lead to the enhancement of skills and knowledge, when the organization has policies for developing learning culture. Weldy (2009) opined that when an organizational learning culture is prevailing in an organization, then the relationship between training and development, and employee competencies will be strengthened. Thus, the following hypothesis is suggested:

H_{2a}: Organizational learning culture will moderate the relationship between training and development measures and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

The moderating effect of organizational learning culture between career management and employee competencies

The environment in which career is enacted can influence one's career perceptions. Scholars have used different constructs and measures to examine how an organization influences the outcomes of career management. Park and Rothwell (2009) and van der Rijt

et al., (2012) have determined that the perceived organizational learning culture can be an important organizational construct that can enhance the positive outcomes of career management. Kim (2014) and Park (2010) have stated that, “effective career management supported with organizational learning culture allows employees to enhance their career and work related skills and knowledge”. Whereas, Sturges (2008) opined that, “an organizational career management facilitated by learning environment, may show a positive effect on the development of employee competencies”. Based on the above discussion it is hypothesised that:

H_{2b}: Organizational learning culture will moderate the relationship between career management and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

The moderating effect of organizational learning culture between performance appraisal and employee competencies

A successful performance appraisal system helps the employees to identify their work performance capabilities and deficiencies (Peretz and Fried, 2012). It also creates an intrinsic motivation to focus on enriching attitudes, experiences and skills (Kuvaas, 2006). Kuvaas and Dysvik (2009), said, “Performance appraisal often includes equipping employees with new knowledge and skills; it may also contribute to employees’ perceived investment in employee development”. Joo and Shim (2010) opined that, “It is not only important to provide feedback to the employees, but a learning culture is required in the work place to make them motivated towards learning and subsequently enhancing required competencies”. An organization having policies and procedures for continuous learning and psychological safety would help the employees to strengthen their skills and knowledge (Henri, 2006). Thus, the following hypothesis is proposed:

H_{2c}: Organizational learning culture will moderate the relationship between performance appraisal and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

The moderating effect of organizational learning culture between team building and employee competencies

Most of team building interventions are based upon an action research model of data collection, feedback, and action planning (Whitehead, 2001). Team building activities operate within a particular environmental context. Although groups are often viewed as the

context variable for individual behaviours, the organizational environment should also be considered as the context variable for group behaviour (Shuffler et al., 2011). According to Van den Bossche et al., (2006), “The organizational variable that could influence a team member’s knowledge and problem solving skill is the organization's learning culture.” The enhancement of team member’s competencies based on organizational learning culture can influence the level of cooperation or performance between team members, which in turn may affect team effectiveness (Hollenbeck et al., 2004). The above discussion provide ample facts to suggest that:

H_{2d}: Organizational learning culture will moderate the relationship between team building and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

The moderating effect of organizational learning culture between employee empowerment and employee competencies

Employee empowerment involves the employees being provided with a greater degree of flexibility and more freedom to make decisions relating to work (Greasley et al., 2005). Empowerment is closely related to individual’s perceptions about themselves with respect to their work environments (Kuo et al., 2010). Jones et al., (2013) stated that, “The environment surrounding individuals is important for increasing employee empowerment because empowerment is not a consistent or enduring personality trait, but rather a set of cognitions shaped by work environments”. In a recent study, Joo and Shim (2010) has found a positive and moderating role of organizational learning culture between empowerment and employee positive behaviour, where their results indicated that if an organization has high learning culture in the presence of empowerment would influence highly on employee behaviour. Thus, the following hypothesis is proposed:

H_{2e}: Organizational learning culture will moderate the relationship between employee empowerment and employee competencies, where the relationship will be stronger when the organizational learning culture is high.

3.4.3 Employee competencies and organizational effectiveness

According to Lawler and Ledford (1997), an organization is considered as effective when there is a good fit among its strategy, competencies, capabilities, and the environment. Organizational effectiveness depends on a number of variables like environment, technology, and competitors. However, other things being equal, an organization that has

competent, satisfied, committed and dynamic people is likely to do better than an organization that scores low on these HRD outcome variables (Rao, 1991:315). The resource-based view explains variations in firm performance by variations in firms' human resources and capabilities (Hitt et al., 2001). Human capital attributes have been argued to be a critical resource of firm performance because firms that are able to generate firm-specific, valuable and unique expertise and competencies are thought to be in a superior position that enables them to outperform their rivals and succeed in a dynamic business environment (Akkermans et al., 2013). Employees who have developed and possess a wide spectrum of competencies, including technical, behavioural and business skills and knowledge, are better able to meet their job demands both internally and externally (Gilbert et al., 2011; Alfalla-Luque et al., 2015). Further, employees having the required abilities to perform their tasks and duties successfully increases their productivity levels, effectiveness, and enhance product quality significantly (ALDamoe et al., 2012). Subsequently, the specialized knowledge and skill acquired by employees motivates them to effectively utilize and optimize the organizational resources to achieve the desired outcomes (Weigl et al., 2013; Bal et al., 2013). Team spirit and coordination among the employees helps them to create climate of confidence and trust towards building of cohesive workforce (Turel and Connelly, 2012; Callow et al., 2009). Nilsson and Ellstrom (2012) had suggested that developing HRD strategies in an organization is an opportunity for employees to enrich their competencies that contribute in aggregate to organizational effectiveness. Employees who innovate and initiate change may have a significant impact on organizational effectiveness (Maria, 2003). Eminent researchers (Lewis and Heckman, 2006; Tarique and Schuler, 2010) have suggested that the selection of a suitable candidate for the appropriate position should combine with the development and enhancement of employee competencies that are relevant to the business strategies and objectives. This is regarded as very crucial for organizational effectiveness and can lead to improved employee performance, higher productivity, and assist in building a core competence of an organization (Collings and Mellahi, 2009).

The present study conceptualized organizational effectiveness as a multi-dimensional construct involving two distinct approaches: goal oriented and competing values oriented. The goal-oriented approach mainly focused on operational processes consisting of three critical factors, namely, resource optimization, cohesive workforce, product quality and productivity. Competing value-oriented approach relates to the three vital factors such as

adaptation, innovation and flexibility, which are crucial for sustaining in the dynamic business environment. Hence, the relationship between employee competencies and organizational effectiveness will be assessed based on the above-mentioned approaches.

Employee competencies and goal-oriented approach to organizational effectiveness

HRD research on the impact of employee outcomes on organizational productivity is more extensive. Prior studies (Gin Choi et al., 2013; Faisal Ahammad et al., 2015; Mizzi and Rocco, 2013) conducted on employee competencies and organizational effectiveness report that employees with positive job attitude and specialized knowledge enhance organizational productivity. Brooks and Nafukho (2006) found that organizations emphasizing on employee's skills and knowledge resulted in lower costs, lesser scrap and higher productivity. Alagaraja (2013) stated that, "employees with enhanced skills would minimize the errors in production process, hence improving the product quality". According to Bal et al., (2015) employees possessing enhanced competencies such as positive job attitude, ability to perform assigned duties and application of their specialized knowledge leads to optimum utilization of resources in the work place. Solkhe and Chaudhary (2012) and Swanson (1995) believe that employees and managers with specialized skills of optimization techniques can show positive influence on optimization of resources in the organization. Previous studies (Rosh et al., 2012; Bradley et al., 2012) found that employee involvement through effective participation in team building activities leads to inculcation of team spirit and group coordination skills among the employees. These skills have a direct impact on building a positive organizational climate that can facilitate knowledge sharing and enhance employees' trust and confidence (Nafukho, 2009). Accordingly, it would assist the organization in building a cohesive workforce (Ugwu et al., 2014; He et al., 2014; Tung and Chang, 2011). Therefore, based on above discussion the following assumptions are proposed:

H₃: There is a significant and positive relationship between employee competencies and goal oriented approach to organizational effectiveness.

H_{3a}: Employee competencies have a significant and positive relationship with optimization of resources.

H_{3b}: Employee competencies have a significant and positive relationship with improvement in productivity and product quality.

H_{3c}: Employee competencies have played a significant role towards development of a sense among the employees as cohesive workforce.

Employee competencies and competing values approach to organizational effectiveness

Competing values approach particularly emphasizes on the competition between stability and change, and between internal organization and the external environment (Yilmaz and Ergun, 2008). Several researchers (Basadur et al., 2014; Levinthal and Marino, 2015; Noruzy et al., 2013) have suggested that organizational factors like adaptation, innovation, and flexibility play an important role in competing with the dynamic and competitive environment.

The success and survival of an organization depends on the ‘adaptation’ of an organization to its environment. Organizational adaptation refers to the modifications and alterations in the organization or its components to changes in the external environment (Levinthal and Marino, 2015). Studies on determinants of organizational adaptation to change suggested that employee competencies and capabilities are the important antecedents (Basadur et al., 2014; Hatum and Pettigrew, 2006; Qian et al., 2013; Ruiner et al., 2013). Basadur et al., (2014) has found in their empirical study that employees with creative problem solving skills and analytical thinking has a significant influence on organizational adaptation. Cullen et al., (2014) stated that, “when employees perceive strong organizational support, their socio-emotional needs are met and they are likely to report more positive job attitude, thereby, supporting organizational new business policies and strategies”. Nikolaou et al., (2007) establish that employees’ positive self-concept and tolerance for ambiguity were associated with positive perceptions regarding the usefulness of change for their company and confidence regarding their ability to lead the change effort.

Organizational innovation has become widely recognized as a key to competitive success. Hage, (1999) stated that, “Organizational innovation has been consistently defined as the adoption of an idea or behaviour that is new to the organization. The innovation can be either a new product, a new service, a new technology, or a new administrative practice”. The goal of innovation is to create a business value by developing worthwhile ideas into a customer centric market reality. Bhardwaj and Menon (2000) argues that innovation in an organization is significantly influenced by the extent of creative relevant skills possessed by its employees. Shally and Gibson (2004) found that creative and competent employee produce novel and useful ideas about organizational products, practices or procedures. Gumusluoglu and Ilsev (2009) states that, “competent employees are the ultimate source of new ideas and provide the foundation for organizational innovation”. Smith et al., (2005)

opined that employees with a greater degree of critical capacity, skills and new and relevant knowledge would influence the development of innovative products, services or methods.

Hatum and Pettigrew (2006) put forward the view that “organizational flexibility is a combination of a repertoire of organizational and managerial capabilities that allow organizations to adapt quickly under environmental shifts”. Along the same lines, Hatum and Pettigrew (2006), in their meta-analysis, stated that organizational flexibility depends on employee’s enhanced capabilities to the changing market environment. In this context, Garrido-Moreno et al., (2014) and Kovjanic et al., (2012) have determined that self-motivated and committed employees contribute significantly towards organizational flexibility. Moreover, employees who handle work-pressure in an effective manner support the environment of flexibility in the organization (Rubio-Andrés and Gutiérrez-Broncano, 2014). In addition, organizational flexibility have direct linkage with employee’s positive job attitude (Kessler, 2004) and interpersonal skills (Evans and Davis, 2005). Further, employee’s ability to utilize their specialized knowledge in handling complex situations and performing the allotted tasks in stipulated timeframe positively influences organizational flexibility (Jeffrey Hill et al., 2008). In context of the above discussion, the following assumptions are proposed:

H₄: Employee competencies are positively related with competing values approach to organizational effectiveness

H_{4a}: Competent employees are the strength of an organization’s capability to adopt any measure for survival and sustainability.

H_{4b}: Competent employees are capable enough to involve themselves in the process of organizational innovation.

H_{4c}: Competent employees can enhance the strength of an organization to become more flexible enough to address the challenges.

3.4.4 Mediating role of employee competencies

The literature in the previous sections clearly illustrates that there is a great deal of research exploring the relationship between HRD interventions and employee competencies, as discussed in the section 3.4.1. The association of employee competencies with goal oriented and competing values approach of organizational effectiveness has also been comprehensively illustrated in section 3.4.3. Whereas, the impact of HRD interventions on goal oriented and competing values approach of organizational effectiveness, and the mediating role of employee competencies in between these relationship is discussed below.

The existing works have explored the significant relationship between the variable under study variables (HRD interventions, employee competencies and goal oriented approach and competing values approach to organizational effectiveness) in dyads. However, few studies have investigated the relationship of HRD interventions and employee competencies with organizational effectiveness. The present research tries to cover this gap by exploring the mediating role of employee competencies among these variables in the context of Indian cement industry.

HRD interventions and goal oriented approach to organizational effectiveness

Alagaraja (2013) found that HRD department direct their interest on macro-level business outputs and develop a systematic perspective. “HRD model consists of two intervening constructs: HRD outcomes (commitment, product quality and flexibility) and behavioural outcomes (employee competencies, motivation, cooperation, involvement and organizational citizenship) linking HRD practices to firm-level performance outcomes”. Several HRD practices, such as, training, performance management, team building and employee empowerment directly affects goal oriented approach of organizational effectiveness outcomes, namely, productivity (Brooks and Nafukho, 2006; Sung and Choi, 2014), product quality (Memon, 2014; Wright et al., 2003) cohesive workforce (Mizzi and Rocco, 2013) and optimization of resources (Solke and Chaudhary, 2012). HRD interventions are the primary means by which organizations influence and shape the competencies of the employees to enhance organizational effectiveness. Researchers (Sung and Choi, 2014; Garavan, 2007) have suggested that organizations should design and implement HRD interventions so that the employees can perform effectively and meet performance expectations. Kehoe and Wright (2013) deliberates that HRD is the basic component for employees to acquire competencies that in turn significantly improve productivity and product quality. Brooks and Nafukho (2006) found that firms adopting human resource development practices for enhancing skills and knowledge results in lower production costs, lesser scrap, and higher productivity. Alagaraja (2013) and Wright et al., (2003) found that enhanced skills in employees through participation in HRD practices lead to the reduction in errors in manufacturing of the products, hence improving product quality. Solke and Chaudhary (2012) and Swanson (1995) presume that employees participated in HRD interventions enhance the competencies of optimization techniques and can show high influence on optimization of resources in the organization. HRD interventions like team building and empowerment at the workplace would influence the

positive employee attitude and assist in building a cohesive workforce (Mizzi and Rocco, 2013). So, based on the above argumentation, it is suggested that:

H₅: HRD interventions are positively and significantly related to goal oriented approach to organizational effectiveness.

H₆: Employee competencies will play a mediating role in between the relationship of HRD interventions with goal-oriented approach to organizational effectiveness.

HRD interventions and competing values approach to organizational effectiveness

HRD practices has a direct relationship with organizational adaptation to change (Kontoghiorghes et al., 2005; Szabla, 2007), organizational flexibility (Hatun and Pettigrew, 2006; Qian et al., 2013) and innovation (Škerlavaj et al., 2010) which are the attributes of competing values approach to organizational effectiveness. Mumford (2000) argues that HRD activities may relate to competing values approach to organizational effectiveness from two aspects: (1) develop and motivate employees to formulate and implement new ideas; and (2) how to help employees to adapt to the changes in the organization. HRD may facilitate the exploration of problems and promote employees to explore existing knowledge, which consequently stimulates organizational innovation and adaptation. Some previous studies investigated organizational innovation and adaptation as the dependent variable and found that HRD practices have association with both. For instance, Laursen and Foss (2003) found that HRD practices determine the likelihood of organizational innovation in terms of product and process innovation. In the similar vein, Shipton et al., (2006) found that effective HRD system including training and team building could predict organizational adaptation through the development of employee creativity and team spirit. HRD practices like team building and empowerment increases opportunities for informal talk and accessibility to knowledge resources within organizational units. It helps employees to combine knowledge and develop new knowledge underlying exploratory innovation (Jansen et al., 2006). Further, some HRD scholars notice that effective HRD practices has a positive impact on organizational flexibility. Qian et al., (2013) suggested that there are positive associations between HRD practices and organizational flexibility. Lau and Ngo (2004) demonstrate that HRD practices especially training are significantly related to organizational flexibility. Hatun and Pettigrew (2006), in their meta-analysis, stated that organizational flexibility depends on employee's enhanced competencies through effective implementation of HRD

interventions. Building on this argument, the study suggests that HRD may foster competing values approach to organizational effectiveness through influencing capability of employee competencies. The following assumptions are proposed based on the above discussion:

H7: HRD interventions are positively and significantly related to competing values approach to organizational effectiveness.

H8: Employee competencies will represent as a mediator in between the relationship of HRD interventions with competing values approach to organizational effectiveness.

3.5 Research Gap Analysis

- The review of literature illustrates that there is a lack of research on the impact of HRD interventions on organizational effectiveness in Indian cement industry. The majority of the study in Indian context relating to this area has focussed on relationship between single set of HRD practices rather than combined effect of HRD interventions with the outcomes of organizational effectiveness, which was found to be a more interesting and challenging area to explore the further possible relationships.
- Several scholars in the field of HRD (Alagaraja, 2013; Alagaraja et al., 2015; Clardy, 2008; Tseng and McLean, 2008) examined and worked towards establishing HRD and organizational performance and effectiveness linkage. The early streams of human resource development research have investigated the effect of HRD practices on organizational performance. The first research stream examined the different HRD practices (such as performance management, training, career development, etc.) individually and assessed the corresponding effect of such practices on firm performance. The second stream of research accented the combined effect of interrelated HRD practices rather than, any specific practice on organizational performance. Prior researchers have duly established the importance of human resource development and organizational effectiveness linkage by focusing on single output such as employee productivity. Despite a considerable amount of work in the HRD field, the relationship between human resource development and organizational effectiveness is still underexplored and demands in-depth

analysis. Empirical support for human resource development as a single practice or combination of practices affecting organizational effectiveness has been found lacking.

- The role of HRD interventions has become utmost important, as it shapes the overall competencies of the employee. Despite the well-known fact that HRD interventions contribute to employee competencies, the role of organizational learning culture cannot be undermined. The conducive environment for sharing and acquiring of knowledge can happen in the presence of favorable organizational learning culture. Diverse studies have explored the constructs like HRD interventions, employee competencies, organizational learning culture, and organizational effectiveness; whereas limited studies have investigated these four constructs simultaneously to reflect the organizational dynamics. However, prior studies have scarcely studied the moderating role of organizational learning culture in enhancing employee competencies through HRD interventions as evidenced through the extant review of existing literature. It was observed that this is an important research gap, which needs immediate attention to be given in the present scenario.
- Organizational effectiveness is difficult to define, is constantly changing and usually requires the organization to determine what is to be measured for effectiveness. Due to the complexity in defining organizational effectiveness, researchers began to develop models, which are used to measure the effectiveness of an organization rather than defining it. These models can be one dimensional or multi-dimensional in nature. In order to facilitate a better understanding of the relationship between employee competencies and organizational effectiveness, the present research included the perspectives of corporate executives. Based on discussions with senior executives of the cement manufacturing plants and a panel of experts, it was conceptualized organizational effectiveness as a multi-dimensional construct involving two distinct approaches, i.e. goal oriented and competing values approach.
- Several studies assessed effectiveness of training and development with attributes like “effective training and development policy”, “presence of professional trainers”, “well-furnished training centres”. This research adds another two aspects “identification of training needs” and “feedback on training and development programs” as these are considered as important

aspects for effective implementation of training and development interventions.

- In majority of the studies, the variable career management is related to parameters like “encouragement from superiors and colleagues”, “identification of developmental needs”, “transparency in career management”, and “career counselling”. However, “provision for sponsorship and study leave” and “skill assessment” also play a major role in career management for enhancement of employee competencies. The approval of study leaves and funding for higher education from the organization reassure the employees to pursue their studies. Similarly, regular assessment of skills and abilities can help employees to measure their strength and weakness as well as guide them to be skilful in their jobs.
- In prior research, performance appraisal system has been associated with attributes like “periodic review of performance”, “rewards linked to performance”, “assistance in self-improvement” and “provide opportunity for self-review”. The study includes additional parameter “identification of strengths and weakness”. The organization should assist the employees in identifying their strengths and weakness so that they can focus on enhancement of required competencies.
- The effect of team building on employee competencies of Indian cement industry is largely unexplored. The research highlights the four broad area of team building namely: goal setting, interpersonal relations, role clarification, and problem solving. These attributes can certainly provide information regarding the the development of the teams of an organization.
- Previous works (Maynard et al., 2012; Fernandez and Moldogaziev, 2013; Luoh et al., 2014) measured employee empowerment with attributes like “accessibility to the information”, “supportive employer-employee relations”, “participation in planning and scheduling”, and “involvement in decision making”. The research includes few other parameters like “employees feel a healthy atmosphere to extend their creative suggestions” and “participate in establishing the goals and objectives for my job”. Organizations should provide an atmosphere of freedom to express, so that employees can provide their suggestions and creative ideas, which would influence their positive behaviour and enhance their knowledge. Whereas participation of employees in

establishing their goal and objectives will provide clarity about their roles and responsibility through which employees can estimate their skills and knowledge.

- Lastly, the role of employee competencies as a mediator between the relationships of HRD interventions and goal-oriented approach of organizational effectiveness, and HRD interventions and competing values approach of organizational effectiveness has not been explored in prior studies. Thus, this research contributes to the existing theory by exploring the mediating role of employee competencies in between these two relationships simultaneously.

In this research, a holistic model (figure 1.1 and figure 1.2) has been devised, in which mediating role of employee competencies and moderating role of organizational learning culture links the HRD interventions with organizational effectiveness in the novel context of the study being carried on Indian cement industry.

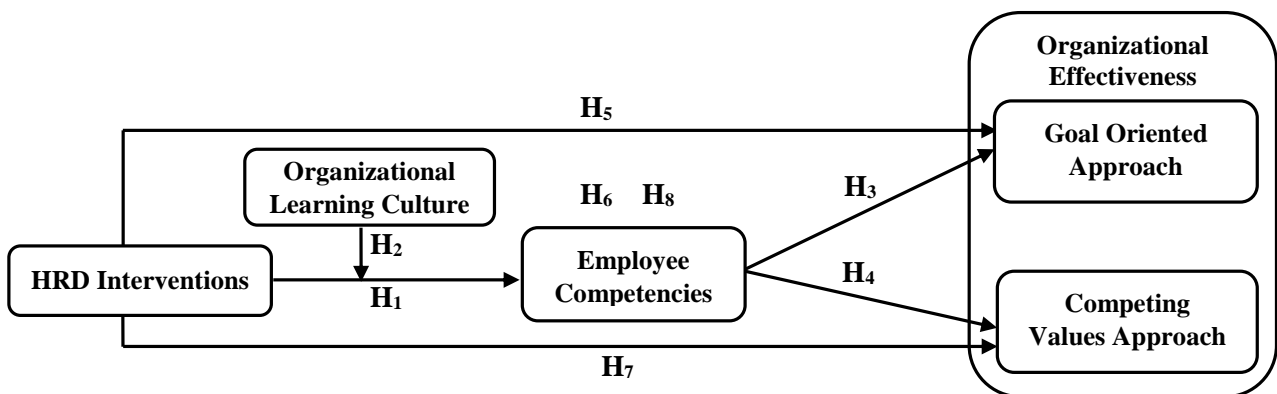


Figure 3.1: Hypothesised Research Model Indicating Expected Relationship

Note: H₂ (Moderating role of organizational learning culture); H₆ and H₈ (Mediating role of employee competencies)

Source: Author's own.

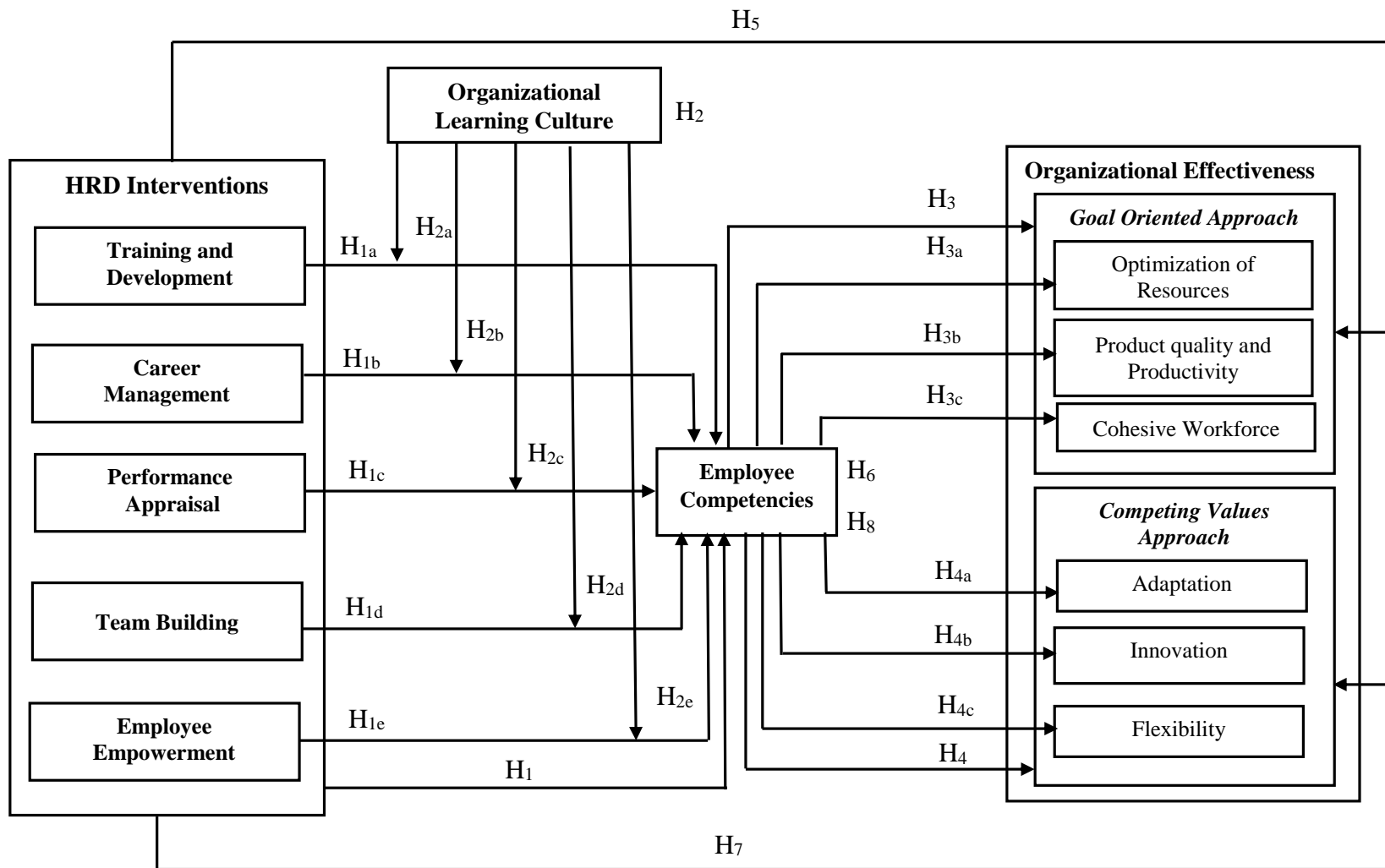


Figure 3.2 Hypothesised Research Model showing the Study Variables

Note: H₂ (moderating role of organizational learning culture); H₆ and H₈ (mediating role of employee competencies).

Source: Author's own.

This chapter has provided a background, definition of human resource development, and outcomes of various studies in the Indian cement industry. Most of the industry based research on HRD and organizational effectiveness has been conducted in Western countries. Whereas, research in Indian context has explored the relationship between a single set of HRD interventions with employee level outcomes and organizational level outcomes. In the light of current and projected shortage of competent employees in Indian cement industry, this research can contribute in developing HRD strategies to tackle the human resource challenges of cement manufacturing sector. In this chapter, the literature review has provided abundant evidence on the impact of HRD interventions on employee competencies, moderating role of organizational learning culture between HRD interventions and employee competencies, and mediating role of employee competencies between HRD interventions and organizational effectiveness. In this research, a holistic model has been devised, in which mediating role of employee competencies and moderating role of organizational learning culture links the HRD interventions to organizational effectiveness as a novel approach exhibited through this study. This work has weaved the study variables in a model to represent the perspective of human resource development in Indian cement industry. This chapter also elucidates the attributes of the study variables in table 3.4. These study variables will undergo comprehensive analysis and the relationship between these variables will be established through empirical analysis.

Table 3.4: Attributes of the study variables

Human resource development interventions	
Training and development	<ul style="list-style-type: none"> • Effective T&D policy • Has competent professionals in T&D department • Training centres are furnished and well equipped • Identification of training needs • T&D meets the needs of the employee
Career Management	<ul style="list-style-type: none"> • Encouragement of seniors for individual career development • Provision of study leave • Sponsorship for higher studies • Skills assessment • Transparency in management of careers of employees • Organization provide developmental needs to the individual
Performance Appraisal	<ul style="list-style-type: none"> • Periodic review of performance • Compensation and rewards linked to employee performance • Strengths and weakness are identified • Provide opportunity for self-review • Assist in self-improvement

Team Building	<ul style="list-style-type: none"> • Goal-setting • Interpersonal processes • Role-clarification • Problem-solving
Employee Empowerment	<ul style="list-style-type: none"> • Support for creative suggestions • Participation in planning and scheduling • Supportive employer-employee relation • Involvement in decision making • Participation in establishing goals and objectives of the job • Accessibility to the information and resources • Freedom to express
Moderator	
Organizational Learning culture	<ul style="list-style-type: none"> • Encouragement for continuous learning • Open to discuss mistakes • Opportunities to learn and share • Quickly availability of information • Trust and confidence
Dependent and Mediator	
Employee Competencies	<ul style="list-style-type: none"> • Positive job attitude • Self-motivated • Tolerant to work pressure • Team spirit • Committed
Goal Oriented Approach to Organizational Effectiveness	<ul style="list-style-type: none"> • Optimization of resources • Enhanced product quality and productivity • Cohesive workforce
Competing Values Approach to Organizational Effectiveness	<ul style="list-style-type: none"> • Organizational adaptation to change • Organizational innovation • Organizational flexibility

Source: Compiled by the Author.

Chapter 4

Research Design and Methodology

This chapter describes the research approach and analytical methods employed to address the research objectives and providing ample explanation to the research questions about the relationship between HRD interventions, organizational learning culture, employee competencies, and organizational effectiveness. It provides the logical illustration of all the steps undertaken to carry out the research. The beginning section of the chapter deals with the research design, research universe, sampling methods, sample size, data collection methods and research instrument design. The second section of the chapter summarises the essential statistical tools and techniques employed to analyse the data and identify the practical implications of the inquiry.

4.1 Research Setting

Research is a systematic and scientific quest for relevant evidence to find a solution to an existing problem or issue. “Research is a process of steps used to collect and analyse information to increase our understanding of a topic or issue. It consists of three steps: pose a question, collect data to answer the question, and present an answer to the question” (Creswell, 2008:4). According to Kothari (2004:1), “research comprises of identification of the problem, formulation of hypotheses, collecting, organising, and analysing data, making deductions and reaching a conclusion either in the form of a solution to a problem or generalisation of some theoretical formulation”. Further, Cooper and Schindler (2014: 24) defined business research as a “process of determining, acquiring, analysing, synthesising, and disseminating relevant business data, information, and insights to decision makers in ways that mobilise the organisation to take appropriate business actions that, in turn, maximise business performance”. The design and methodology for conducting the study must be predetermined for successful execution of the research process. The classification of all the research activities undertaken in this study is mentioned in the following five sub-sections.

4.1.1 Research Design

Every study requires a blue print that will enable the researcher to identify the process and approach for collection and analysis of the desired information, which is called as research

design. The research design combines the theoretical, methodological, and ethical considerations relevant to a particular study. The present study considered the most suitable research design to be a non-experimental, multivariate, and descriptive research design. According to Given (2008:761), “descriptive research design helps to provide answers to the questions of who, what, when, where, and how associated with a particular research problem”. A descriptive design selected because of its high degree of representativeness and the ease in which a researcher could obtain the participants’ opinion (Polit and Beck 2004:50). This research design is suitable for the study because it deals with the qualitative and quantitative features of a research problem and provides ample understanding about the nature and critical facts about the problem. Further, the research aims to test a comprehensive model that links the study variables such as: HRD interventions, employee competencies, organizational learning culture and organizational effectiveness. Although, the individual relationship among these variables in dyads has been explored in extant literature, none of the previous studies has investigated a holistic model as proposed in this research. In descriptive research, the research variables are examined, as it exists without investigator interference. In this study, there was no manipulation of variables and the researcher did not attempt to control the research setting. This approach can yield a large amount of data for comprehensive analysis, which leads to relevant recommendations in practice. The study has used the other methods, which are supplementing to the descriptive research design like case study, opinion survey, and systematic and pragmatic investigation of the research problem.

4.1.2 Research Universe

The primary objective of this research is to investigate the relationships between HRD interventions, organizational learning culture, employee competencies and organizational effectiveness in Indian cement industry. The study also examines the moderating role organizational learning culture and mediating role of employee competencies. The research work encompasses the employees working in cement manufacturing units of Odisha and Andhra Pradesh to get a comprehensive view of the research variables. The cement manufacturing companies which are covered in this study are Jaypee Balaji Cement Plant (a unit of Jaypee Group), Madras Cements Ltd. (a unit of Ramco Group), OCL India Ltd. (a unit of Dalmia Bharat Group), Bargarh Cement Ltd. (a unit of the Associated Cement Companies Ltd.), and Jharsuguda Cement Works (a unit of Ultratech Cement Ltd.). The respondents are comprised of executives, supervisors, and workmen.

4.1.3 Sampling Method

Sampling is a process that empowers the researcher to derive inferences about the population by assessing a subset of the population. A decent sample will have similar features as that of a population. Therefore, it is not necessary for the researcher to take a census of all the elements of a population in the study. The most indispensable part of research is the selection of samples that can represent the population adequately. This study has applied stratified and simple random sampling method to draw samples from the universe to collect opinions of the respondents. According to Johnson and Christensen (2008:226), “stratified sampling is a probability sampling that uses a two-step process to partition the population in sub populations, or strata. Elements are selected from each stratum by a simple random procedure”. Whereas, Malhotra and Dash (2013:339) defined, “simple random sampling is a probability sampling technique in which each element in the population has a known and equal probability of selection. Every element is selected independently of every other element and the sample is drawn by a random procedure from a sampling frame”. The researcher has visited only those cement manufacturing plants, which provided permission to conduct the study in their organisation. The employees of the cement industry are divided into three strata’s namely managers, executives, supervisors, and workmen. The information is collected from each stratum by simple random sampling. Table 4.1 elucidates some studies that have incorporated stratified simple random sampling.

Table 4.1: Important Studies Undertaking stratified random sampling

<i>Author and Year</i>	<i>Thrust of the Study</i>
Stumpf et al., (2010)	Explored the role of HRD practices for individual and organizational success in a survey of 4811 employees from 32 units of 28 companies in India through stratified random sampling.
Agarwal et al., (2012)	Examined the mediating role of employee empowerment between innovative work behaviour and turnover intentions through survey of 979 Indian managerial employee working in six companies in India through stratified random sampling.
Cherame (2013)	Investigated whether individuals seeking feedback from either a supervisor or co-worker related to intrinsic and extrinsic career success among a sample of 168 employee in three different organizations.
Sharma (2014)	Compared the importance and performance of managerial training in India among different industrial sectors in the light of asynchronous industrial growth. A sample size of 542 was taken which comprises training professionals, top managers, and trainee employees.

Fong and Snape (2015)	Examined the mediating role of employee empowerment in between empowering leadership and employee outcomes in large Hong Kong telecommunication corporation, collected data from 266 employees and their supervisors from 41 work teams.
Han et al., (2016)	Examined the mediating effect of organizational commitment and employee empowerment in between transformation leadership and knowledge sharing intention. The study conducted in selected Korean conglomerate companies and data were collected by applying stratified random sampling.

Source: Compiled by the author.

The sample size is the number of respondents that are chosen from a population for the study. It is necessary to determine the statistical power and the accuracy of the results in social science research. The sample size of this study was determined by adopting the formula quoted by Malhotra and Dash (2013:365) as depicted below:

$$N = \frac{Z^2 * P(1 - P)}{E^2} \quad \dots (1) \text{ (Determination of sample size for infinite population)}$$

$$N = \frac{N}{\left(1 + \frac{(N - 1)}{\text{Population}}\right)} \quad \dots (2) \text{ (Determination of sample size for finite population)}$$

Where N is the number of samples for infinite population, \mathbf{N} is the number of samples for finite population, Z is the confidence level at 95%. P is the estimated prevalence of a trend in the population, and E is the margin of error at 4%. This study considers 95 per cent confidence level at which the Z value is 1.96 as per the standard normal distribution table. P is the prevalence of employee competencies among Indian cement industry employees, which was expected to be 60%. A margin of error of +/- 5 % is assumed for the study. Thus, to compute the value of N (infinite population), the present study has supposed ($Z = 1.96$, $P = .06$ and $E = +/- .04$).

$$N(\text{Infinite Population}) = \frac{(1.96)^2 * 0.6(0.4)}{(0.04)^2} = \frac{3.8416 * 0.24}{0.0016} = \frac{0.9219}{0.0016} = 576.24$$

$$N(\text{Finite Population}) = \frac{576.24}{1 + \frac{(576.24 - 1)}{10000}} = \frac{576.24 * 10000}{10575.24} = 544.89$$

Therefore, at least 545 samples would facilitate the assessment of the impact of HRD interventions on employee competencies of Indian cement industry. However, a larger sample can reduce the response bias and sampling error. The researcher conducted the survey by administering the questionnaire among 952 respondents, almost nearer to double of the prescribed sample size in order to overcome the sampling error and response bias concerned with the stratified simple random sampling.

4.1.4 Data Collection

The study considers the amalgamation of primary and secondary sources to generate maximum data on the variables of the study. The information that is collected afresh, for the first time from the research units and original in character is termed as primary data. The primary data collection started by listing the cement manufacturing plants situated in the states of Odisha and Andhra Pradesh and the information about the organizations obtained from their respective website. The researcher has approached the plant administrators / managers of the concerned cement manufacturing plant to seek permission for conducting the survey by administering a structured questionnaire among their employees. A structured questionnaire was distributed among 952 respondents to elicit relevant information. These 952 respondents are randomly chosen from among the strata identified. The nature of distribution of questionnaire has made the sampling bias free and hence reported as stratified simple random sampling. The cement manufacturing plants were given several reminders, and the researcher collected these questionnaires from the respondents. The total response rate of the survey is sixty-eight percent (N = 653) after excluding non-response and incomplete questionnaires. A researcher should endeavour to achieve a response rate of at least 60 percent to receive representative responses of the sample (Punch, 2003). The details of total nos. of questionnaire distributed and total number of valid responses received from the respondents of these units is further clarified in table 4.2. The information that has been collected in the past on which statistical tests have been carried out, and which are available in current archives and published form is called secondary data. The study has incorporated secondary data from case studies, research reports, and other documents available in government websites along with journal articles and books from which the dominant trends and practices of human resource development were available.

Table 4.2: Details of Valid Responses

S.No	Organization Name	Total No. of Questionnaires Distributed	Total No. of Questionnaires Received	Total No. of Valid Questionnaires	Percentage of Valid Response
1	OCL India Ltd.	198	173	139	70.20
2	JaypeeBalaji Cement Plant	189	157	131	69.31
3	The Ramco Cements	186	146	128	68.81
4	Associated Cement Companies Ltd	192	159	133	69.27
5	Ultratech Cement Ltd.	187	163	122	65.24
Total		952	798	653	68.48

Source: Compiled by the author.

4.1.5 Research Instrument Design

The study conducted an opinion survey using a structured questionnaire to investigate the hypothesised relationship established in the research. The essential factors that influence employee competencies and employee perceived organizational effectiveness in a cement manufacturing plant were explored to design the questionnaire. The research instrument was prepared systematically through an extensive review of the works of previous researchers and the subsequent research gaps identified through this process. The items selected for each study variable were adapted from the measures used by researchers that provided a satisfactory explanation of the variable. Further, the researcher also added several items which are pertinent for measuring the study variables but lacking justification in the existing literature. The items were also modified to be relevant to the local setting and as per the feedback received from the respondents during the period of pilot study. The research instrument consists of one section to elicit socio-demographic information. The questionnaire contains 82 items covering four sections, i.e. HRD interventions, organizational learning culture, employee competencies and organizational effectiveness as perceived by the employees of the respective organizations. The responses based on the items of the questionnaire were measured on a five-point Likert's scale. In this scale 1, 2, 3, 4, 5 depicted strongly disagree, disagree, neutral, agree, and strongly agree respectively.

Independent and moderator Variables

The first two section of questionnaire consists of independent variable HRD interventions and moderator variable organizational learning culture. The HRD interventions' section

consists of five independent variables namely training and development, career management, performance management, team building, and employee empowerment. The measures for each variable are elaborated as:

Training and development: It measure how effective training and development programs are implemented in the organizations. The items of the variables were adapted from several researchers. To measure the attribute of training and development policy, and linkage to organizational strategy were measured with four items adapted from the study of Montesino (2002). Competent professionals and well-furnished training center attributes consisting of four items were adapted from the scales of Santos and Stuart's (2003). Whereas, the two items measuring the attributes of identification of training needs and feedback on training and development programs were added after the pilot study as the respondents had opined that these two attributes are important for effective implementation of training and development.

Career management: The ten items relating to the better career management of the employees of an organization are quite useful for the development of employee's career and competencies. To measure the attribute of encouragement from superiors and colleagues, and organizational support for career development were measured with four items adapted from the scale developed by Chen et al., (2006). Whereas, the attribute of identification of developmental needs and transparency in career management were measured with five items from Struges et al., (2002). Approval of study leave is added as per the suggestion of respondents and also found to be an unexplored aspect of individual development as visible in the literature.

Performance management: The attributes of the variable were measured by adapting ten items from different studies to measure the effectiveness of performance management of the organization. The attributes of periodic review of performance and rewards linked to performance were measured with three items adapted from Fletcher and Williams' (1996). The attributes of identification of strengths and weakness, and assistance in self-improvement were measured with four items adapted from the scale of Walker et al., (2011). Whereas the attribute of providing opportunity for self-review and scope to discover hidden talent and potential were developed from the literature by identifying research gaps.

Team building: An eight-item instrument representing four broad areas of team building practices were developed for this study: goal setting (2 items), interpersonal relations (2 items), role clarification (2 items) and problem solving (2 items). These items were adapted from Klein et al. 2009 and Salas et al. 1999.

Employee empowerment: A ten-item instrument captures the views regarding the employee empowerment prospects available in the organization. The attributes of accessibility to the information and supportive employer-employee relations were measured with four items adapted from the measures of Menon (2001). The attributes of participation in planning and scheduling and involvement in decision-making were measured with four items adapted from the scales of Men and Stacks (2013). The items “Employees feel a healthy atmosphere to extend their creative suggestions” and “Participate in establishing the goals and objectives for my job” were added according to suggestions provided by the respondents in the pilot study.

Organizational learning culture: Consist of seven items that extracts the views on organizational learning culture in the organization. The measure of attributes of encouragement for continuous learning and openly discussion of mistakes was measured with three items adapted from Bates and Khasawneh (2005). The attributes of opportunities to learn and share, and accessibility of information were measured with three items from Joo and Shim (2010). Whereas the attribute trust and confidence was measured with one item from Real et al., (2014).

Dependent and Mediator Variables

Employee competencies: The specific competencies analyzed in the study were positive job attitude, tolerant to work pressure, team spirit, committed, and self-motivated. Three items for positive job attitude and employee commitment were adapted from Diaz-Fernandez et al., (2014). Self-motivated and tolerant to work pressure were measured with three items developed from Zhang and Bartol (2010). Whereas the item for team spirit adapted from the Shuffler et al., (2011).

Employee perceived Organizational effectiveness: An employee’s perception of organizational effectiveness correlates positively (with moderate to strong association) with objective measures of organizational effectiveness (Dollinger and Gloden 1992; Delaney and Huselid 1996; Perry-Smith and Blum 2000). Thus, the present study analyzed

employees' perceived organizational effectiveness and measured under two approaches: *goal oriented approach* and *competing values approach*. Under goal-oriented approach, optimization of resources, product quality and productivity, and cohesive workforce attributes are measured. Two items derived from Gold et al., (2001) scale, measured employee perception on optimization of resources. Employee perception on enhanced product quality and productivity was measured by using two items from the Abd Rahman et al., (2013) scale. Whereas measure of employee perception on cohesive workforce were developed from the literature (Mizzi and Rocco, 2013). Under competing values approach, organizational adaptation to change, organizational innovation and organizational flexibility attributes are measured. Employee perception of organizational adaptation to change was measured by using two items from the scale of Niu (2010). The items of employee perception on organizational innovation was developed from the measures of García-Morales et al., (2012). Whereas, the measure of employee perception on organizational flexibility is developed from the scale of Santos-Vijande et al., (2012).

Control Variables

Control variables are used in research to increase the statistical power of the results, reduce the error terms and exclude alternative explanations of the hypothesised relationships in the study (Becker, 2005; Atinc et al., 2011). Some of the significant studies of the previous researchers have considered gender, age group, educational level, designation, hierarchical level in management, and work experience as control variables (table 4.3). The control variables may explain potential variance in the dependent variables and reveal a biased relationship among the study variables. Thus, taking the socio-demographic factors as control variables will provide a tougher test and conservative estimation of the research model as well as avoid confounded results.

The present study has considered gender, age, education, designation, experience and the organization to which the respondent belongs as control variables. These variables were coded into different scale values. As the variables consisted of different responses, these codes also varied from binary nominations i.e 1 and 2 to multiple nominations like 1, 2, 3 and 4. In this study the following were the codes which were nominated against each options of control variables:

In gender related demography the study had nominated 1 for male and 2 for female. Similarly age of the respondent was divided into four sub-groups and coded each group by

assigning 1 to 20-30 years, 2 to 31-40 years, 3 to 41-50 years and 4 to 51-60 years. The educational qualification as one of the control variables is coded from 1 to 4 for the levels of education in an ascending order i.e 10th and below, intermediate/ diploma, graduation, post-graduation respectively. In case of category of respondents, the scaling was varied from 1 to 4 for managers, supervisors, administrative staff and workers respectively. The experience was distributed among 4 intervals where 0-5 years was coded as 1, 6-10 years was coded as 2, 11-15 years as 3 and 16-20 and above years as 4. And the last control variable was, the selected organization like OCL India Ltd., ACC Ltd., Ultratech Cements, The Ramco Cements and Jaypee Balaji Cements and they were nominated as 1, 2, 3, 4 and 5 respectively.

Table 4.3: Seminal Studies Undertaking Socio-Demographic Factors as Control Variable

<i>Authors and Year</i>	<i>Control Variable</i>	<i>Thrust</i>
Joo and Shim (2010)	Gender, Age, education, Hierarchical level	Examined the moderating effect of organizational learning culture in between psychological empowerment and organizational commitment. Among the control variables, only educational level turned out to be significant.
Ehrhardt et al. (2011)	Age, Education, Gender, Team tenure, organizational tenure	Examined the relationship between training perceptions and organizational commitment and examined the relationship between perceptions of training comprehensiveness and organizational commitment. Team tenure and organizational tenure significantly related with the above relationship.
Joo et al. (2012)	Gender, Age, Education, Hierarchical level.	It investigated the influence of perceived learning culture, developmental feedback and team cohesion on team creativity. Education and hierarchical level is significantly related with relationship but not gender and age.
Alfes et al. (2013)	Gender, Age, Managerial role	Examined moderated mediation model linking perceived HRD practices to organizational citizenship behaviour and turnover intentions. The result showed that control variables are not related with the relationship.
Froehlich et al. (2014)	Education, Work Experience, Management level, Pressure on job.	Examine the relationship between learning approaches, experienced leadership style, organizational learning culture, and learning outcomes among 143 Austrian Bank managers in a cross sectional, quantitative questionnaire study. The control variables are not significantly related to job related performance.
Stiehl et al. (2015)	Gender, Age, Tenure of training,	It explored the relationship between motivation to lead, leadership competencies, leader behaviour and leadership training effectiveness. The result showed that only gender is not significantly related but the

	organizational tenure.	remaining control variables significantly influence the relationship.
Yoon and Christopher Kayes, (2016)	Age, Education, Team size, Geographical location.	Investigated the moderating role of team learning behaviour in between employee's self-efficacy and perceptions of individual learning in teams. The results found that team learning behaviours moderated the positive relationship between employee's self-efficacy and perceptions of individual learning in teams. The result shows that only education and geographical location significantly related to perception of learning.

Source: Compiled by the author.

Content Validity

The researcher tested content validity before the approval and usage of the research instrument for data collection. The peer group researchers were assembled to review the items of the questionnaire. The researchers assessed each item to determine the clarity, accuracy and relevance for measuring the variable. The items were examined on a scale of one to four with one, two, three, four depicting not relevant, relevant with major revision, relevant with minor revision, and relevant respectively. The researcher considered only those items, which had content validity (3 or 4). Further, the items requiring small changes were amended and reworded as suggested by the researchers.

Pilot Study

The term pilot study is used in two different ways in social science research. It can refer to so-called feasibility studies which are "small scale versions, or trial runs, done in preparation for the major study" (Polit et al., 2001:467). However, a pilot study can also be the pre-testing or 'trying out' of a particular research instrument. One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. In the words of De Vaus (2013) "Do not take the risk. Pilot test first." These are important reasons for undertaking a pilot study. The fundamental goal of the pilot study in the present study is to pre-test the survey questionnaire for the suitability, structure and clarity of the questions, terms used, reliability, and duration to complete the questionnaire. The pilot study put forwards several ambiguities that the respondents encountered, which are fixed consequently. The researcher had conducted the pilot study in two cement-manufacturing plants located in the state of Andhra Pradesh in the year 2013. A total of 290 valid responses

were collected. Based on the experiences gained during the pilot study some items were revised for better understanding of the respondents. Further, few items were added for comprehensive measurement of the study variables. The feedbacks of the respondents during the pilot study were also incorporated in the questionnaire used for final round of data collection. The validity of the instrument was analysed by conducting exploratory factor analysis, in which, the items with lower factor loading are dropped and a valid instrument was developed. The details of total questionnaire distributed and total number of valid responses received from cement manufacturing organizations is provided in table 4.4. The items, which are modified/added/deleted as per the suggestions the respondents and ambiguous in nature, are given in table 4.5.

Table 4.4: Details of Valid Responses

S.No	Organization Name	Total No. of Questionnaires Distributed	Total No. of Questionnaires Received	Total No. of Valid Questionnaires	Percentage of Valid Response
1	Associated Cement Companies Ltd.	175	163	142	81.1
2	The Ramco Cements	190	172	148	77.8
	Total	365	335	290	79.4

Source: Compiled by the author.

Table 4.5: Items Modified/Added/Deleted After Pilot Study

Variables	Items Modified/Added/Deleted	Reasons
Training and development	<i>Items added</i>	
	<ol style="list-style-type: none"> Providing of regular feedback to the employees as a routine culture of HRD. The activities of T&D programme provided meet the needs of the employees. 	<ol style="list-style-type: none"> Items added as the respondents have opined that these two attributes are important for effective implementation of training and development.
Career Management	<i>Items Added</i>	
	<ol style="list-style-type: none"> Approval of study leave <i>Items modified</i> <ol style="list-style-type: none"> Organization clearly defined stages of career is modified to transparency in management of careers of employees. 	<ol style="list-style-type: none"> Added the item as the respondents have opined that the item is important for their career development. Modified for better understanding for the respondents.
Performance Management	<i>Items deleted</i>	
	<ol style="list-style-type: none"> Organizational provide performance related benefits. 	<ol style="list-style-type: none"> Deleted the item as there is similar item with similar

		meaning and found that respondents are confusing.
	<i>Items deleted</i>	
	1. Everyone on team knows exactly why the team exists and what it does.	1. Item is deleted as the item is misleading the perception of respondents as there is also similar item.
	<i>Items modified</i>	
Team Building	2. "Team members are familiar with each other's job responsibilities" is modified to "team members are familiar with each other's roles and job responsibilities".	2. As per the respondent's opinion it's not only team member's responsibility to know the team members job responsibility but also their roles.
	<i>Items added</i>	
Employee Empowerment	1. Participate in establishing the goals and objectives for my job 2. Employees feel a healthy atmosphere to extend their creative suggestions.	1. Several respondents had suggested that participation of employee in establishing their job's goal and objectives is one of the important component of employee empowerment
	<i>Items modified</i>	
	3. "Labour management partnership" is modified to "Prevailing climate of employer – employee relations"	2. Respondents opined that for better employee empowerment they require healthy atmosphere where they can suggest their creative idea.
	4. "Concerning decisions made about job, supervisor discusses the implications of the decisions" is modified to "Prior discussion of superiors with subordinates on implementation of any policy, procedure, rules, and regulations".	3. As there is absence of generalisability of the respondents. 4. Item is modified for clear understanding.
	<i>Items Modified</i>	
Organizational Learning Culture	1. "Organization makes its lessons learned available to all employees" is deleted and modified to "employees openly discuss mistakes with superiors and colleagues in order to learn from them". 2. "People is rewarded for learning" is deleted and modified to "employees are encouraged for continuous learning".	1. As the item is confusing and unable to understand by the respondents, the item is deleted and modified. 2. As the item is misleading the perception of the respondent regarding the organizational learning culture, the item is deleted and modified.
	<i>Items modified</i>	
Employee Competencies	1. "Tolerance of work pressure and stress" is modified to "individuals are tolerant to work pressure and ambiguity".	1. The item is modified for better understanding of the item. 2. The item is misleading the respondent regarding the

	2. "Provide co-operation and co-ordination in team" is modified to "employee demonstrate team spirit while working in teams".	whose co-operation and coordination? So item is modified for better understanding.
Organizational Effectiveness	<p><i>Items modified</i></p> <ol style="list-style-type: none"> 1. "Optimal utilization of resources is modified" to "Organization focuses on optimal utilization of resources". 2. "Employees work in coordination with each other" is modified to "Proper interaction and knowledge sharing among the members enhanced the degree of cohesiveness among them". 3. "The rate of introduction of new methods of production or delivery of services into the organization has grown rapidly" to "Continued emphasis on new products, process and technology by the organization". 	1. As these items show some ambiguities for the respondents, thus, the items are modified for easy understanding.

Source: Compiled by the author.

4.2 Internal Consistency Reliability (Cronbach's α)

The present research has developed an instrument to explore the relationship between the variables. To measure the scale's reliability, the study has to examine the internal consistency reliability. According to Malhotra and Dash (2013:279), "internal consistency is an approach to assessing the internal consistency of the set of items when several items are summated in order to form a total score for the scale". Internal consistency reliability is used to assess the reliability of a summated scale where several items are summed to form a total score. In a scale of this type, each item measure some aspect of the construct measured by the entire scale, and the items should be consistent in what they indicate about the characteristic. This measure of reliability focuses on the internal consistency of the set of items forming the scale. Coefficient alpha or Cronbach's α calculates the internal consistency reliability. As per Malhotra and Dash (2013:279), "coefficient alpha is a measure of internal consistency reliability that is the average of all possible split-half coefficients resulting from different splitting of the scale items". The coefficient alpha varies from 0 to 1, and a value of 0.6 or less generally indicates unsatisfactory internal

consistency reliability. Table 4.6 shows few significant studies that have adopted internal consistency reliability to draw inferences from these. The formula for Cronbach's α is:

For $X = Y_1 + Y_2 + Y_3 + \dots + Y_k$ Cronbach's α is defined as:

$$\alpha = \frac{K}{K-1} \left(1 - \frac{\sum_{i=1}^k \sigma_{Y_i}^2}{\sigma_X^2} \right) \dots\dots\dots (3)$$

Where K is number of items; σ_X^2 is the variance of the observed total scores; $\sigma_{Y_i}^2$ is variance of the component i for the current sample of the persons.

Table 4.6: Relevant Studies Undertaking Internal Consistency Reliability Analysis

<i>Author and Year</i>	<i>Thrust of the Study</i>
Kraimer et al., (2011)	Evaluated the impact of organizational support for career development on perceived career opportunity and job performance. The Cronbach's α of the selected variable ranges between 0.82 and 0.91.
Joo and Ready (2012).	Investigate the impact of personal characteristics (proactive personality and performance goal orientation) and contextual characteristics (organizational learning culture and leader-member exchange quality) on employees' career satisfaction. The Cronbach's α of the selected variable ranges between 0.75 and 0.89.
Nielsen (2013)	Explore the relationship between performance management, managerial authority and public service performance. The Cronbach's α of the selected variable ranges between 0.73 and 0.86.
Hoch and Kozlowski (2014)	Evaluates the impact of traditional hierarchical leadership, structural supports, and shared team leadership on team performance. The Cronbach's α of the selected variable range varies between 0.77 and 0.87.
Ertürk and Vurgun (2015)	Explored the effect of employee empowerment, social exchange and trust on employee retention. The Cronbach's α of the selected variable ranges between 0.79 and 0.88.
Sundstrom et al., (2016)	Examined the relationship between the variables of personality traits, career satisfaction, and training and development. The Cronbach's α ranges between 0.72 to 0.83.

Source: Compiled by the author.

4.3 Descriptive Statistics and Correlation Analysis

4.3.1 Descriptive Statistics

The raw data collected in the present study requires an elementary transformation to reveal the fundamental characteristics of the data; this is called descriptive statistics. About description of data lays the foundation for later analysis and interpretation of collected data. "Descriptive statistics constitutes a summarization of the data where a large number of observed values are mathematically converted to a few numbers" (Given, 2008: 209). The

simplest ways to categorise descriptive statistics are distribution, central tendency, and dispersion. “The distribution is set of data organised by summarising the number of times a particular value of a variable occurs” (Zikmund et al., 2010: 413). The researcher can group the values denoted by variables to form categories and suitably detect the frequencies in the dataset. The frequency distribution is usually represented using graphical tools such as histograms, bar charts, and scatter plots.

The measures of central tendency depict the score around which the values of a variable have an affinity to collect together. The score reflects the characteristics of the whole data set. The central tendency involves three most popular estimates namely, mean median and mode. According to Kothari (2004:132), “the fundamental measure of central tendency is the mean which is defined as the value computed by dividing the sum of the values of given items in a series by the total number of items”. It summarises the essential features of a series and enables to compare the data with others. It is a comparatively stable among all measure of central tendency and used for further statistical calculations. “The mean has some limitations; i.e. it is affected by high values of the item; its value may not match with the actual value of any item in the data set, and often leads to wrong interpretation, particularly when the item scores have a greater deviation from the average” (Kothari, 2004:132). The median is another measure of central tendency. “It is calculated by arranging all the items of the series in ascending or descending order of magnitude, and the value of the middle item of the series is taken as the median. This arrangement divides the series into two halves; the first half contains all items that are less than median, where as the other half includes all items that have values higher than the median” (Kothari, 2004:132). It is a positional average and is used only in the context of qualitative phenomena. The median is not frequently used in descriptive statistics and can not be used when the researcher needs to assign relative importance or weights to items in a series. The mode is another estimate of the central tendency, which represents the value in a series that occurs most often. Item of a series has maximum concentration around the mode. It is a positional average and is not affected by the high values of items. The mode also has certain limitations as if it cannot be determined in the case of a series, which has two values of mode. As a whole, the measures of central tendency optimally denote a series using a single score and certainly do not divulge the entire characteristics of the study variables. The measures of dispersion fulfils the limitations of mean median and mode.

The measures of dispersion provide the spread of the item in the series around the actual value of average. The vital measures of dispersion used for analysis are range and standard deviation. “The range is the simplest possible measure of dispersion and is defined as the difference between the values of the extreme items of a series (highest value of an item in a series - lowest value of an item in a series)” (Kothari, 2004: 134). The range provides a quick overview about the variability of the data. The range has several drawbacks; it is never stable as it is centred on only two items of the variable and is affected by fluctuations of sampling. “Standard deviation (δ) is the most widely used measure of dispersion. It is derived by computing the square root of the average sum of the squares of deviations. The deviation for each item is calculated as the difference between the item value and mean of the series” (Kothari, 2004: 134). This deviation may be positive or negative so, the square of this deviation is taken to obtain a positive value. The squared deviations of each item in the series are summed up to generate the sum of squares. Further, the average sum of squares is derived by dividing the sum of squares by the number of items in the series. The average sum of squares is also known as variance. The square root of the variance gives the value of standard deviation. Standard deviation is less affected by fluctuations of sampling and amenable to mathematical manipulation. Therefore, it is a very common estimate of the scatter of the items in a series and mostly used for estimation and testing of hypotheses. Descriptive statistics is used in this study to describe the characteristics of the sample data. Table 4.7 depicts some significant research, which has used descriptive statistics for deriving the results of the study.

Table 4.7: Relevant Studies Undertaking Descriptive Statistics

<i>Author and Year</i>	<i>Thrust of the Study</i>
Song et al. (2009)	Assess the effect of learning organization culture on the linkage between interpersonal trust and organizational commitment. Descriptive results of the variables showed that the variable are significantly correlated and the standard deviation ranges between 0.53 to 0.71.
Camelo-Ordaz et al. (2011)	Evaluated the relationship between HRD practices, innovation performance, organizational effective commitment and knowledge sharing. The descriptive analysis showed that all variables are interrelated and standard deviation varies between 0.89 to 1.23.
Haines III and St-Onge (2012)	Examined the relationship between performance management, training, employee engagement and employee relations climate. The results of descriptive statistics showed that these variables are inter-related and standard deviation varies between 0.39 to 0.85

Zumrah et al. (2013)	Explored the relationship between transfer of training, service quality and job satisfaction in Malaysian public sector. The results indicated that there is significant correlations between the variables and standard deviation varies between 0.64 to 0.90
Saks and Burke-Smalley (2014)	Investigated the relationship between computer-based training, transfer of training and employee perceived organizational performance. The result showed that there is significant correlation between the constructs and the standard deviation ranges between 1.11 to 1.70.
Alagaraja et al. (2015)	Explored the mediating role of leadership and people management practices on HRD and organizational performance. The results showed that the variables are inter-related and standard deviation ranges between 0.78 to 0.94.
Yoon and Christopher Kayes, (2016)	Investigated the moderating role of team learning behaviour in between employee's self-efficacy and perceptions of individual learning in teams. Descriptive statistics results showed that the variables are interrelated and standard deviation ranges between 0.97 to 1.42.

Source: Compiled by the author.

4.3.2 Correlation Analysis

Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate together. The strength of association between two variables, X and Y is simple correlation and it is measured by Pearson correlation coefficient or bivariate correlation or correlation coefficient. It is an index used to determine whether a linear, or straight-line, relationship exists between X and Y. It indicates the degree to which the variation in one variable (X) is related to the variation in another variable (Y). The sign + or - indicates the direction of the relationship. The value can range from +1 to -1, with +1 indicating a perfect positive relationship, 0 indicating no relationship, and -1 indicating a perfect negative or reverse relationship. Table 4.8 illustrates some pertinent studies which have adopted correlation analysis for deriving the results of the research. For a sample of *n* observations, X and Y, the correlation coefficient, *r*, can be calculated as:

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2}} \dots\dots\dots (4)$$

Table 4.8: Application of Correlation Analysis in Relevant Studies

<i>Author and Year</i>	<i>Thrust of the Study</i>
Chen and Huang (2009)	Examines the mediating role of knowledge management capacity in the relationship between strategic human resource practices and innovation performance from the knowledge-based view. The findings of correlation provide that knowledge management capacity, strategic human resource practices and innovation performance are positively correlated.

Joo and Shim (2010)	Assessed the moderating role of organizational learning culture between the relationship of psychological empowerment and organizational commitment in the public sector of Korea. The results of the correlation found that organizational learning culture, psychological empowerment and organizational commitment are positively and significantly correlated with each other.
Hoon Song et al., (2012)	The mediating effect of employees' work engagement level was assessed to explain the relationship between transformational leadership and organizational knowledge creation practices in the Korean business context. Results of correlation found that employee's work engagement, transformational leadership and organizational knowledge are significantly correlated.
Neirotti and Paolucci (2013)	Explore the relationship between training, organizational learning culture, and innovation using key insights from the resource-based approach. The results of correlations between the variables are perfectly correlated.
Real et al., (2014)	Analysed the mediating role of organizational learning culture between the relationship of entrepreneurial orientation and perceived business performance and learning organization and perceived business performance. The findings of the correlations found that there are positive correlations between the variables.
Mittal and Dhar (2015)	Examined the moderating effect of knowledge sharing between the relationship of creative self-efficacy and employee creativity. The correlation analysis showed that there are positive and significant correlations between the variables.
van Esch et al., (2016)	Examined the mediating role of employee competencies between high-performance human resource practices and firm performance. The results of correlation found that there are perfect positive correlations between the variables.

Source: Compiled by the author.

4.4 Multivariate Techniques

According to Field (2013:584), "The collections of statistical techniques, which concurrently analyse various relationships among two or more variables on the data derived from the sample, are termed as multivariate techniques". The main reason for the popularity of multivariate methods is because a sequence of univariate analysis conducted separately for a single study variable can sometimes result in drawing false inferences from a sample of observations (Hair et al., 2014:162). Further, the univariate analysis also does not take into account the presence of inter-dependence or correlation among the variables. Hair et al., (2014:4) defined multivariate techniques as "all statistical techniques that simultaneously analyse multiple measurements on individuals or objects under investigation". According to Kothari (2004:315), "multivariate techniques are used in analysing social, psychological and economic data, especially when the variables have high

correlations, and the usage of rigorous probabilistic models is not possible”. In applied and behavioural research, these techniques empirically analyse data to get realistic results and help in decision-making. The multivariate methods are used to simplify massive raw data into a smaller number of composite scores, which reflects accurate information. Thus, the multivariate statistical technique is the best data analysis strategy to make probability statements based on multiple measurements of the sample. The multivariate techniques have two elementary methods; i.e. dependence and interdependence methods. The dependence method makes a distinction between dependent and independent variables and the independent variables forecasts the dependent variables. An interdependence technique does not differentiate the variables and depicts the relationship of the variables with each other. This research considers several multivariate techniques to quantify, validate and bring out empirical results from the data collected. The following five sub-sections have briefly discussed the statistical techniques used for analysis of data to draw conclusion based on the results obtained through these methods.

4.4.1 Exploratory Factor Analysis

Hair et al., (2014:92) stated, “factor analysis is an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis”. It statistically recognises a few factors from a large number of items. The factors are usually latent constructs, representing a cluster of the items instead of being directly measured. Exploratory factor analysis is used when there is uncertainty about how many factors may exist in a set of variables. “The major function of this technique is to summarise the information contained in a large number of original items into a compact set of new factors with minimum loss of information” (Hair et al., 2014:94). Mathematically, factor analysis is somewhat similar to multiple regression analysis, in that each variable is expressed as a linear combination of underlying factors. The amount of variance a variable share with all other variables included in the analysis is referred to as communality. The covariation among the variables is described in terms of a small number of common factors plus a unique factor for each variable. These factors are not overtly observed. If the variables are standardized, the factor model may be represented as:

$$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \dots + A_{im}F_m + V_iU_i \dots \dots \dots (5)$$

Where X_i = i th standardized variable; A_{ij} = Standardized multiple regression coefficient of variable i on common factor j ; F = Common factor; V_i = Standardized regression coefficient

of variable i on unique factor i ; U_i = the unique factor for variable i ; m = number of common factors.

The exploratory factor analysis starts with principal component analysis that extracts a set of factors that has least correlations with each other. The commonality score represent the proportion of common variance explained by the items. Eigen values showcase the variance explained by each factor. Zikmund et al., (2010:594) have suggested, “the rule of thumb in factor solution is to generate the factors that depict the eigenvalues greater than 1.0 because a factor with an eigenvalue of 1.0 has the same total variance as a single item”. The factor loading indicates the correlation of the items with the factor. The initial factor solution undergoes rotation to create new reference axes for a given set of variables and simplifies factor results by producing apparent patterns of loadings. The most common type of factor rotation is a process called varimax. Varimax rotation is an orthogonal rotation of the factor axes to maximize the variance of the squared loadings of a factor (column) on all the variables (rows) in a factor matrix, which has the effect of differentiating the original variables by extracted factor. Each factor will tend to have either large or small loadings of any particular variable. A varimax solution yields results, which make it as easy as possible to identify each variable with a single factor. This is the most common rotation option. Orthogonal rotation is used if the factors are not correlated else, an oblique rotation is used. The name of the latent construct is based on the interpretation of the pattern of loadings and the content of the variables.

A researcher can stop with factor analysis or proceed with data reduction methods based on the objective of the study. According to Hair et al., (2014: 139) “when the objective is to identify logical combinations of variables and better understand the interrelationships among variables, then factor interpretation is sufficient. However, data reduction techniques are used if the objective is to identify the appropriate variables for subsequent application to other statistical methods”. There are several data reduction options in factor analysis like choosing a single item that has the highest factor loading, calculating a summated scale, and calculating factor scores for each factor. The best of the three data reduction methods is possibly a summated scale that is valid and reliable. Hair et al., (2014:100) state that the sample size should be more than 100 to conduct exploratory factor analysis and the ideal ratio of the number of observation with the number of items is 5:1. Thus, for the validation of the instrument exploratory factor analysis was used in the study.

Table 4.9 shows few significant studies that have adopted exploratory factor analysis to draw inferences in the study.

Table 4.9: Relevant Studies Undertaking Exploratory Factor Analysis

<i>Author and Year</i>	<i>Thrust of the Study</i>
Wang et al., (2010)	The purpose of this study was to identify the factor structures associated with three Western-developed instruments Small Business Workplace Learning Survey, Minnesota Satisfaction Questionnaire, and the Organizational Commitment Questionnaire used to assess workplace learning, job satisfaction, and organizational commitment when applied in a non-Western setting.
Fong et al., (2011)	Explore the effect of training, performance management and team work on knowledge sharing. Performed exploratory factor analysis with varimax rotation to establish the underlying dimensions of HRD practices.
Gavino et al., (2012)	Examined the mediating role of perceived organizational support in between HR practices and organizational citizenship behaviour. Performed exploratory factor analysis to draw the underlying dimensions of HR practices
Kinicki et al., (2013)	Developed performance management behaviour questionnaire on the basis of literature on performance management and organizational behaviour. To test psychometric proprieties performed exploratory factor analysis.
Pangil, and Moi Chan (2014)	Studied the mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness. Performed exploratory factor analysis for determining the interrelationship among the items used to measure trust, knowledge sharing and virtual team effectiveness.
Jain and Moreno (2015)	Investigated the impact of organizational learning culture on firm performance and knowledge management practices in a heavy engineering organization in India. Performed exploratory factor analysis to establish the significance of these measures in the Indian cultural context as the measures used were developed in Western settings.
Supeli and Creed (2016)	Examined the effect of protean career orientation on job satisfaction, organizational commitment and intention to quit. To create item parcelling to report the latent variables, performed exploratory factor analysis and ranked the items in order of their factor loadings and then items were added to parcels using an item-to-construct balance approach.

Source: Compiled by the author.

4.4.2 Multiple Regression Analysis

The present study investigates the relationship between independent variables like HRD interventions and organizational learning culture, and dependent variables employee competencies and organizational effectiveness. To know the relative prediction power of a

set of independent variables (HRD interventions) on the dependent variable (employee competencies), regression analysis was used. “Regression analysis is a statistical procedure to determine the relationship between one or more independent and dependent variables. In the case of one independent variable predicting the dependent variable, it is called as simple regression, whereas when two or more independent variables predict the dependent variable, it is called as multiple regression” (Hair et al., 2014:158). Although simple regression and correlation are mathematically equivalent in most respects, regression is a dependence technique whereas correlation is an interdependence technique. Multiple regression is the most extensively used multivariate technique for prediction and explanation. “Prediction involves the extent to which the regression model can predict the dependent variable. Explanation examines the regression coefficients (their magnitude, sign, and statistical significance) for each independent variable and attempts to develop a substantive or theoretical reason for the effects of the independent variables on the dependent/predicted variable” (Hair et al., 2014:165). It fulfils two objectives in a study. First, optimise the forecasting strength of all the independent variables and second, compare several sets of independent variables to establish the predictive power of the individual set.

Multiple regression analysis provides a weight to each independent variable to know the relative prediction power of a set of independent variables on the dependent variable. The set of weighted independent variables forms the regression model, a linear combination of the independent variables that best predicts the dependent variable. The regression models pose a challenge for the researcher in understanding how an independent variable predicts the dependent variable, by taking the effect of other independent variables into account. The general form of the multiple regression model is as follows:

$$Y = (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k) + e_i \dots\dots\dots (6)$$

Y is the outcome variable, β_1 is the coefficient of the first predictor (X_1), β_2 is the coefficient of the second predictor (X_2), β_3 is the coefficient of the third predictor (X_3), β_k is the coefficient of the k th predictor (X_k), and e_i is the difference between the predicted and the observed value of Y for the i th respondent.

“The regression coefficient of an independent variable is affected by the regression coefficient of the other independent variables when they are related to each other. Regression weights are unaffected by each other when the independent variables are not associated with each other” (Zikmund et al., 2010:585). The correlation among the independent variables is called multi-collinearity that creates complications in the interpretative process of the data. The individual parameter estimates are difficult to interpret when multi-collinearity is too high. The formula for co-efficient of determination (r^2) for multiple linear regression can be calculated by the following formula:

In multiple regression analysis, the sample size has a strong influence on the prediction

$$r^2 = \frac{\sum(Y_i - Y)^2 - \sum(Y_i - Y_c)^2}{\sum(Y_i - Y)^2} \dots\dots\dots (7)$$

Where r^2 is co-efficient of determination; Y_i is value of the i th item in Y series; Y is mean of the Y series; Y_c is computed value of the i th item in Y series on the basis of the regression.

power of the model. Hence, the researcher needs to confirm the statistical significance of the variables with adequate practical significance. Hair et al., (2014) suggest 5:1 is the minimum ratio of observations to available. This means that five observations should be taken for each independent variable in the model. However, it is preferable to take a ratio of 15:1 or 20:1. This ratio increases to a ratio of 50:1 in the case of stepwise estimation because this technique chooses only the strongest relationships between variables and has an inclination to become sample-specific. Further, the generalisability of the model can be improved, and the problems with the sample size can be reduced by maximising the degree of freedom. Table 4.10 illustrates some significant research that has used multiple regression analysis for interpreting the data.

Table 4.10: Application of Multiple Regression Analysis in Relevant Studies

<i>Author and Year</i>	<i>Thrust of the Study</i>
Krishnan (2012)	Analysed how transformational leadership is related to followers’ meaning in life and subjective wellbeing, with psychological empowerment being a mediating variable.
Neirotti and Paolucci (2013)	Explore the relationship between training and innovation using key insights from the resource-based approach, organizational learning and labour studies.
Shuck et al., (2014)	Examined the mediating role of employee engagement between perceived support for participation in HRD practices and turnover intentions. Linear, simultaneous, and mediated regression analyses

resulted showed that there is significant mediating of employee engagement between perceived support for participation in HRD practices and turnover intentions.

Muduli (2015)	Study the relationship between high-performance work system and organizational performance and to examine the role of human resource development climate in mediating the relationship between high performance work system and the organizational performance in the context of the power sector of India.
Delery and Gupta (2016)	Investigated the effect of training, performance management and employee participation on organizational performance. The results of multiple regression analysis indicated that there is significant relationship between the variables.

Source: Compiled by the author.

4.4.3 Structural Equation Modelling (SEM)

To develop a validated model by establishing the relationship between HRD interventions, organizational learning culture, employee competencies, goal oriented approach, and competing values approach of organizational effectiveness, the study has used SEM. In doing so, it examines the hypothetical model of interrelationships expressed in a series of multiple regression equations. These equations depict all of the relationships among the variables (the independent and dependent) involved in the hypothetical or theoretical model. Present research has used SEM over regression analysis because multivariate techniques like regression have one common limitation i.e. each technique can analyse only one relationship at a time. SEM is used to test the overall theory of research considering all possible information. “It is an extension of several multivariate techniques, most notably factor analysis and multiple regression analysis. It is particularly useful in testing theories that contain multiple equations involving dependence relationships” (Hair et al., 2014:542). The theory-based approach to SEM is a distinct strength of this technique that necessitates the exact specification of the theoretical model, precise testing of the theory, and yields a thorough understanding of the data set. “The three primary characteristics that distinguish SEM from other techniques are; estimation of multiple and interrelated dependence relationships, representation of unobserved concepts in these relationships and accounting for measurement error in the estimation process and defining a model to explain the entire set of relationships” (Hair et al., 2014: 547). The key advantage of SEM is the ability to include latent constructs, which enables the representation of hypothesised and unobserved concept with the help of observed variables or indicators.

SEM analysis is conducted in two parts: the measurement model and the structural model. “The measurement model is concerned with the relations between observed and latent

variables and provides a test for the reliability and validity of the observed variables employed to measure the latent variables” (Ho, 2006: 283). In this model, the set of indicators for a construct acts together to explain it. The validity of the measurement model is established through convergent validity and discriminant validity. Convergent validity concerns with the degree to which the indicators of a specific construct share a large proportion of variance in common. It is determined by the values of average variance extracted (AVE) and construct reliability (CR). The discriminant validity is the degree to which a particular construct is distinct from other constructs. It is determined by comparing the shared variances between construct with the square root AVE of the specific construct. The score of AVE and CR is calculated as follows:

$$AVE = \frac{\sum_{i=1}^n L_i^2}{n} \dots\dots\dots (8)$$

$$CR = \frac{(\sum_{i=1}^n L_i)^2}{(\sum_{i=1}^n L_i)^2 + (\sum_{i=1}^n e_i)} \dots\dots\dots (9)$$

Where ‘*L*’ is the standardised factor loadings, ‘*n*’ is the total number of items in the construct, ‘*i*’ is the item, and ‘*e*’ is the error variance of the item.

“The structural model is a flexible, comprehensive model that specifies the pattern of relationships among independent and dependent variables, either observed or latent. In this model, constructs are connected to each other in correlational and dependence relationships” (Ho et al., 2006: 284). SEM accurately predicts the overall model rather than any single relationship. Therefore, the overall model fit is determined before examining any specific relationships among the study variables and on the basis of the goodness-of-fit measures the whole model can be “accepted or rejected”.

SEM estimates a series of relationship to provide sufficient explanation of the hypothesised research model with the help of input data. According to Ho et al., (2006:284), “model fit is determined when the observed covariance matrix matches with the estimated covariance matrix of the proposed model”. Goodness-of-fit measures are the extent to which the actual or observed covariance input matrix corresponds with the proposed model. Goodness-of-fit measures are of three types, absolute fit measures, incremental fit measures, and parsimonious fit measures. “Absolute fit indices are a direct measure of the degree to which the research model reproduces the observed data. The chi-square (χ^2) statistics most fundamental absolute fit index and depicts the difference between observed and expected covariance matrices. The values closer to zero denotes a better fit as well as smaller

variance between both matrices. Goodness-of-fit index (GFI) measures how much better the model fits compared with no model at all. It is a non-statistical measure ranging from 0 to 1 in which with higher values indicate better fit. Root mean square error of approximation (RMSEA) is an extensively used measure that represents how well a model fits a population, not just a sample used for estimation. Its values range from 0 to 1, and lower values indicate a better fit. Incremental fit indices assess how well the estimated model fits in comparison with some alternative baseline model. Normed fit index (NFI) is one of the unique incremental fit indices that signifies the ratio of the difference in the χ^2 value for the fitted model and a null model divided by the χ^2 value for the null model. Its value ranges between 0 and 1, and a model with perfect fit would produce an NFI of 1. Tucker Lewis index (TLI) is a comparison of the normed chi-square values for the null and specified the model, which to some degree takes into account model complexity. However, the TLI is not normed, and thus its values can fall below 1 or above 0 with higher value suggesting a better fit. Comparative fit index (CFI) is an improved version of NFI that is normed with values range between 0 and 1 and higher values indicating better fit. The parsimony fit indices provide information about which model among a set of competing models is best, comparing the fit of the model with its complexity. Parsimonious normed fit index (PNFI) takes into account the number of degrees of freedom used to achieve a level of fit. It favours less complex models, and higher values represent better fit. Adjusted goodness-of-fit index (AGFI) takes into account differing degrees of model complexity by adjusting GFI by a ratio of the degrees of freedom used in a model to the total degrees of freedom available. It penalises complex models and favours those with a minimum number of free paths” (Hair et al., 2014:578). The parameter estimates of variables are examined only when the model fit is satisfactory. The unstandardized parameter estimates contain the scaling information of variables and can only be interpreted concerning the scales of the variables. The standardised parameter estimates are transformations of unstandardized estimates that removes scale and can be used for informal comparisons of parameters throughout the model. Table 4.11 illustrates the model fit criteria and acceptable fit region and in the table 4.12 formulas for model fit are provided.

Table 4.11: Model-Fit Criteria and Acceptable Fit Interpretation

<i>Model-Fit Criterion</i>	<i>Acceptable Level</i>	<i>Interpretation</i>
Chi-square	Tabled χ^2 Value	Compares obtained χ^2 value with tabled value for given <i>df</i>

Goodness-of-fit index (GFI)	0= not fit, 1=perfect fit	Value close to .90 or .95 reflect a good fit
Adjusted Goodness of Fit Index (AGFI)	0= not fit, 1=perfect fit	Value adjusted for <i>df</i> , with .90 or .95 a good model fit
Root-Mean Square Residual (RMR)	Researcher defines level	Indicates the closeness of Σ to S matrices
Standardized Root-Mean square Residual (SRMR)	< 0.05	Value less than .05 indicates a good model fit
Root-mean-square error of approximation (RMSEA)	.05 to .08	Value of .05 to .08 indicate close fit
Tucker–Lewis Index (TLI)	0= not fit, 1=perfect fit	Value close to .90 or .95 reflects a good model fit
Normed fit index (NFI)	0= not fit, 1=perfect fit	Value close to .90 or .95 reflects a good model fit
Parsimony fit index (PNFI)	0= not fit, 1=perfect fit	Compares values in alternative models

Source: Hair et al., (2013:672)

Table 4.12: Formulas for model fit indices

Goodness-of-Fit Index (GFI)	$1 - [\chi^2_{\text{model}}/\chi^2_{\text{null}}]$
Normed Fit Index (NFI)	$(\chi^2_{\text{null}} - \chi^2_{\text{model}}) / \chi^2_{\text{null}}$
Relative Fit Index (RFI)	$1 - [(\chi^2_{\text{model}}/\text{df}_{\text{model}}) / (\chi^2_{\text{null}}/\text{df}_{\text{null}})]$
Incremental Fit Index (IFI)	$(\chi^2_{\text{null}} - \chi^2_{\text{model}}) / (\chi^2_{\text{null}} - \text{df}_{\text{model}})$
Tucker-Lewis Index (TLI)	$[(\chi^2_{\text{null}}/\text{df}_{\text{null}}) - (\chi^2_{\text{model}}/\text{df}_{\text{model}})] / [(\chi^2_{\text{null}}/\text{df}_{\text{null}}) - 1]$
Comparative Fit Index (CFI)	$1 - [(\chi^2_{\text{model}} - \text{df}_{\text{model}}) / (\chi^2_{\text{null}} - \text{df}_{\text{null}})]$
Model Akaike Information Criterion	$\chi^2_{\text{model}} + 2q(\text{number of free parameters})$
Null Akaike Information Criterion	$\chi^2_{\text{null}} + 2q(\text{number of free parameters})$
Root Mean Square Error Approximation	$\sqrt{[(\chi^2_{\text{model}} - \text{df}_{\text{model}})] / [(N - 1)\text{df}_{\text{model}}]}$

Source: Hair et al., (2013:684)

According to Hair et al., (2014), the researcher can adopt several strategies in conducting SEM like confirmatory modelling strategy, competing models strategy and model development strategy. Confirmatory modelling strategy specifies a basic model framework assess how well the model fits the data. Competing models strategy compares the basic model with alternative models that represent highly plausible, hypothesised structural relationships. Model development strategy improves the basic model through modifications of the structural or measurement models. SEM is used when the sample size is large ($N >$

200) and depends on the model complexity, the estimation method and the distributional characteristics of observed variables (Kline, 2005). Table 4.13 illustrates some pertinent studies which have adopted confirmatory factor analysis and structural equation modelling for deriving the results of the research.

Table 4.13: Applications of Confirmatory Factor Analysis and Structural Equation Modelling in relevant studies

<i>Author and Year</i>	<i>Thrust of the Study</i>
Song et al., (2009)	Assess the effect of learning organization culture on the linkage between interpersonal trust and organizational commitment. Structural equation modeling (SEM) was used to detect the effects of learning organization culture on the basis of the model fit to data comparisons and the significance of path coefficient estimates in the hypothesized model.
Joo (2010)	Investigates the impact of perceived organizational learning culture and leader–member exchange (LMX) quality on organizational commitment and eventually on employee turnover intention. Employees exhibited the highest organizational commitment when they perceived a higher learning culture and when they were supervised in a supportive fashion.
Choi and Jacobs (2011)	Investigated the effects of formal learning, personal learning orientation, and supportive learning environment on informal learning among 203 middle managers in Korean commercial banks. The results from using structural equation modeling showed that the proposed model indicated a better fit to the data than alternative models.
Real et al., (2014)	Analysed the mediating role of organizational learning culture between the relationship of entrepreneurial orientation and perceived business performance and learning organization and perceived business performance. Findings indicate that organizational learning partially mediates the relationship between entrepreneurial orientation and performance and fully mediates the link between learning orientation and performance
Mittal and Dhar (2015)	Examined the moderating effect of knowledge sharing between the relationship of creative self-efficacy and employee creativity. Knowledge sharing was found to be significant moderator in enhancing the employee creativity in the presence of high knowledge sharing.
Yoon and Christopher Kayes (2016)	Investigated the moderating role of team learning behaviour in between employee’s self-efficacy and perceptions of individual learning in teams. The results found that team learning behaviours moderated the positive relationship between employee’s self-efficacy and perceptions of individual learning in teams.

Source: Compiled by the author.

4.4.4 Moderation Analysis

In this study, moderation analysis is used to examine the moderating role of organizational learning culture in between the variables of HRD interventions and employee competencies. The moderation model tests whether the prediction of a dependent variable, Y, from an independent variable, X, differ across levels of a third variable, Z (figure 4.1).

Moderator variables affect the strength and/or direction of the relation between a predictor and an outcome: enhancing, reducing or changing the influence of the predictor. Moderation effects are typically discussed as an interaction between factors or variables where effect of one variable depend on levels of the other variable in analysis. Moderation effects are tested with multiple regression analysis, where all predictor variables and their interaction term are centred prior to model estimation to improve interpretation of regression coefficients. A single regression equation forms the basic moderation model:

$$Y = i_1 + \beta_1 X + \beta_2 Z + \beta_3 XZ + e_1 \dots\dots\dots (10)$$

Where β_1 is the coefficient relating the independent variable, X, to the outcome, Y, when $Z = 0$, β_2 is the coefficient relating the moderator variable, Z, to the outcome when $X = 0$, i_1 the intercept in the equation, and e_1 is the residual in the equation. The regression coefficient for the interaction term, β_3 , provides an estimate of the moderation effect. If β_3 is statistically different from zero, there is significant moderation of the X-Y relation in the data. Plotting interaction effects aids in the interpretation of moderation to show how the slope of Y on X is dependent on the value of the moderator variable. Regression slopes that correspond to the prediction of Y from X at a single value of Z are termed simple slopes.

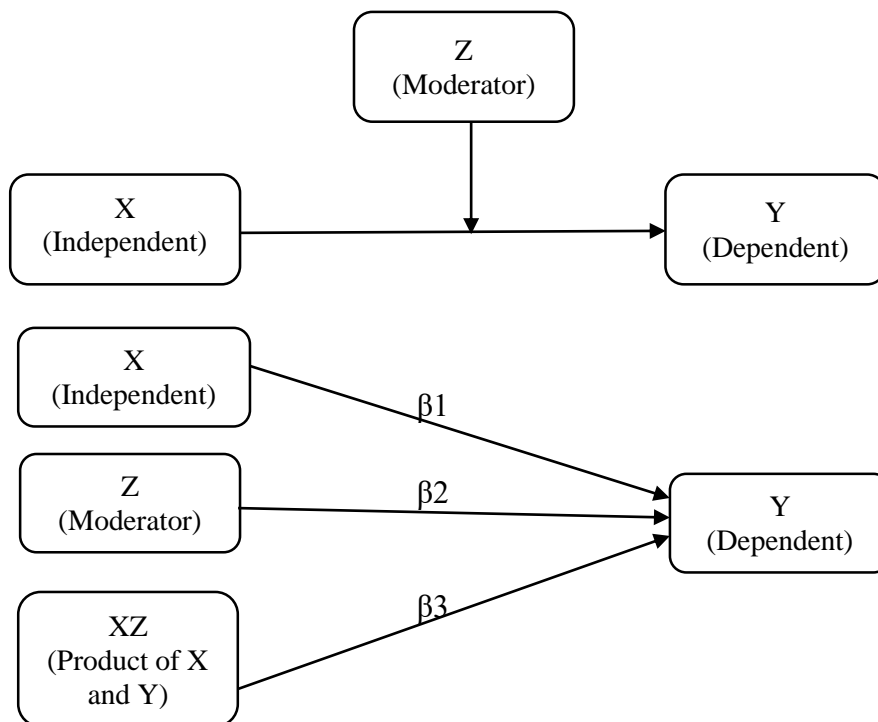


Figure 4.1 Path diagram representations of the moderation model.

[Note: X= the independent variable, Y= the dependent variable, Z= the moderator variable, XZ= the product of X and the moderator variable, β_1 = the effect of X on Y, β_2 = the effect of Z on Y, and β_3 = the effect of XZ on Y].

Table 4.14 illustrates some pertinent studies which have adopted moderation analysis for deriving the results of the research.

Table 4.14: Application of Moderation Analysis in Relevant Studies

<i>Author and Year</i>	<i>Thrust of the Study</i>
Joo and Lim (2009)	Investigated the effect of personal characteristics (proactive personality) and contextual characteristics (organizational learning culture and job complexity) on employees' intrinsic motivation and organizational commitment. Employees exhibited the highest organizational commitment when they perceived higher learning culture and higher job complexity.
Joo and Shim (2010)	Assessed the moderating role of organizational learning culture between the relationship of psychological empowerment and organizational commitment in public sector of Korea. Employees showed higher organizational commitment when they perceived high psychological empowerment and a high organizational learning culture.
Erkutlu (2011)	Explored the moderating role of organizational culture in the relationship between organizational justice and organizational citizenship behaviour. Results show a stronger relationship between interactional justice and OCB for organizations that are higher in respect for people and a weaker relationship between distributive and procedural justices and OCB for organizations that are higher in team orientation.
Simosi (2012)	Examined the combined effects of self-efficacy and organizational culture on employees' transfer of knowledge/skills acquired through training. Self-efficacy was found to act as a moderator in the organizational culture training transfer relationship. High self-efficacy was found to strengthen both achievement culture–training transfer as well as humanistic culture-training transfer relationships, whereas low self-efficacy weakened these relationships.
Chen and Li (2013)	This research examines several determinants considered to influence the spiritual leadership effectiveness, including one motivational mediating factor of follower's self-concepts, and two conditional factors, i.e., culture and managerial position. Results showed that culture differs on the spiritual leadership effectiveness, while position hierarchy (managerial vs. non-managerial positions) does not moderate between the intrinsic motivations of spiritual leadership and in-role/extra-role performance.
Sung and Choi (2014)	Examined the moderating effect of employee competencies and commitment between the relationship of HRD components and organizational performance.
Mittal and Dhar (2015)	Examined the moderating effect of knowledge sharing between the relationship of creative self-efficacy and employee creativity. Knowledge sharing was found to be significant moderator in enhancing the employee creativity in the presence of high knowledge sharing.
Yoon and Christopher Kayes, (2016)	Investigated the moderating role of team learning behaviour in between employee's self-efficacy and perceptions of individual learning in teams. The results found that team learning behaviours moderated the positive relationship between employee's self-efficacy and perceptions of individual learning in teams.

Source: Compiled by the author.

4.4.5 Mediation Analysis

In this study, mediation analysis is used to test the mediating effect of employee competencies in between the relationship of the HRD interventions and employee perceived organizational effectiveness. Mediation analysis was carried out to assess the mediating effect of one variable in between the relationship of two other variables. The mediation model explains how, or why, two variables are related, where an intervening or mediating variable, M, is hypothesized to be intermediate in the relation between an independent variable, X, and an outcome, Y (figure 4.2). The technique proposed by Baron and Kenny's (1986), is the most frequently used technique for testing the mediation hypothesis in social science research (Preacher and Hayes, 2004). The steps of the procedure are stated below:

- a) The independent and dependent variable must be significantly related,
- b) The independent and mediating variable must be significantly related,
- c) The mediator and dependent variable must be significantly related and
- d) The independent variable must have no effect on the dependent variable when the mediator is held constant (full mediation) or should become significantly smaller (partial mediation).

Research that is more recent has supported tests for statistical mediation based on coefficients from two or more of the following regression equations (MacKinnon and Dwyer 1993) as follows:

$$Y = i_1 + cX + e_1 \dots\dots\dots (i)$$

$$Y = i_2 + c'X + bM + e_2 \dots\dots\dots (ii)$$

$$M = i_3 + ax + e_3 \dots\dots\dots (iii)$$

Where c is the overall effect of the independent variable on Y; c' is the effect of the independent variable on Y controlling for M; b is the effect of the mediating variable on Y; a is the effect of the independent variable on the mediator; i₁, i₂, and i₃ are the intercepts for each equation; and e₁, e₂, and e₃ are the corresponding residuals in each equation.

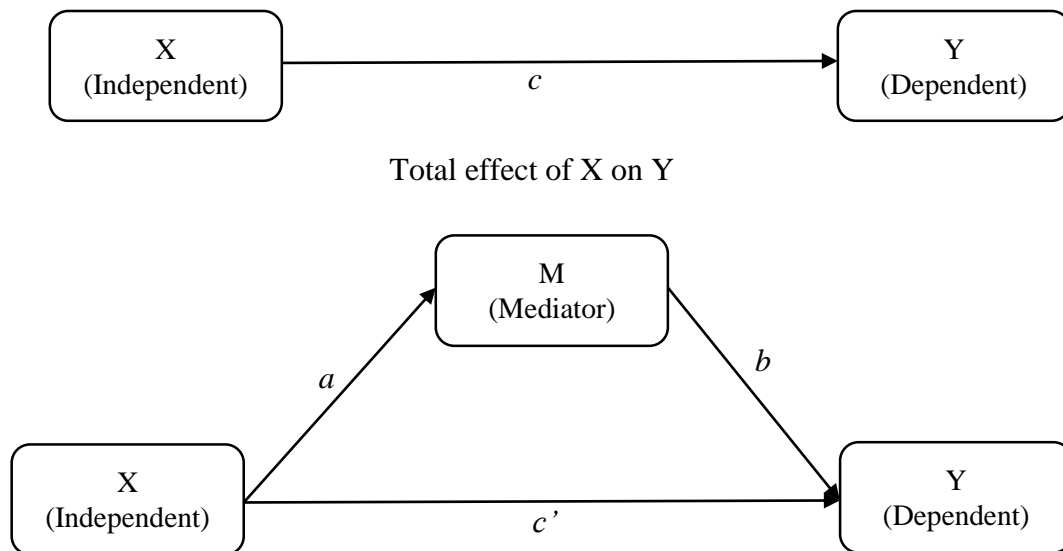


Figure 4.2: Path diagram for the single-mediator model.

[Note: X= the independent variable, Y= the dependent variable, and M= the mediating variable. The mediation model decomposes the total effect of X on Y (c), into two parts: the indirect effect of X on Y, quantified by ab (the product of a and b), and the direct effect of X on Y with the effect of the mediator removed, quantified by c' , $c=ab+c'$]

In the literature, several methods are used to assess the significance of mediation effects among the variables. One of the methods is Sobel’s Z-test, which is frequently used and known to create the most reliable results in the case of regression analysis. The formula for Sobel’s Z test is as follows:

$$Z = \frac{A*B}{\sqrt{(B^2*S_A^2 + A^2*S_B^2)}} \dots\dots\dots (11)$$

Where A is the unstandardized regression coefficient for the association between the independent variable and the mediator, S_A is standard error of ‘A’, B is the unstandardized coefficient for the association between the mediator and the dependent variable (when the independent variable is also a predictor of the dependent variable), S_B is the standard error of ‘B’.Further, Jose (2013) also developed a macro for the users of Microsoft Excel called MedGraph-3 program, which can be utilised to conduct Sobel’s Z-test. Furthermore, Preacher and Hayes (2004) also suggested bootstrap confidence interval to test the significance of mediation hypotheses. Table 4.15 illustrates some pertinent studies which have adopted mediation analysis for deriving the results of the research.

Table 4.15: Application of Mediation Analysis in Relevant Studies

<i>Author and Year</i>	<i>Thrust of the Study</i>
Chen and Huang (2009)	Examines the mediating role of knowledge management capacity in the relationship between strategic human resource practices and innovation performance from the knowledge-based view. The findings provide evidence that knowledge management capacity plays a mediating role between strategic human resource practices and innovation performance.
Han et al., (2010)	Investigated the mediating role of organizational commitment in between employee participation in decision making and knowledge sharing and psychological ownership. Results showed that organizational commitment mediated the relationship.
Hoon Song et al., (2012)	The mediating effect of employees' work engagement level was assessed to explain the relationship between transformational leadership and organizational knowledge creation practices in the Korean business context. Employees' work engagement was found to be a statistically significant mediator that explains the relationship between transformational leadership and organizational knowledge creation practices.
Rai and Singh (2013)	Examines the four mediators: interpersonal communication, quality of working life, leader-member exchange and perceived organizational support in between the relationship of 360-degree feedback and employee performance. The results show that interpersonal communication and quality of working life have a complete mediating effect. Leader-member exchange quality and perceived organizational support were found to have a partial but significant mediating effect.
Real et al., (2014)	Analysed the mediating role of organizational learning culture between the relationship of entrepreneurial orientation and perceived business performance and learning organization and perceived business performance. Findings indicate that organizational learning partially mediates the relationship between entrepreneurial orientation and performance and fully mediates the link between learning orientation and performance.
Park et al., (2015)	Assessed the mediating effect of employee's psychological ownership in between ethical leadership and employee in role performance in the Korean public non-profit agency setting. The results supported the mediating role of the level of employee's psychological ownership in explaining the relationship between ethical leadership and in role performance levels of employees.
van Esch et al., (2016)	Examined the mediating role of employee competencies between high-performance human resource practices and firm performance. The result showed the employee competencies mediated partially between HR practices and firm performance.

Source: Compiled by the author.

Thus, this chapter outlines the several research methods that have been implemented for conducting the research work in a systematic and logical way. The primary data has been collected from Indian cement manufacturing plants situated in Andhra Pradesh and Odisha. Stratified random sampling is adopted to select the sample for the study. The subsequent chapter of the thesis have discussed on analysis of data, interpretation of the results, and relevant findings in detail.

Chapter 5

Data Analysis, Findings and Discussions

This chapter presents the quantitative results derived from the exploration of primary data collected during the field study through opinion survey. First, this chapter provides an overview of the sample characteristics and the reliability of the research instrument. Consequently, the preliminary analysis of data is conducted by using the descriptive statistics, correlation and regression analysis. Then, the hypothesized research model is validated by using statistical tools such as exploratory factor analysis and structural equation modelling. The analysis of data has been carried by using IBM SPSS and AMOS version 20. Subsequently, the results derived through testing of hypotheses are summarized and discussed in the context of the contemporary literature.

5.1 Research Participants and Instrument

The objectives of the study have been empirically investigated based on the primary data gathered with the help of a structured questionnaire form Indian cement-manufacturing units of Andhra Pradesh and Odisha. A total of 952 questionnaires were distributed among the respondents of the research units and 653 usable questionnaires were incorporated for extracting the results of the study. The remaining questionnaires were excluded due to non-responsiveness of the respondents and the incompleteness of the data. Thus, the response rate of the study was six eight per cent. The high response rate suggests that there was minimal sampling bias in the research.

5.1.1 Demographic Characteristics of the Sample

The sample constitutes of about 73% male and 27% female participants, displaying a high number of male employees in cement manufacturing units. The age group of the respondents were between 20-30 years (25.72%), 31-40 years (44.71%), 41-50 years (19.60%) and 51-60 years (10.27%). Thus, the majority of cement manufacturing employees are young (below 40 years). The participants had the educational qualification of matric (21.05%), intermediate/diploma (27.27%), graduation (28.03%) and post-graduation (23.02%). The respondents are belongs to categories like manager (23.13%), supervisor (24.93%), administrative staff (25.68%), and worker (26.26%). The work experience of the respondents was 0-5 years (51.33%), 6-10 years (30.62%), 11-15 years (12.81%), and 16-20 years and above (5.24%). Thus, the demographic characteristics of

the sample (table 5.1) reveal that the majority of participants were male, aged between 20 to 40 years, held the educational qualification of graduation, were employed and had a minimum work experience of up to 5 years. The demographic characteristics of the sample have been treated as control variables.

Table 5.1: Demographic Characteristic of the Sample

<i>Variable</i>	<i>Scale</i>	<i>Number</i>	<i>Percentage</i>
Gender	Male	477	73.04
	Female	176	26.96
Age	20-30	168	25.72
	31-40	290	44.41
	41-50	128	19.60
	51-60	67	10.27
	10 th and Below	141	21.50
Educational Qualification	Intermediate/ Diploma	178	27.27
	Graduation	183	28.03
	Post-Graduation	151	23.20
Designation	Manager	151	23.13
	Supervisor	163	24.93
	Administrative Staff	168	25.68
	Workers	171	26.26
Experience	00-05	335	51.33
	06-10	200	30.62
	11-15	84	12.81
	16-20 Above	34	5.24
Organization	OCL India Ltd.	139	21.31
	ACC Ltd.	131	20.09
	Ultratech Cements	128	19.64
	The Ramco Cements	133	20.39
	Jaypee Cements	122	18.68

Source: Compiled by the author.

5.1.2 Reliability of the Research Instrument

The study has used a structured questionnaire to obtain empirical data on the impact of HRD interventions on employee competencies towards organizational effectiveness. The procedure for designing the research instrument has been elaborated extensively in chapter 4. This section reveals the reliability coefficients of the items used to measure the study variables. The research instrument consisted of eighty-five questions covering the variables of training and development, performance appraisal, career management, team building, employee empowerment, organizational learning culture, employee competencies, goal oriented approach to organizational effectiveness and competing values approach to organizational effectiveness. HRD interventions include training and development (10), career management (10), performance management (10), team building (10) and employee

empowerment (10). The variables of organizational learning culture, employee competencies, and organizational effectiveness consists of 7, 8, 20 items respectively. The reliability coefficients of variables range from .79 to .89. As per the guidelines of Nunnally (1978) to interpret the values of Cronbach α , a score greater than .7 is acceptable and proves the reliability of the scale items. Thus, the reliability scores presented in table 5.2 substantiates the consistency of the items derived for measuring the variables of the study.

Table 5.2: Reliability of the Study Variables

<i>Variables</i>	<i>Items</i>	<i>Cronbach α</i>
HRD Interventions	50	0.84
Training and Development	10	0.86
Career Management	10	0.79
Performance Management	10	0.84
Team Building	10	0.88
Employee Empowerment	10	0.83
Organizational Learning Culture	7	0.86
Employee Competencies	8	0.83
Organizational Effectiveness	20	0.89
Goal Oriented Approach to Organizational Effectiveness	10	.88
<i>Optimization of Resources</i>	3	.86
<i>Product Quality and Productivity</i>	3	.87
<i>Cohesive Workforce</i>	4	.89
Competing Values Approach to Organizational Effectiveness	10	.85
<i>Organizational Adaptation</i>	3	.83
<i>Organizational Innovation</i>	4	.84
<i>Organizational Flexibility</i>	3	.86

Source: Compiled by the author.

5.1.3 Handling Common Method Bias

Podsakoff et al., (2003, p. 879) stated, “Common method bias (CMB) is the bias that is attributable to the measurement method rather than to the constructs the measures represents”. Due to method bias, measurement error problems are raised, resulting in confounding the empirical results. To handle CMB, Conway and Lance (2010) have suggested the following four approaches: (1) should provide an argument for why self-reports are appropriate; (2) construct validity evidence; (3) lack of overlap in items for different constructs; and (4) evidence that pro-active steps were taken to mitigate threats of CMB. The research was conducted at organizational level and the respondents are both executive and non-executive employees. At the time of collection of responses, necessary instructions were provided and the importance of their responses for them and research

were communicated. Hence, the responses collected from employees are in the best position to respond about HRD interventions, employee competencies and organizational effectiveness. Performed CFA to validate the scales adapted from previous studies; the results showed that established criteria was satisfied. The study also examined the questionnaire items to ensure that there were no overlapping items. Throughout the process, study assured to protect the respondent anonymity and thus reduced the evaluation apprehension (Podsakoff et al., 2003; Conway and Lance, 2010). These steps ensured that the effect of CMB was minimal.

5.2 Preliminary Analysis

An initial examination of data is conducted by using the procedure of descriptive statistics, correlation and regression analysis. These statistical analyses was carried out to check the multicollinearity of study items and to determine the power of individual items for predicting employee competencies. The descriptive statistics offers a comprehensive investigation of the data properties by providing the values of mean and standard deviation of all the items of a particular study variable. The correlation analysis reveals the pattern of association among the elements of the specific study variables. Lastly, individual regression analysis is carried out by including the parameters of factors under HRD interventions as independent variables and employee competencies as the dependent variable. The regression analysis is conducted to ascertain the power of specific items of the study variables to influence the dependent variable (employee competencies of the Indian cement organizations).

5.2.1 Training and Development

Table 5.3 presents the descriptive statistics and correlations among the parameters of training and development and employee competencies. The item means reflect a range of values from 4.10 to 4.51 and shown in graph 5.1. The item with the highest mean is the ‘Training centres are furnished and well equipped with instrument’ (TD4). The item with the lowest mean is ‘the activities of training and development provided meet the needs of the employees’ (TD9). Inspection of the standard deviation of training and development items reveals that all the values are around or little below 1. Pearson’s correlation coefficient determines the strength and direction of a relationship between the two parameters. The correlation between the items of training and development varies from

.163 to .490, suggesting moderate effects. Further, all the elements of training and development have a strong and positive correlation with employee competencies.

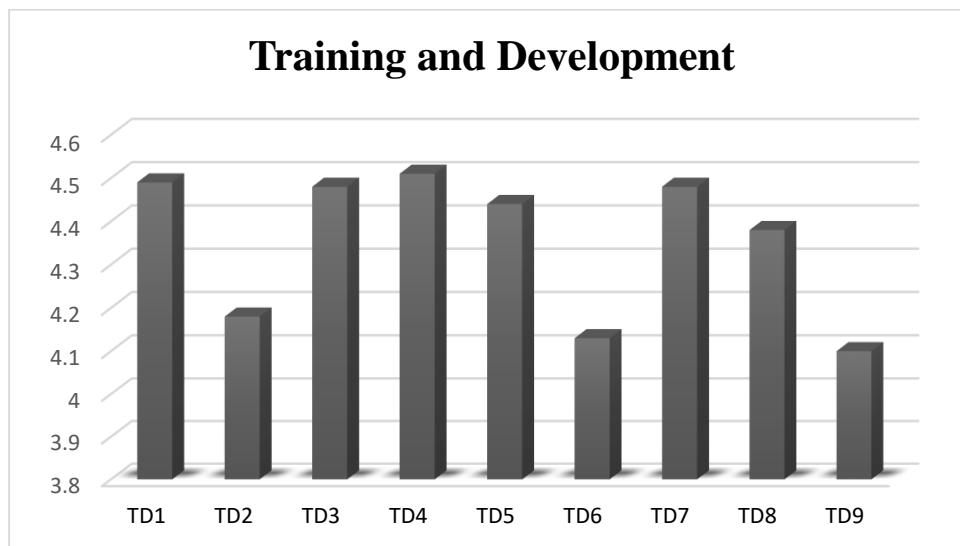
Table 5.3: Means, Standard Deviations and Correlations (Training and Development)

Items	Mean	SD	EC	TD1	TD2	TD3	TD4	TD5	TD6	TD7	TD8	TD9
EC	4.38	.642	1									
TD1	4.49	.902	.538**	1								
TD2	4.18	.678	.616**	.389**	1							
TD3	4.48	.667	.658**	.274**	.418**	1						
TD4	4.51	.676	.650**	.181**	.410**	.485**	1					
TD5	4.44	.726	.667**	.251**	.260**	.372**	.461**	1				
TD6	4.13	.750	.687**	.225**	.313**	.370**	.376**	.490**	1			
TD7	4.48	.712	.689**	.200**	.380**	.395**	.389**	.375**	.478**	1		
TD8	4.38	.912	.618**	.281**	.163**	.244**	.241**	.305**	.363**	.346**	1	
TD9	4.10	.803	.628**	.182**	.347**	.391**	.384**	.411**	.410**	.438**	.470**	1

Source: Compiled by the author.

Note: SD = Standard Deviation, EC = Employee Competencies

** p<.01, *p<.05



Graph 5.1 Mean Scores of the Training and Development Items

Source: Compiled by the author.

Specifically, the item (TD7) ‘standardised work procedures and methods are followed for enhancement of the performance of individual during the post training period’ is strongly correlated with employee competencies with a value of .689. All the items of training and development has moderate correlations with employee competencies ranging from .538 to .689.

Multiple regression analysis was conducted to identify the parameters of training and development that significantly predict employee competencies. The model summary shown in Table 5.4 provides the value of R² as .663, which implies that the parameters of training

and development explain 66.3 per cent of the observed variability in employee competencies. The remaining 43.7 per cent, which has not been explained by the items, may be related to other variables, which are not depicted in this model. The adjusted R^2 is a modified measure and has a value of .643 (close to the value of R^2), thus indicating the generalizability of the model. The F value ($F = 639.144$, $p < .001$) highlights that the variance explained by the predictor items are highly significant. The regression coefficients reveal that TD1, TD3, TD4, TD5, TD7, and TD8 are significant predictors of employee competencies. The highest beta coefficient is of item TD7 (.399), which depicts that ‘standardised work procedures and methods are followed for enhancement of the performance of individual during the post training period’ has the strongest influence on employee competencies.

Table 5.4: Model Summary, ANOVA, Coefficients and Collinearity Statistics

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.379	.111		-3.410	.001		
TD7	.421	.035	.399	12.016	.000	.493	2.030
TD3	.299	.033	.289	9.002	.000	.526	1.901
TD4	.215	.032	.201	6.779	.000	.618	1.619
TD5	.076	.027	.079	2.782	.006	.675	1.481
TD1	.088	.024	.092	3.678	.000	.859	1.164
TD8	.063	.025	.065	2.492	.013	.788	1.269

$R = .821$, $R^2 = .663$, Adjusted $R^2 = .643$, Std. Error of Estimate = .536, $F = 639.144$, Sig. = .000

Source: Compiled by the author.

Note: Dependent variable: Employee Competencies; **Independent variables:** (Constant), TD1, TD3, T4, TD5, TD7, TD8; **Excluded Items:** TD2, TD6, TD9

The t-value is the measures of whether the predictor is making a significant contribution to the model. All the t-values associated with the beta coefficients are significant which explains the substantial contribution of the training and development parameters towards employee competencies. The model excludes TD2, TD6, and TD9 as they do not predict employee competencies considerably. The collinearity statistics include the tolerance and variance inflation factor (VIF) that depict the degree of interrelation among independent variables and the inflation of variances in the regression coefficients due to interrelation among independent variables respectively (Paré and Tremblay, 2007). The tolerance index should be greater than .2, and the VIF index should be less than 10 (Field, 2009). The tolerance index ranges from .493 to .859, and the VIF index ranges from 1.164 to 2.030, which reveals the absence of multicollinearity among the items under training and development.

5.2.2 Career Management

Table 5.5 presents the descriptive statistics and correlations among the elements of career management and employee competencies. The item means reflect a range of values from 3.50 to 4.51 and shown in graph 5.2. The item with the highest mean is the ‘the organization is sponsoring employees for higher study’ (CM4). The item with the lowest mean is ‘planning for utilization of time beyond scheduled work’ (CM1). Inspection of the standard deviation of career management items reveals that all the values are around or little below 1.

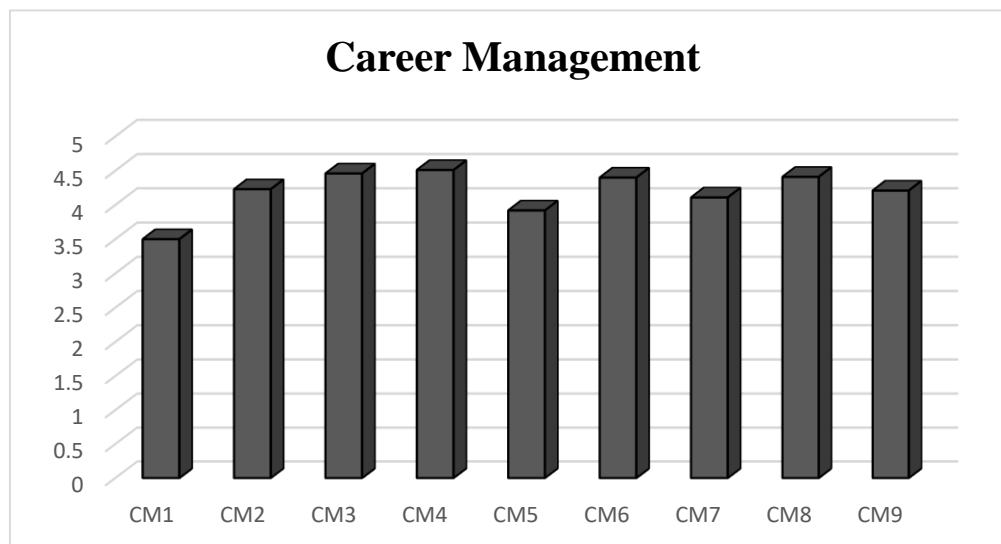
Table 5.5: Means, Standard Deviations and Correlations (Career Management)

Items	Mean	SD	EC	CM1	CM2	CM3	CM4	CM5	CM6	CM7	CM8	CM9
EC	4.15	.642	1									
CM1	3.50	1.082	.605**	1								
CM2	4.23	.768	.666**	.571**	1							
CM3	4.46	.667	.699**	.477**	.492**	1						
CM4	4.51	.756	.631**	.380**	.476**	.443**	1					
CM5	3.92	1.121	.583**	.340**	.369**	.364**	.332**	1				
CM6	4.40	.778	.630**	.323**	.384**	.410**	.340**	.444**	1			
CM7	4.11	.757	.581**	.193**	.183**	.309**	.252**	.134**	.208**	1		
CM8	4.41	.792	.598**	.337**	.380**	.330**	.295**	.331**	.501**	.346**	1	
CM9	4.21	.866	.631**	.173**	.228**	.378**	.276**	.167**	.219**	.438**	.242**	1

Source: Compiled by the author.

Note: SD = Standard Deviation, EC = Employee Competencies

** p<.01, *p<.05



Graph 5.2 Mean Scores of the Career Management Items

Source: Compiled by the author.

Pearson’s correlation coefficient determines the strength and direction of a relationship between the two parameters. The correlation between the items of career management

varies from .167 to .571, suggesting moderate effects. Further, all the elements of career management have a strong and positive correlation with employee competencies. Specifically, the item (CM3) ‘provision of study leave for individuals to acquire higher professional degrees’ is strongly correlated with employee competencies with a value of .699. All the items of career management has moderate correlation with employee competencies ranging from .581 to .699.

Multiple regression analysis was conducted to identify the parameters of career management that significantly predict employee competencies. The model summary shown in Table 5.6 provides the value of R^2 as .87, which implies that the parameters of career management explain 87 per cent of the observed variability in employee competencies. The remaining 13 per cent, which has not been explained by the items, may be related to other variables, which are not depicted in this model. The adjusted R^2 is a modified measure and has a value of .871 (close to the value of R^2), thus indicating the generalisability of the model. The F value ($F = 699.144$, $p < .001$) highlights that the variance explained by the predictor items are highly significant. The regression coefficients reveal that CM2, CM3, CM4, CM6, and CM8 are significant predictors of employee competencies.

Table 5.6: Model Summary, ANOVA, Coefficients and Collinearity Statistics

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.537	.066		8.198	.000		
CM2	.227	.013	.327	17.974	.000	.754	1.326
CM3	.139	.014	.196	10.114	.000	.664	1.505
CM4	.153	.014	.223	11.277	.000	.638	1.567
CM6	.200	.008	.421	25.378	.000	.909	1.100
CM8	.152	.012	.225	12.530	.000	.772	1.295

R = .934, $R^2 = .873$, Adjusted $R^2 = .871$, Std. Error of Estimate = .192, $F = 699.156$, Sig. = .000

Source: Compiled by the author.

Dependent variable: Employee Competencies; **Independent variables:** (Constant), CM2, CM3, CM4, CM6, CM8; **Excluded Items:** CM1, CM5, CM7, CM9

The highest beta coefficient is of item CM2 (.327), which depicts that ‘seniors are encouraging the subordinates towards individual career development’ has the strongest influence on employee competencies. The t-value is the measures of whether the predictor is making a significant contribution to the model. All the t-values associated with the beta coefficients are significant, which explains the substantial contribution of the career management parameters towards employee competencies. The model excludes CM1, CM5, CM7, and CM9 as they do not predict employee competencies considerably. The tolerance

index ranges from .638 to .909, and the VIF index ranges from 1.100 to 1.567, which reveals the absence of multicollinearity among career management items.

5.2.3 Performance Appraisal

Table 5.7 presents the descriptive statistics and correlations among all the parameters of performance appraisal and employee competencies. The item means reflect a range of values from 3.50 to 4.51 and shown in graph 5.3. The item with the highest mean is the ‘aware of performance appraisal procedure of the organization’ (PA1). The item with the lowest mean is ‘the appraisal system provides an opportunity for self-review and reflection’ (PA8). Inspection of the standard deviation of performance appraisal items reveals that all the values are around or little below 1. Pearson’s correlation coefficient determines the strength and direction of a relationship between the two parameters. The correlation between the items of performance appraisal varies from .156 to .551, suggesting moderate effects. Further, all the elements of performance appraisal are significantly correlated with employee competencies. Specifically, the item (PA4) ‘proper compensation and rewards are linked to employee performance’ is strongly correlated with employee competencies with a value of .712. All the items of performance appraisal has moderate correlations with employee competencies ranging from .584 to .712.

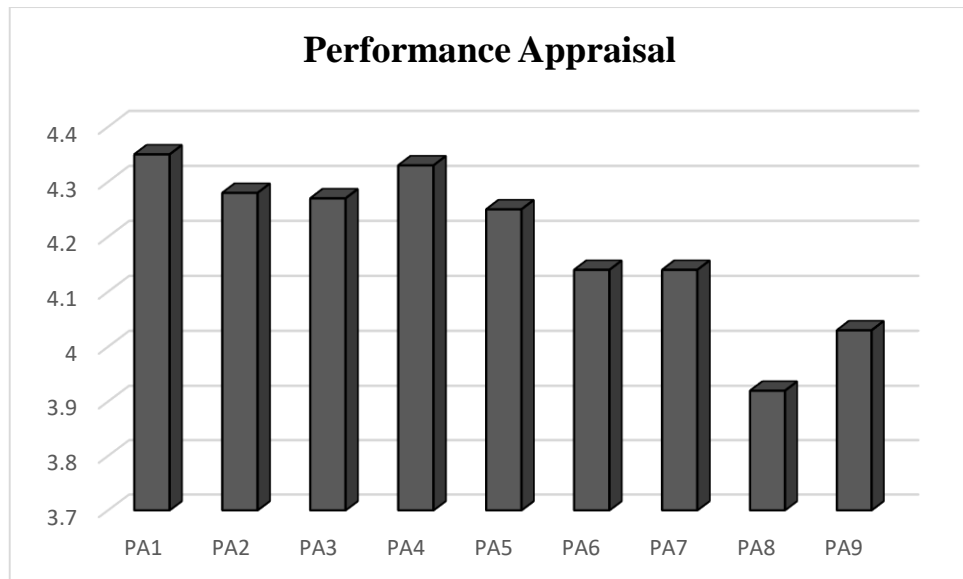
Table 5.7: Means, Standard Deviations and Correlations (Performance Appraisal)

Items	Mean	SD	EC	PA1	PA2	PA3	PA4	PA5	PA6	PA7	PA8	PA9
EC	4.14	.554	1									
PA1	4.35	.768	.618**	1								
PA2	4.28	.761	.651**	.455**	1							
PA3	4.27	.763	.673**	.441**	.551**	1						
PA4	4.33	.697	.712**	.464**	.500**	.499**	1					
PA5	4.25	.791	.622**	.416**	.430**	.509**	.500**	1				
PA6	4.14	.554	.610**	.416**	.370**	.390**	.472**	.520**	1			
PA7	4.14	.892	.662**	.411**	.434**	.359**	.409**	.269**	.378**	1		
PA8	3.92	1.016	.584**	.269**	.231**	.218**	.289**	.211**	.156**	.360**	1	
PA9	4.03	.554	.621**	.404**	.334**	.338**	.401**	.356**	.323**	.520**	.504**	1

Source: Compiled by the author.

Note: SD = Standard Deviation, EC = Employee Competencies

** p<.01, *p<.05



Graph 5.3 Mean Scores of the Performance Appraisal Items

Source: Compiled by the author.

Multiple regression analysis was conducted to identify the parameters of performance appraisal that significantly predict employee competencies. The model summary shown in Table 5.8 provides the value of R^2 as .868, which implies that the parameters of performance appraisal explain 86 per cent of the observed variability in employee competencies. The remaining 14 per cent, which has not been explained by the items, may be related to other variables, which are not depicted in this model. The adjusted R^2 is a modified measure and has a value of .867 (close to the value of R^2), thus indicating the generalisability of the model. The F value ($F = 670.693$, $p < .001$) highlights that the variance explained by the predictor items are highly significant. The regression coefficients reveal that PA1, PA3, PA4, PA5, and PA6 are significant predictors of employee competencies. The highest beta coefficient is of item PA5 (.334), which depicts that ‘appraisal system in organization bridges the gap between pay and performance’ has the strongest influence on employee competencies. The t-value is the measures of whether the predictor is making a significant contribution to the model. All the t-values associated with the beta coefficients are significant which explains the substantial contribution of the performance appraisal parameters towards employee competencies. The model excludes PA2, PA7, PA8, and PA9 as they do not predict employee competencies considerably. The tolerance index ranges from .549 to .843, and the VIF index ranges from 1.186 to 1.822, which reveals the absence of multicollinearity among performance appraisal items.

Table 5.8: Model Summary, ANOVA, Coefficients and Collinearity Statistics

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.390	.068		5.769	.000		
PA1	.165	.015	.227	10.659	.000	.572	1.748
PA3	.172	.016	.236	10.879	.000	.549	1.822
PA4	.188	.014	.233	12.094	.000	.679	1.474
PA5	.215	.018	.334	17.988	.000	.752	1.329
PA6	.161	.010	.296	16.902	.000	.843	1.186

R = .921, R² = .868, Adjusted R² = .867, Std. Error of Estimate = .202, F = 670.693, Sig. = .000

Source: Compiled by the author.

Note: **Dependent variable:** Employee Competencies; **Independent variables:** (Constant), PA1, PA3, PA4, PA5, PA6; Excluded Items: PA2, PA7, PA8, PA9

5.2.4 Team Building

Table 5.9 presents the descriptive statistics and correlations among all the elements of team building and employee competencies. The item means reflect a range of values from 3.20 to 4.48 and shown in graph 5.4. The item with the highest mean is the ‘everyone on the team knows and understands the team’s priorities’ (TB8). The item with the lowest mean is ‘everyone on team has a significant amount of influence on decisions that affect team performance’ (TB7). Inspection of the standard deviation of team building items reveals that all the values are around or little below 1. Pearson’s correlation coefficient determines the strength and direction of a relationship between the two parameters. The correlation between the items of team building varies from .201 to .578, suggesting moderate effects. Further, all the elements of team building are significantly related to employee competencies. Specifically, the item (TB1) ‘team members have the complementary skill sets to accomplish their roles within the team’ is strongly correlated with employee competencies with a value of .788. All the items of team building has moderate correlations with employee competencies ranging from .523 to .788.

Multiple regression analysis was conducted to identify the parameters of team building that significantly predict employee competencies. The model summary shown in Table 5.10 provides the value of R² as .810, which implies that the parameters of team building explain 81 per cent of the observed variability in employee competencies. The remaining 19 per cent, which has not been explained by the items, may be related to other variables, which are not depicted in this model. The adjusted R² is a modified measure and has a value of .808 (close to the value of R²), thus indicating the generalisability of the model. The F value (F = 435.465, p <.001) highlights that the variance explained by the predictor items are

highly significant. The regression coefficients reveal that TB1, TB4, TB5, TB8, and TB9 are significant predictors of employee competencies.

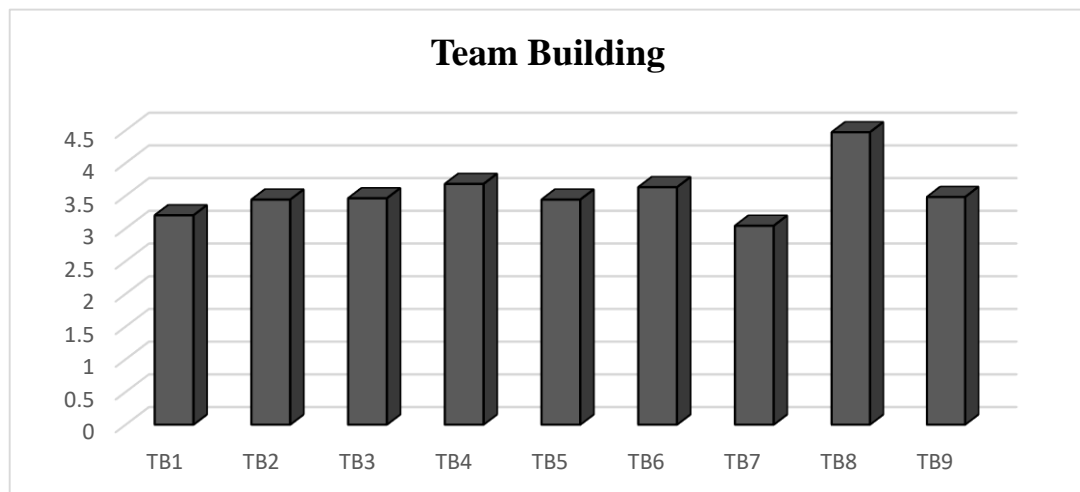
Table 5.9: Means, Standard Deviations and Correlations (Team Building)

Items	Mean	SD	EC	TB1	TB2	TB3	TB4	TB5	TB6	TB7	TB8	TB9
EC	3.91	.714	1									
TB1	3.20	1.443	.788**	1								
TB2	3.44	1.287	.725**	.457**	1							
TB3	3.46	1.268	.701**	.494**	.497**	1						
TB4	3.68	1.343	.750**	.578**	.436**	.452**	1					
TB5	3.44	1.219	.610**	.375**	.407**	.385**	.351**	1				
TB6	3.63	1.091	.637**	.389**	.430**	.401**	.359**	.441**	1			
TB7	3.04	.902	.611**	.395**	.387**	.393**	.346**	.515**	.485**	1		
TB8	4.47	.971	.523**	.333**	.348**	.324**	.270**	.376**	.359**	.433**	1	
TB9	3.48	.554	.550**	.268**	.250**	.215**	.201**	.360**	.322**	.356**	.467**	1

Source: Compiled by the author.

Note: SD = Standard Deviation EC = Employee Competencies

** p<.01, *p<.05



Graph 5.4 Mean Scores of the Team Building Items

Source: Compiled by the author.

The highest beta coefficient is of item TB1 (.334), which depicts that ‘team members have the complementary skill sets to accomplish their roles within the team’ has the strongest influence on employee competencies. The t-value is the measures of whether the predictor is making a significant contribution to the model. All the t-values associated with the beta coefficients are significant which explains the substantial contribution of the team building parameters towards employee competencies. The model excludes TB2, TB3, TB6 and TB7 as they do not predict employee competencies considerably. The tolerance index ranges from .265 to .800, and the VIF index ranges from 1.250 to 2.771, which reveals the absence of multicollinearity among team building items.

Table 5.10: Model Summary, ANOVA, Coefficients and Collinearity Statistics

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.898	.050		18.085	.000		
TB1	.133	.015	.268	8.637	.000	.385	2.595
TB4	.142	.021	.255	6.810	.000	.265	2.771
TB5	.133	.020	.234	6.625	.000	.298	2.359
TB8	.115	.017	.140	4.393	.000	.367	2.724
TB9	.105	.013	.179	8.283	.000	.800	1.250

R = .900, R² = .810, Adjusted R² = .808, Std. Error of Estimate = .314, F = 435.465, Sig. = .000

Source: Compiled by the author.

Note: **Dependent variable:** Employee Competencies; **Independent variables:** (Constant), TB1, TB4, TB5, TB8, TB9; Excluded Items: TB2, TB3, TB6, TB7

5.2.5 Employee Empowerment

Table 5.11 presents the descriptive statistics and correlations among parameters of employee empowerment and employee competencies. The employee empowerment item means reflect a range of values from 3.19 to 4.21 and shown in graph 5.5. The item with the highest mean is the ‘accessibility to the information and resources need to perform in a better way’ (EE6). The item with the lowest mean is ‘there is freedom to express views even if it is contrary to the resolutions to be taken’ (EE7). Inspection of the standard deviation of employee empowerment items reveals that all the values are around or little below 1. Pearson’s correlation coefficient determines the strength and direction of a relationship between the two parameters. The correlation between the items of employee empowerment varies from .237 to .556, suggesting moderate effects. Further, all the elements of employee empowerment have a strong and positive correlation with employee competencies. Specifically, the item (EE4) ‘prior discussion of superiors with subordinates on implementation of any policy, procedure, rules and regulations’ is strongly correlated with employee competencies with a value of .627. All the items of employee empowerment has moderate correlations with employee competencies ranging from .585 to .742.

Multiple regression analysis was conducted to identify the parameters of employee empowerment that significantly predict employee competencies. The model summary shown in Table 5.12 provides the value of R² as .858, which implies that the parameters of performance appraisal explain 85.8 per cent of the observed variability in employee competencies. The remaining 14.2 per cent, which has not been explained by the items, may be related to other variables, which are not depicted in this model. The adjusted R² is a modified measure and has a value of .857 (close to the value of R²), thus indicating the

generalisability of the model. The F value ($F = 616.362$, $p < .001$) highlights that the variance explained by the predictor items are highly significant. The regression coefficients reveal that EE3, EE4, EE5, EE6, and EE9 are significant predictors of employee competencies. The highest beta coefficient is of item EE9 (.292), which depicts that ‘prior discussion of superiors with subordinates on implementation of any policy, procedure, rules and regulations’ has the strongest influence on employee competencies. The t-value is the measures of whether the predictor is making a significant contribution to the model.

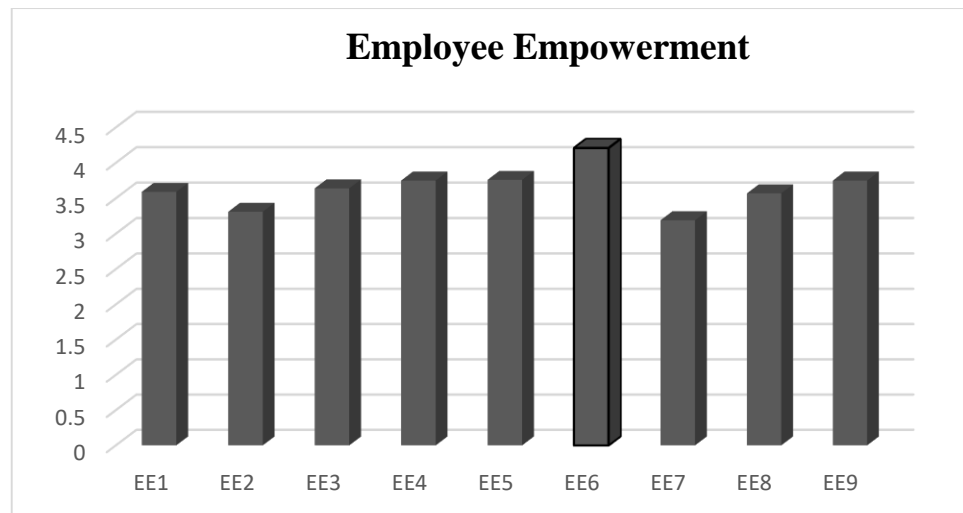
Table 5.11: Means, Standard Deviations and Correlations (Employee Empowerment)

Items	Mean	SD	EC	EE1	EE2	EE3	EE4	EE5	EE6	EE7	EE8	EE9
EC	2.91	.718	1									
EE1	3.59	1.134	.708**	1								
EE2	3.31	1.144	.606**	.486**	1							
EE3	3.64	1.088	.720**	.503**	.556**	1						
EE4	3.75	1.060	.727**	.427**	.425**	.484**	1					
EE5	3.76	1.138	.644**	.422**	.469**	.502**	.490**	1				
EE6	4.21	1.027	.585**	.388**	.307**	.369**	.421**	.443**	1			
EE7	3.19	1.438	.662**	.425**	.338**	.405**	.397**	.341**	.404**	1		
EE8	3.57	1.216	.700**	.439**	.360**	.475**	.439**	.430**	.429**	.518**	1	
EE9	3.75	1.257	.742**	.362**	.237**	.367**	.385**	.419**	.410**	.511**	.432**	1

Source: Compiled by the author.

Note: SD =Standard Deviation, EC = Employee Competencies

** $p < .01$, * $p < .05$



Graph 5.5 Mean Scores of the Employee Empowerment Items

Source: Compiled by the author.

All the t-values associated with the beta coefficients are significant which explains the substantial contribution of the employee empowerment parameters towards employee competencies. The model excludes EE1, EE2, EE7, and EE8 as they do not predict

employee competencies considerably. The tolerance index ranges from .395 to .585, and the VIF index ranges from 1.710 to 2.535, which reveals the absence of multicollinearity among employee empowerment items.

Table 5.12: Model Summary, ANOVA, Coefficients and Collinearity Statistics

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.197	.051		3.869	.000		
EE3	.131	.016	.208	8.413	.000	.457	2.189
EE4	.108	.018	.164	6.166	.000	.395	2.535
EE5	.169	.016	.249	10.297	.000	.475	2.104
EE6	.165	.014	.279	12.137	.000	.525	1.904
EE9	.167	.012	.292	13.389	.000	.585	1.710

R = .926, R² = .858, Adjusted R² = .857, Std. Error of Estimate = .272, F = 616.362, Sig. = .000

Source: Compiled by the author.

Dependent variable: Employee Competencies; **Independent variables:** (Constant), EE3, EE4, EE5, EE6, EE9; Excluded Items: EE1, EE2, EE7, EE8

5.2.6 Organizational Learning Culture

Table 5.13 provides the descriptive statistics for the elements of organizational learning culture. The item with the highest mean is ‘organization provides the required resources as desired by the employees relating to the assigned job’ (OLC3) with a score of 4.35. The parameter with the lowest mean is ‘employees continually look for opportunities to learn’ (OLC6) with a score of 3.77. Examination of the standard deviation of the elements under organizational learning culture reveal that all the scores are below 1.

Table 5.13: Means and Standard Deviations of organizational learning culture

Items	OLC1	OLC2	OLC3	OLC4	OLC5	OLC6	OLC7
Mean	4.01	4.26	4.35	4.10	3.95	3.77	3.92
SD	.892	.855	.867	.864	.940	.953	.967

Source: Compiled by the author, **Note:** SD = Standard Deviation

5.2.7 Employee Competencies

Table 5.14 provides the descriptive statistics for the elements of employee competencies. The item with the highest mean is ‘employees are exhibiting positive job attitude’ (EC1) with a score of 4.59. The parameter with the lowest mean is ‘people demonstrate team spirit while working in teams’ (EC6) with a score of 3.15. Examination of the standard deviation of the elements under employee competencies reveal that all the scores are below 1.

Table 5.14: Means and Standard Deviations of Employee Competencies

Items	EC1	EC2	EC3	EC4	EC5	EC6	EC7
Mean	4.59	4.30	4.18	4.26	4.18	3.15	3.78
SD	.592	.840	.828	.834	.917	.853	.867

Source: Compiled by the author, Note: SD = Standard Deviation

5.2.8 Goal Oriented Approach to Organizational Effectiveness

Table 5.15 provides the descriptive statistics and correlations for the elements of goal-oriented approach to organizational effectiveness. The item with the highest mean is ‘organization focuses on optimal utilization of resources’ (OPT2) with a score of 4.18. The parameter with the lowest mean is ‘employees are ready to accept any kind of change which is required for the organization’ (COHES3) with a score of 3.01. The values of SD of the items under goal-oriented approach is less than 1.3.

Table 5.15: Means and Standard Deviations of Goal Oriented Approach to Organizational Effectiveness

Items	OPT 1	OPT 2	OPT 3	PROD 1	PROD 2	PROD 3	COHE S1	COHE S2	COHE S3	COHE S4
Mean	3.72	4.18	3.71	3.73	4.00	3.52	4.16	3.88	4.01	3.19
SD	1.02	1.23	1.09	1.06	1.25	1.07	1.20	1.09	1.06	1.01

Source: Compiled by the author, Note: SD = Standard Deviation

5.2.9 Competing Values Approach to Organizational Effectiveness

Table 5.16 provides the descriptive statistics and correlations for the elements of competing values approach to organizational effectiveness. The item with the highest mean is ‘employees are committed towards organizations goals and objectives’ (FLEX1) with a score of 3.97. The parameter with the lowest mean is ‘Adoption of new business policy and strategy in order to get a competitive advantage’ (ADP2) with a score of 3.17. The values of SD of the items under competing values approach to organizational effectiveness is varying in between 1 to 1.4.

Table 5.16: Means and Standard Deviations of Competing Values Approach to Organizational Effectiveness

Items	ADP1	ADP2	ADP3	FLEX1	FLEX2	FLEX3	INNO1	INNO2	INNO3	INNO4
Mean	3.57	3.17	3.55	3.97	3.83	3.78	3.75	3.86	3.75	3.86
SD	1.20	1.21	1.23	1.31	1.06	1.10	1.06	1.01	1.06	1.11

Source: Compiled by the author, Note: SD = Standard Deviation

Thus, the preliminary analyses of obtained data revealed that the average scores of the study variables range between 2.91 to 4.59. The standard deviations of all the study items were ranging between 0.554 and 1.44. The correlation among the items of study variables was

significant. The regression analysis disclosed that the variables of HRD interventions significantly predicted employee competencies with R^2 values ranging from .663 to .87 depicting that more than 50% of the variance in dependent variable was explained by independent variables. All the regression models were statistically significant at .01 levels.

5.3 Validation of the Hypothesised Research Model

Anderson and Gerbing (1992) have suggested a two-step approach to conduct structural equation modelling; the first phase is to ascertain the appropriateness of the measurement model and the second phase is to test the structural model. Prior to conducting structural equation modelling, exploratory factor analysis (EFA) was performed for reduction of the number of attributes per each latent variable and improving the statistical power of the hypothesised research model. The factors extracted from EFA were subjected to confirmatory factor analysis in the measurement model. Further, the proposed research model and the hypotheses of the study are validated with the help of structural equation modelling (SEM).

5.3.1 Exploratory Factor Analysis

An EFA with the principal component method and varimax rotation was carried out by investigating the eighty-six items that cover all the study variables. The most common type of factor rotation is a process called varimax. Varimax rotation is an orthogonal rotation of the factor axes to maximize the variance of the squared loadings of a factor (column) on all the variables (rows) in a factor matrix, which has the effect of differentiating the original variables by extracted factor (Field, 2009). Each factor will tend to have either large or small loadings of any particular variable. A varimax solution yields results, which make it as easy as possible to identify each variable with a single factor. This is the most common rotation option. Orthogonal rotation is used if the factors are not correlated else, an oblique rotation is used. The name of the latent construct is based on the interpretation of the pattern of loadings and the content of the variables. The items were subjected to a series of EFA to obtain theoretically meaningful dimensions. Eventually, sixty-four attributes were retained which had communalities greater than .5, factor loadings above .6 and there is no cross-load on other components (Hair et al., 2014). Two statistical measures have established the suitability of the EFA, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy, and Bartlett’s test of sphericity. The KMO value ranges from 0 to 1, and a value closer to 1 specifies that the patterns of correlation among attributes can generate unique and

consistent factors. Hutcheson and Sofroniou (1999) specified that the KMO measure above .8 is meritorious. A Bartlett's test of Sphericity assesses the assumption that the correlation matrix is an identity matrix, which means that the attributes have no correlation with each other.

Table 5.17: KMO and Bartlett's Test

<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>		.890
	Approx. Chi-Square	56206.057
<i>Bartlett's Test of Sphericity</i>	Df	1770
	Sig.	***

Source: Compiled by the author.

*** p <.001

Table 5.17 shows the KMO value as 0.890, suggesting that items can yield distinctive and reliable factors. The Bartlett's test of Sphericity reveals a chi-square statistic of 56206.057 with 1770 degrees of freedom, which is significant at .001 levels. The results reject the assumption that the correlation matrix is an identity matrix, and there is a significant correlation among some of the attributes.

The communality of an item is the percentage of variance that is common with other items considered and varies from 0 to 1. The attributes having a communality of less than .5 do not provide sufficient explanation of the common variance (MacCallum et al., 1999). The communalities of the attributes presented in table 5.18 are in a range of .613 to .897 indicating that all the items have an adequate amount of shared variance with other items. Table 5.19 highlights that thirteen factors were extracted with eigenvalues greater than 1 that collectively justify about 86.45% of the variance. The variance attributed to the first factor is substantially larger than rest of the twelve factors. The rotated component matrix of the loaded attributes is derived by adopting varimax rotation (table 5.20). The varimax rotation maximises the dispersion of loadings within factors by loading a small number of variables on each factor to facilitate in better interpretation of factors. Osborne and Costello (2009:138) recommend, "A factor with fewer than three items is weak and unstable while five or more items with loadings above .6 are desirable and indicate a solid factor". All the extracted factors of the study have at least three items, and the factor loadings of all elements are greater than .6. Thus, all the extracted factors prove to be concrete and reliable. Moreover, the sixty-four items loaded extensively on the thirteen factors representing the study variables (table 5.21).

Table 5.18: Communalities of Loaded Items

<i>Loaded Items</i>	<i>Communalities</i>
ADP1	.782
ADP2	.678
PROD1	.745
PA1	.840
PA3	.864
OLC1	.715
OLC2	.716
TD1	.747
TD3	.642
CM3	.677
PA4	.850
PA5	.868
PA6	.667
EC1	.892
EC2	.743
EC3	.892
INNO1	.673
INNO2	.886
EE3	.770
EE4	.884
EE5	.746
EE6	.740
INNO3	.659
CM4	.664
TB1	.710
TB4	.838
TB5	.623
CM2	.667
COHES1	.820
COHES2	.828
PROD2	.757
OLC3	.727
PROD3	.753
EC5	.897
INNO4	.627
OLC4	.613
TB8	.623
TD4	.647
COHES3	.821
TD7	.801
COHES4	.812
EC6	.637
EE9	.855
TB9	.826
FLEX1	.717

OPT1	.762
OPT2	.756
OPT3	.680
ADP3	.682
OLC5	.781
OLC6	.771
OLC7	.748
TD8	.822
TD5	.864
CM8	.691
FLEX2	.855
FLEX3	.753
CM6	.647

Source: Compiled by the author.

Table 5.19: Total Variance Explained by Extracted Factors

<i>Factor</i>	<i>Initial Eigenvalues</i>			<i>Extraction Sums of Squared Loadings</i>			<i>Rotation Sums of Squared Loadings</i>		
	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>
1	19.080	31.800	31.800	19.080	31.800	31.800	6.204	10.340	10.340
2	6.680	11.133	42.934	6.680	11.133	42.934	5.203	8.671	19.011
3	4.868	8.113	51.047	4.868	8.113	51.047	4.890	8.150	27.162
4	3.789	6.314	57.361	3.789	6.314	57.361	4.272	7.119	34.281
5	3.334	5.557	62.918	3.334	5.557	62.918	4.242	7.070	41.351
6	3.127	5.212	68.130	3.127	5.212	68.130	4.212	7.020	48.371
7	2.214	3.690	71.820	2.214	3.690	71.820	4.171	6.952	55.323
8	1.957	3.261	75.081	1.957	3.261	75.081	4.049	6.749	62.072
9	1.782	2.970	78.051	1.782	2.970	78.051	3.607	6.011	68.083
10	1.567	2.612	80.663	1.567	2.612	80.663	2.939	4.898	72.981
11	1.263	2.105	82.768	1.263	2.105	82.768	2.918	4.864	77.845
12	1.118	1.863	84.631	1.118	1.863	84.631	2.875	4.792	82.636
13	1.096	1.827	86.458	1.096	1.827	86.458	2.293	3.822	86.458

Source: Compiled by the author.

Note: Extraction Method: Principal Component Analysis.

Table 5.20: Rotated Component Matrix of Extracted Factors

Loaded Items	Factor												
	1	2	3	4	5	6	7	8	9	10	11	12	13
OLC3	.918												
OLC2	.903												
OLC1	.897												
OLC4	.857												
OLC5	.833												
OLC6	.832												
OLC7	.813												
TD3		.884											
TD4		.882											
TD1		.877											
TD5		.858											
TD7		.852											
TD8		.833											
CM2			.873										
CM3			.871										
CM4			.863										
CM6			.857										
CM8			.718										
TB5				.827									
TB8				.825									
TB1				.813									
TB4				.789									
TB9				.786									
PA5					.801								
PA3					.797								
PA4					.772								
PA1					.768								
PA6					.645								
EC5						.827							
EC3						.821							
EC1						.820							
EC2						.765							
EC6						.726							
EE4							.867						
EE9							.854						
EE3							.792						

Table 5.21: Extracted Factors

<i>Factors</i>	<i>Extracted Items</i>
Training and Development	TD1, TD3, TD4, TD5, TD7, TD8
Career Management	CM2, CM3, CM4, CM6, CM8
Performance Appraisal	PA1, PA3, PA4, PA5, PA6
Team Building	TB1, TB4, TB5, TB8, TB9
Employee Empowerment	EE3, EE4, EE5, EE6, EE9
Organizational Learning Culture	OLC1, OLC2, OLC3, OLC4, OLC5, OLC6, OLC7
Employee Competencies	EC1, EC2, EC3, EC5, EC6
Optimization of Resources	OPT1, OPT2, OPT3
Productivity and Product Quality	PROD1, PROD2, PROD3
Cohesive Workforce	COHES1, COHES2, COHES3, COHES4
Organizational Adaptation	ADP1, ADP2, ADP3
Organizational Flexibility	FLEX1, FLEX2, FLEX3
Organizational Innovation	INNO1, INNO2, INNO3, INNO4

Source: Compiled by the author.

5.3.2 Correlations

Table 5.22 shows the bivariate correlations of control variables and study variables. The control variables selected for the correlation are age, gender, education, designation and organization the respondent belongs. The study variables selected for the correlation analysis are training & development, career management, performance appraisal, team building, employee empowerment, organizational learning culture, employee competencies, optimization of resource, product quality and productivity, cohesive workforce, organizational adaptation, organizational innovation and organizational flexibility. The results of bivariate correlations shows that the education and work experience are significantly correlated with employee competencies, whereas remaining control variables are not significantly correlated with any study variables. Whereas, the study variables are positively and significantly inter-correlated with each other. The correlation among the study variables ranges between .108 and .520. Employee competencies is strongly correlated with organizational innovation with a Pearson correlation value of .520, whereas, career management is weakly correlated with optimization of resources with a Pearson correlation values of .108.

Table 5.22: Bivariate Correlations between Control Variables and Study Variables

	GEN	AGE	EDU	WEXP	DESG	ORG	ADP	PROD	OPT	COHE	INNO	EE	EC	PA	TB	CM	TD	OLC	FLEX	
GEN	1																			
AGE	.043	1																		
EDU	.018	.008	1																	
WEXP	-.048	.066	.052	1																
DESG	.026	.008	.034	.053	1															
ORG	-.200	.049	.072	.004	-.039	1														
ADP	.040	.054	.025	.002	-.019	-.034	1													
PROD	.017	.019	.075	.007	-.004	-.059	.510**	1												
OPT	.024	.007	.001	.063	.001	.059	.128**	.112*	1											
COHE	-.092	.020	.020	.058	-.047	.055	.218**	.190**	.151**	1										
INNO	.069	-.035	.026	.086	.003	-.011	.280**	.292**	.109*	.211**	1									
EE	.049	.040	.006	.015	.034	-.035	.369**	.291**	.166*	.217**	.451**	1								
EC	.054	.011	.040*	.039*	.006	-.028	.323**	.281**	.191*	.158**	.520**	.471**	1							
PA	.020	-.060	.025	.009	.025	-.009	.386**	.412**	.194**	.252**	.449**	.338**	.395**	1						
TB	.017	.022	.012	.012	-.029	-.007	.230**	.139**	.135*	.421**	.221**	.276**	.203**	.215**	1					
CM	.011	-.043	.020	.078	.019	.028	.285**	.326**	.108*	.249**	.380**	.362**	.433**	.436**	.188**	1				
TD	-.018	-.056	.062	.030	.008	.009	.143**	.109*	.471**	.292**	.275**	.184**	.278**	.310**	.214**	.238**	1			
OLC	-.041	-.016	.007	.061	.027	-.036	.186**	.172**	.298**	.277**	.252**	.200**	.287**	.320**	.184**	.293**	.496**	1		
FLEX	.045	-.037	.002	.111	.027	-.035	.337**	.330**	.110*	.281**	.449**	.426**	.444**	.489**	.178**	.355**	.301**	.337**	1	

Source: Compiled by the author.

Note: GEN = Gender; EDU = Education; WEXP = Work Experience; DESG = Designation; ORG = Organization ADP = Organizational Adaptation; PROD = Product Quality and Productivity; OPT = Optimization of Resources; COHE = Cohesive Workforce; INNO = Organizational Innovation; EE = Employee Empowerment; EC = Employee Competencies; PA = Performance Appraisal; TB = Team Building; CM = Career Management; TD = Training and Development; OLC = Organizational Learning Culture; FLEX = Organizational Flexibility

** p<.01, *p<.05

5.3.3 Measurement Model

The first step of SEM is to conduct a confirmatory factor analysis to evaluate the indicators and their latent construct in the measurement model and establish the considerable difference between the various construct. As observed in figure 5.1, the measurement model of the study comprised of thirteen latent constructs and sixty four indicators. Each indicator had only one path from the latent construct, and all the latent constructs were correlated with each other. The model fit of the measurement model was investigated through several model fit indices. The indices comprises of the absolute fit measures such as normed chi-square (χ^2/df), goodness of fit index (GFI) and root mean square error of approximation (RMSEA); the incremental fit measures such as Tucker-Lewis index (TLI) and comparative fit index (CFI); and the parsimony fit measures such as adjusted goodness of fit index (AGFI) and parsimony comparative fit index (PCFI). A model has acceptable fit when it has χ^2/df in the range of 5 to 1 (Arbuckle, 2009); RMSEA lower than 0.08 (Browne and Cudeck, 1993); GFI, TLI and CFI values greater than 0.9 (Hu and Bentler, 1999) with AGFI and PCFI values greater than 0.5 and close to the value of GFI and CFI (Mulaik et al., 1989). Further, Hoelter's statistics estimates the sample size required to yield adequate model fit (Byrne, 2010). The model fit indices showcased in table 6.35 which conclude all the thirteen latent constructs of research model obtained satisfactory fit ($\chi^2/df=1.986$, GFI=.904, RMSEA=.065, TLI=.929, CFI=.935, AGFI=.872, PCFI=.857, Hoelter = 346 (.05), 368 (.01), $p<.001$).

Table 5.23: Model Fit Indices of the Measurement Model

<i>Fit Index</i>	<i>Observed Values</i>	<i>Threshold Values</i>
Absolute fit measures		
CMIN/DF	1.986	$\leq 2^{**}$; $\leq 3^*$; $\leq 5^*$
GFI	.921	$\geq .90^{**}$; $\geq .80^*$
RMSEA	.065	$\leq .08$
Incremental fit measures		
TLI	.949	$\geq .90^{**}$; $\geq .80^*$
CFI	.935	$\geq .90^{**}$; $\geq .80^*$
Parsimonious fit measures		
AGFI	.882	The higher, the better
PCFI	.877	The higher, the better
HOELTER		346 (.05), 368 (.01)

Source: Compiled by the author.

Note: Acceptability: ** Acceptable, *Marginal.

Convergent and Discriminant Validity

Convergent validity concerns with the degree to which the indicators of a specific construct share a large proportion of variance in common. It is examined by observing the

standardised factor loadings of the indicators, average variance extracted (AVE), and the composite reliability (CR). The indicators of each latent construct should ideally have a loading higher than .5 (Hair et al., 2014). AVE is the mean variance described by the indicators of a latent construct, and the score should be higher than .5 (Fornell and Larcker, 1981). CR is square of the sum of factor loadings with respect to the square of the sum of the factor loadings plus the sum of error variables and the score should be greater than .7 (Peterson and Kim, 2013). Table 5.24 depicts that the each indicator loaded significantly on the particular construct with standardised loadings higher than 0.5. The score of AVE and CR for all the latent constructs were also above the threshold value. The discriminant validity is the degree to which a particular construct is distinct from other constructs. It is determined by comparing the shared variances between construct with the square root AVE of the specific construct. Table 5.25 exhibited that the square root of AVE of the constructs (in bold) is greater than the shared variance between the constructs which confirm the distinctiveness of each construct.

Table 5.24: Convergent Validity

<i>Constructs</i>	<i>Measurement Items</i>	<i>Standardised Estimates</i>	<i>AVE</i>	<i>CR</i>	<i>p value</i>
Training and Development	TD1	0.875	0.695	0.931	***
	TD3	0.894			
	TD4	0.889			
	TD5	0.747			
	TD7	0.845			
	TD8	0.737			
Career Management	CM2	0.880	0.578	0.871	***
	CM3	0.770			
	CM4	0.784			
	CM6	0.668			
	CM8	0.679			
Performance Appraisal	PA1	0.792	0.612	0.887	***
	PA3	0.890			
	PA4	0.763			
	PA5	0.756			
	PA8	0.698			
Team Building	TB1	0.784	0.610	0.886	***
	TB4	0.892			
	TB5	0.741			
	TB8	0.731			
	TB9	0.736			
Employee Empowerment	EE3	0.890	0.589	0.877	***
	EE4	0.720			
	EE5	0.768			
	EE6	0.724			

	EE9	0.721			
	OLC1	0.894			
	OLC2	0.767			
Organizational Learning Culture	OLC3	0.771			
	OLC4	0.684	0.550	0.894	***
	OLC5	0.657			
	OLC6	0.661			
	OLC7	0.729			
	EC1	0.890			
	EC2	0.830			
Employee Competencies	EC3	0.750	0.593	0.878	***
	EC5	0.680			
	EC6	0.678			
	OPT1	0.777			
Optimization of Resources	OPT2	0.730	0.524	0.767	***
	OPT3	0.660			
	PROD1	0.764			
Productivity and Product Quality	PROD2	0.760	0.537	0.776	***
	PROD3	0.670			
	COHES1	0.760			
Cohesive Workforce	COHES2	0.840			
	COHES3	0.763	0.577	0.872	***
	COHES4	0.755			
	ADP1	0.810			
Organizational Adaptation	ADP2	0.710	0.545	0.782	***
	ADP3	0.690			
	FLEX1	0.859			
Organizational Flexibility	FLEX2	0.742	0.666	0.856	***
	FLEX3	0.842			
	INNO1	0.850			
Organizational Innovation	INNO2	0.770			
	INNO3	0.744	0.587	0.850	***
	INNO4	0.692			

Source: Compiled by the author.

*** $p < .001$

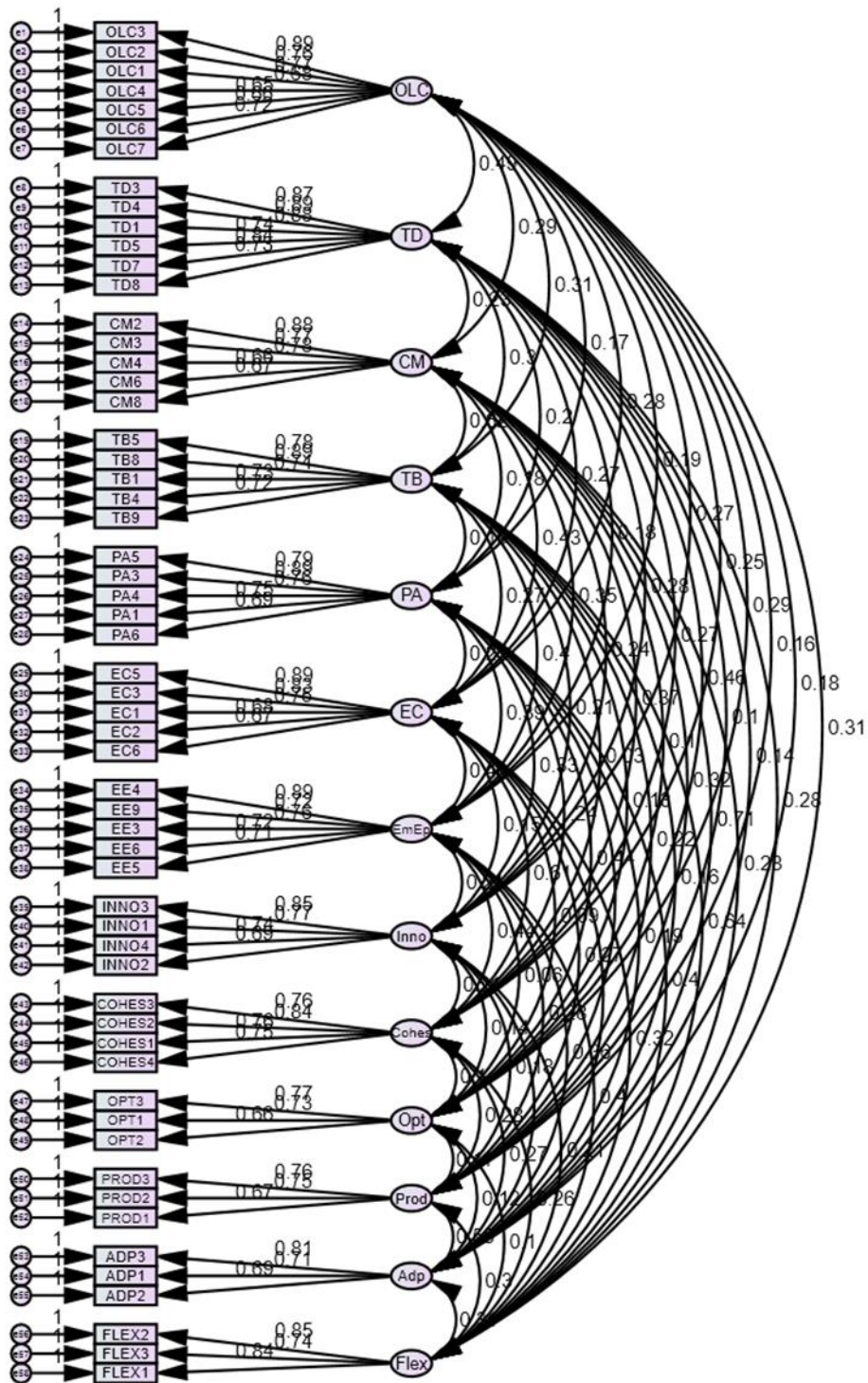


Figure 5.1: Measurement Model
 Source: Compiled by the author.

Table 5.25: Discriminant Validity

	ADP	OLC	TD	CM	PM	TB	EC	EE	COHE	INNO	OPT	PROD	FLEX
ADP	0.739												
OLC	0.185	0.742											
TD	0.142	0.493	0.834										
CM	0.283	0.292	0.237	0.760									
PM	0.382	0.314	0.307	0.627	0.782								
TB	0.225	0.178	0.209	0.185	0.211	0.781							
EC	0.321	0.285	0.277	0.431	0.390	0.196	0.770						
EE	0.365	0.198	0.182	0.359	0.333	0.271	0.467	0.767					
COHE	0.216	0.274	0.289	0.246	0.247	0.408	0.157	0.216	0.760				
INNO	0.279	0.251	0.274	0.379	0.446	0.217	0.617	0.447	0.210	0.766			
OPT	0.127	0.296	0.469	0.107	0.191	0.031	0.091	0.065	0.149	0.109	0.724		
PROD	0.582	0.169	0.107	0.322	0.405	0.133	0.277	0.286	0.188	0.288	0.111	0.733	
FLEX	0.317	0.316	0.282	0.711	0.643	0.163	0.417	0.400	0.262	0.422	0.103	0.307	0.816

Source: Compiled by the author.

Note: Diagonal elements (bold) in the correlation matrix of constructs are the square root of AVE values. For discriminant validity to be present, the diagonal values must be greater than the off diagonal values.

ADP = Organizational Adaptation; PROD = Product Quality and Productivity; OPT = Optimization of Resources; COHE = Cohesive Workforce; INNO = Organizational Innovation; EE = Employee Empowerment; EC = Employee Competencies; PA = Performance Appraisal; TB = Team Building; CM = Career Management; TD = Training and Development; OLC = Organizational Learning Culture; FLEX = Organizational Flexibility.

Thus, the measurement model of the study variables demonstrated adequate convergent and discriminant validity and was prepared for inclusion in the structural model.

5.3.4 Structural Model

Hui et al., (2014) said, “Structural equation modeling (SEM) has gained popularity because of its superior ability to handle multiple variables simultaneously and combine factor analysis with path analysis”. The latter provision is particularly notable, because measurement errors can bias estimates of path coefficients (Bollen, 1989). The present study has conducted SEM using AMOS 20 package to examine the hypotheses, which involved both mediation and moderation effects. Although various, similar methods have been proposed to examine moderating effects using SEM (Kenny and Judd, 1984; Mathieu et al., 1992; Ping, 1995), Cortina et al., (2001) suggest that Mathieu et al.’s (1992) method is “especially useful when testing more complicated theoretical models that include both

mediated and moderated relationships.” Hui et al., (2014) stated that, “This method diminishes the complexity of SEM by reducing latent variables (e.g., interaction term between the independent variable and the moderator) to single indicators. Thus, it enhances the likelihood of specifying the tested model. A second advantage is that the formulas used to estimate the various psychometric properties (e.g., loading and error variance) are based on classic psychometric theories.” In this research, the structural model is discussed in two phases to validate the hypotheses of the study. The first phase validates the sub hypotheses (H_{1a} - H_{1e}, H_{2a} - H_{2e}, H_{3a} - H_{3c}, and H_{4a} - H_{4c}) of the hypothesized model. The second phase validates hypotheses H₁ to H₈, where the whole model is tested.

Test of Hypotheses

The first phase tested the model depicting the variables of the HRD interventions namely training and development (TD), career management (CM), performance appraisal (PA), team building (TB), employee empowerment (EE) and its relationship with employee competencies (H_{1a} - H_{1e}). Further, tested the moderating role of organizational learning culture between HRD interventions and employee competencies (H_{2a} - H_{2e}). Lastly, assessed the relationships between employee competencies and goal-oriented approach (H_{3a} - H_{3c}) and competing values approach of organizational effectiveness (H_{4a} - H_{4c}). Assessment of all fit indices with their threshold values, evidenced that the model has a good fit ($\chi^2/df=2.991$, GFI=.910, RMSEA=.062, TLI=.932, CFI=.937, AGFI=.882, PCFI=.868, Hoelter =326 (.05), 348 (.01), $p<.001$). The model fit indices are summarised in table 5.26. The structural model with standardised path coefficients is shown in figure 5.2. The adjusted R² of the employee competencies and attributes of organizational effectiveness are ranging from .50 to .56, which are explaining moderate variance (Hair et al., 2013)

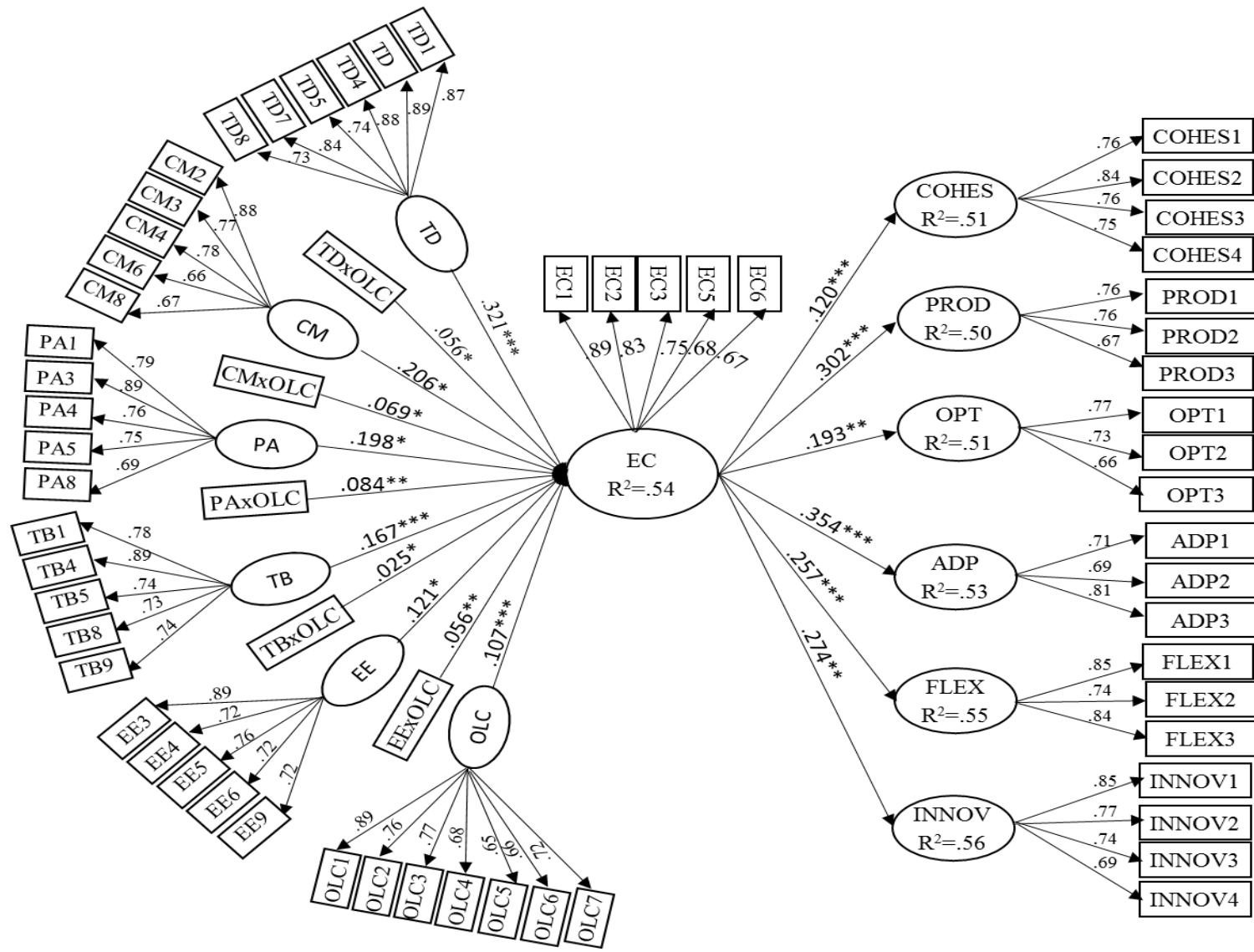


Figure 5.2: Path analysis showing Moderating role of OLC on HRDI and EC; relationship of EC to OE.

Source: Compiled by the author

Table 5.26: Model Fit Indices of the Measurement Model

<i>Fit Index</i>	<i>Observed Values</i>	<i>Threshold Values</i>
Absolute fit measures		
CMIN/DF	2.991	$\leq 2^{**}$; $\leq 3^*$; $\leq 5^*$
GFI	.910	$\geq .90^{**}$; $\geq .80^*$
RMSEA	.062	$\leq .08$
Incremental fit measures		
TLI	.932	$\geq .90^{**}$; $\geq .80^*$
CFI	.937	$\geq .90^{**}$; $\geq .80^*$
Parsimonious fit measures		
AGFI	.882	The higher, the better
PCFI	.868	The higher, the better
HOELTER		326 (.05), 348 (.01)

Source: Compiled by the author.

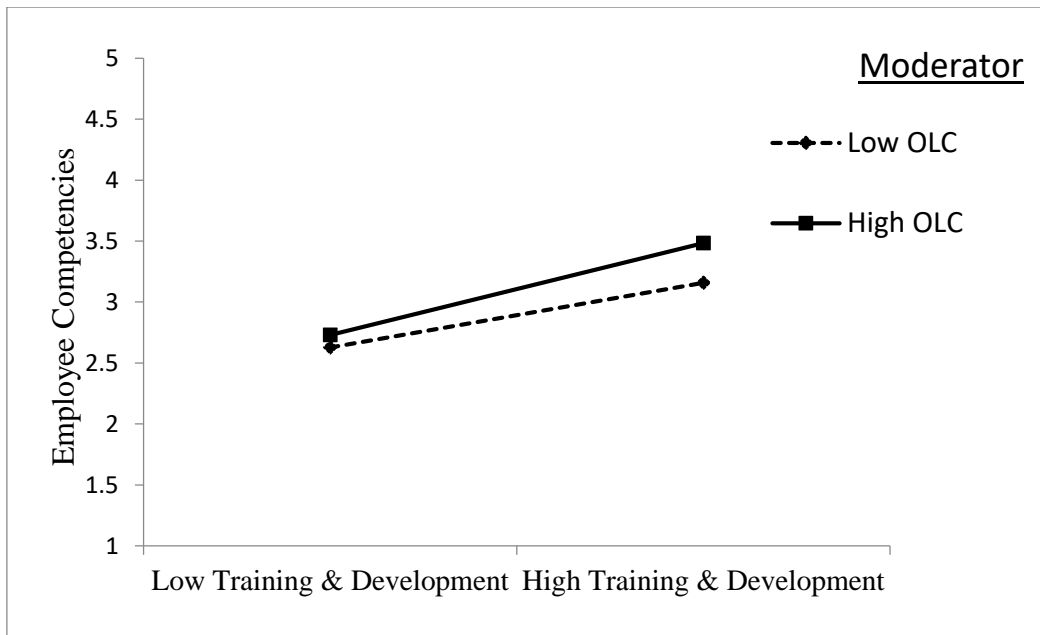
Note: Acceptability: ** Acceptable, *Marginal.

HRD interventions and employee competencies

The examination of the path coefficients of the structural model reveal that the effect of training and development on employee competencies was significant ($\beta = .321$, $p < .01$). Thus, H_{1a} is supported. As hypothesised, career management had a positive and significant impact on employee competencies ($\beta = .206$, $p < .05$). Therefore, H_{1b} is supported. Performance appraisal was found to be a significant factor in determining employee competencies ($\beta = .198$, $p < .05$), supporting hypotheses H_{1c} . Team building had a positive and significant association with employee competencies ($\beta = .167$, $p < .001$) and H_{1d} is accepted. The impact of employee empowerment on employee competencies was found to be significant ($\beta = .121$, $p < .05$). Therefore, H_{1e} is supported.

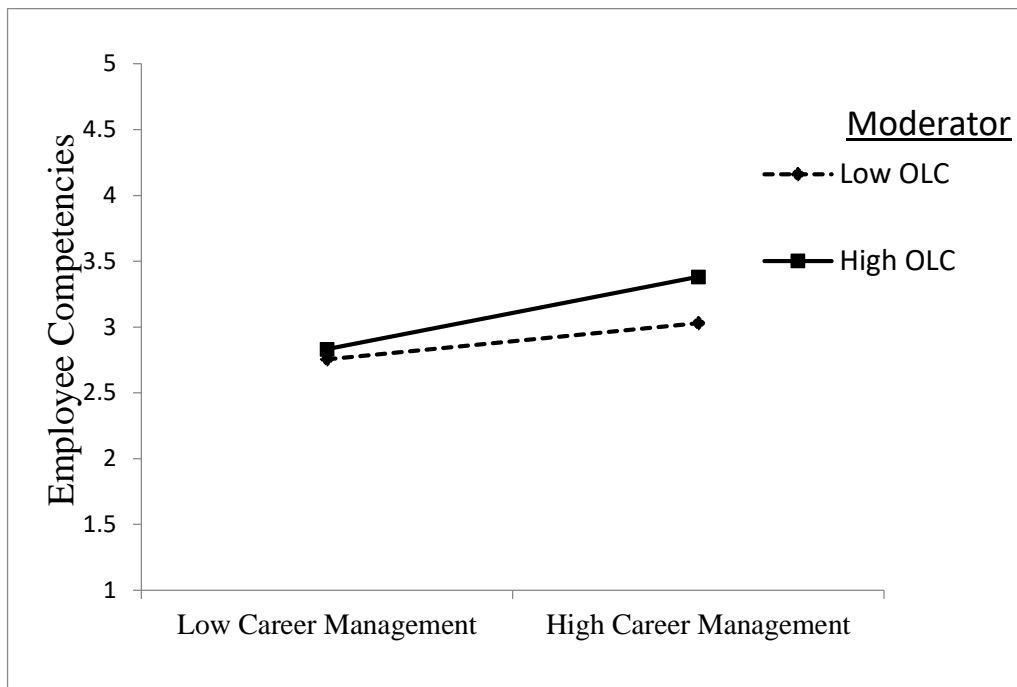
Moderating role of organizational learning culture

Several procedures for testing the interaction (moderating) effects in SEM have been forwarded (Jaccard and Wan, 1996; Joreskog and Yang, 1996; Mathieu et al., 1992; Ping 1995). Cortina et al. (2001) found that all procedures produced very similar results. Present study adopted Ping's (1995) approach to Moderated SEM using the three steps described by Cortina et al. (2001). These steps are detailed in the Appendix II.



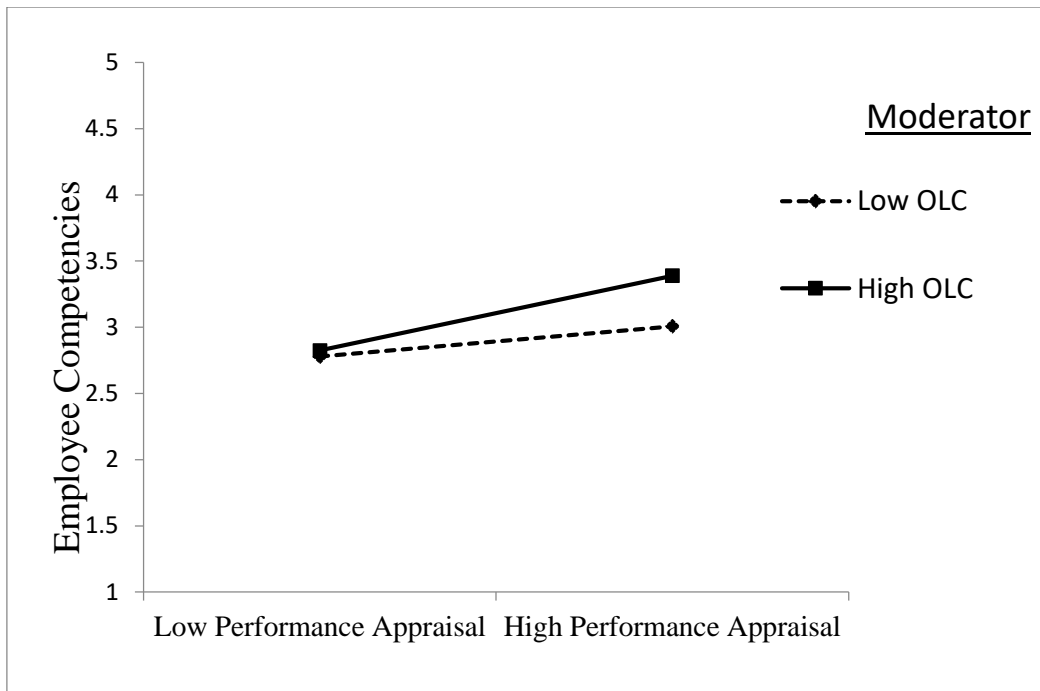
Graph 5.6: Interaction between TD and OLC on EC
 (Source: Compiled by the author, Note: OLC = Organizational Learning Culture)

Hypothesis H_{2a} proposed that organizational learning culture would moderate positive relationship between training & development and employee competencies, where the relationship may be stronger when organizational learning culture is higher. The findings presented in figure 5.2 shows that the interaction coefficient for organizational learning culture and training and development was significant ($\beta = 0.056, p < .05$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.6 plots the interaction, which shows that the relationship between training and development and employee competencies is stronger when organizational learning culture is high ($B = 0.376, t = 6.452, p < .001$). This supports hypothesis H_{2a}. The analysis further indicates that the relationship between training and development and employee competencies is weaker when organizational learning culture is low ($B = 0.266, t = 4.461, p < .001$).



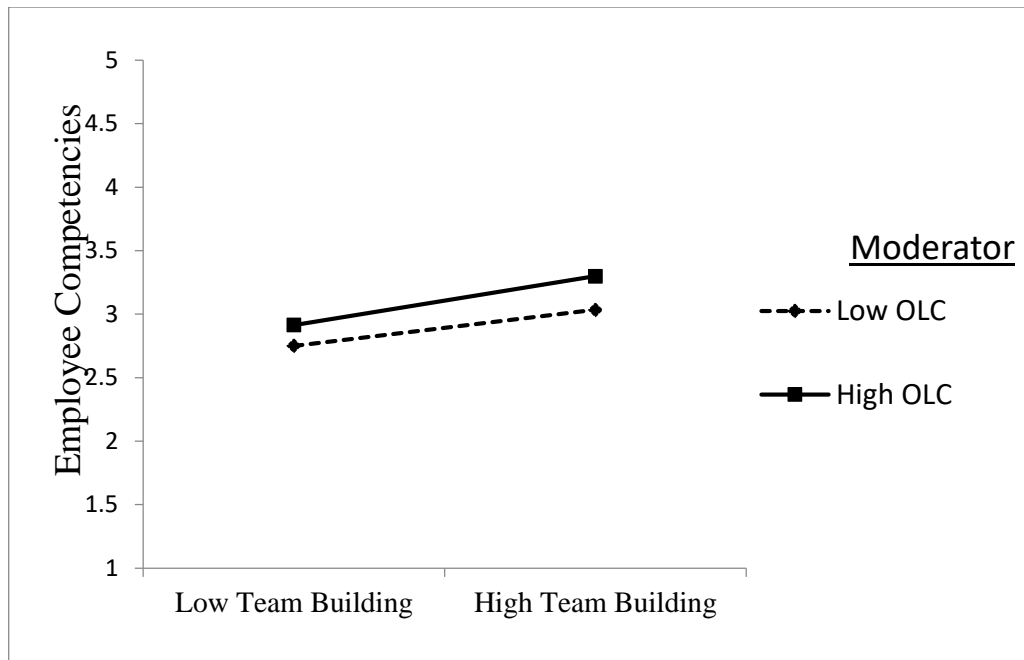
Graph 5.7: Interaction between CM and OLC on EC
 (Source: Compiled by the author, Note: OLC =Organizational Learning Culture)

Hypothesis H_{2b} proposed that organizational learning culture would moderate the positive relationship between career management and employee competencies, where the relationship is stronger when organizational learning culture is higher. The findings presented in figure 5.2 shows that the interaction coefficient for organizational learning culture and career management was significant ($\beta = 0.069$, $p < .01$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.7 plots the interaction, which shows that the relationship between career management and employee competencies is stronger when organizational learning culture is high ($B = 0.274$, $t = 4.697$, $p < .05$). This supports hypothesis H_{2b}. The analysis further indicates that the relationship between career management and employee competencies is weaker when organizational learning culture is low ($B = 0.138$, $t = 2.320$, $p < .05$).



Graph 5.8: Interaction between PA and OLC on EC
 (Source: Compiled by the author, Note: OLC = Organizational Learning Culture)

Hypothesis H_{2c} proposed that organizational learning culture would moderate the positive relationship between performance appraisal and employee competencies, where the relationship is stronger when organizational learning culture is higher. The findings presented in figure 5.2 shows that the interaction coefficient for organizational learning culture and performance appraisal was significant ($\beta = .084, p < .01$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.8 plots the interaction, which shows that the relationship between performance appraisal and employee competencies is stronger when organizational learning culture is high ($B = .280, t = 4.812, p < .001$). This supports hypothesis H_{2c}. The analysis further indicates that the relationship between performance appraisal and employee competencies is weaker when organizational learning culture is low ($B = .116, t = 1.939, p < .05$).



Graph 5.9: Interaction between TB and OLC on EC
 (Source: Compiled by the author, Note: OLC = Organizational Learning Culture)

Hypothesis H_{2d} proposed that organizational learning culture would moderate the positive relationship between team building and employee competencies, where the relationship is stronger when organizational learning culture is higher. The findings presented in figure 5.2 shows that the interaction coefficient for organizational learning culture and team building was significant ($\beta = .025$, $p < .01$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.9 plots the interaction, which shows that the relationship between team building and employee competencies is stronger when employee organizational learning culture is high ($B = .192$, $t = 3.287$, $p < .001$). This supports hypothesis H_{2d}. The analysis further indicates that the relationship between team building and employee competencies is weaker when organizational learning culture is low ($B = .143$, $t = 2.38$, $p < .05$).



Graph 5.10: Interaction between EE and OLC on EC
 (Source: Compiled by the author, Note: OLC =Organizational Learning Culture)

Hypothesis H_{2e} proposed that organizational learning culture would moderate the positive relationship between employee empowerment and employee competencies, where the relationship is stronger when organizational learning culture is higher. The findings presented in figure 2 shows that the interaction coefficient for organizational learning culture and employee empowerment was significant ($\beta = .056, p < .01$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.10 plots the interaction, which shows that the relationship between employee empowerment and employee competencies is stronger when employee organizational learning culture is high ($B = .176, t = 3.019, p < .001$). This supports hypothesis H_{2e}. The analysis further indicates that the relationship between employee empowerment and employee competencies is weaker when organizational learning culture is low ($B = .066, t = 1.10, p < .05$).

Employee competencies and goal oriented approach to organizational effectiveness

The examination of the path coefficients of the structural model reveal that the effect of employee competencies on optimization of resources was significant ($\beta = .193, p < .05$). Thus, H_{3a} is supported. As hypothesised, employee competencies had a positive and significant impact on product quality and productivity ($\beta = .302, p < .001$). Therefore, H_{3b} is supported. Employee competencies was found to be a significant factor in determining cohesive workforce ($\beta = .120, p < .05$), supporting hypothesis H_{3c}.

Employee competencies and competing values approach to organizational effectiveness

Employee competencies had a positive and significant association with organizational adaptation ($\beta=.354$, $p<.001$). So, H_{4a} is supported. The impact of employee competencies on organizational innovation was found to be significant ($\beta=.257$, $p<.001$). Therefore, H_{4b} is supported. Similarly, employee competencies had a positive and significant relationship with organizational flexibility ($\beta=.274$, $p<.001$), supporting H_{4c} .

Mediating role of employee competencies

The present study adopted the incremental approach of Baron and Kenny (1986) (illustrated in Chapter 4) to test the mediating relationships. Before conducting the mediation analysis, the five factors of HRD interventions namely training and development, career management, performance appraisal, team building, and employee empowerment were reduced to five items to assess the overall HRD interventions construct by following the procedure suggested by Egan et al., (2004) and Smith et al., (2000). Similarly the three factors of goal oriented approach to organizational effectiveness namely optimization of resources, product quality and productivity were reduced to three items. Three factors of competing values approach to organizational effectiveness namely organizational adaptability, organizational flexibility and organizational innovation is reduced to three items. In the structural model, the mediating relationships were first examined individually in triads to reveal direct and indirect effects and test the robustness of mediators. In order to confirm with the first three steps of Baron and Kenny method of mediation analysis, the individual relationship between the independent and dependent variable, independent and mediating variable and mediating variable and dependent variables were examined.

The first model examined the mediating role of employee competencies between the HRD interventions and goal oriented approach to organizational effectiveness. The model fit indices (table 5.28) were in acceptable region ($\chi^2/df=3.408$, $GFI=.918$, $RMSEA=.061$, $TLI=.947$, $CFI=.956$, $AGFI=.890$, $PCFI=.801$, $Hoelter=207 (.05)$, $236 (.01)$). The results reveals that there is significant relationships between HRD interventions and employee competencies ($\beta = .577$, $p<.001$), employee competencies and goal oriented approach to organizational effectiveness ($\beta = .506$, $p<.001$), and HRD interventions and goal oriented approach to organizational effectiveness ($\beta = .167$, $p<.001$).

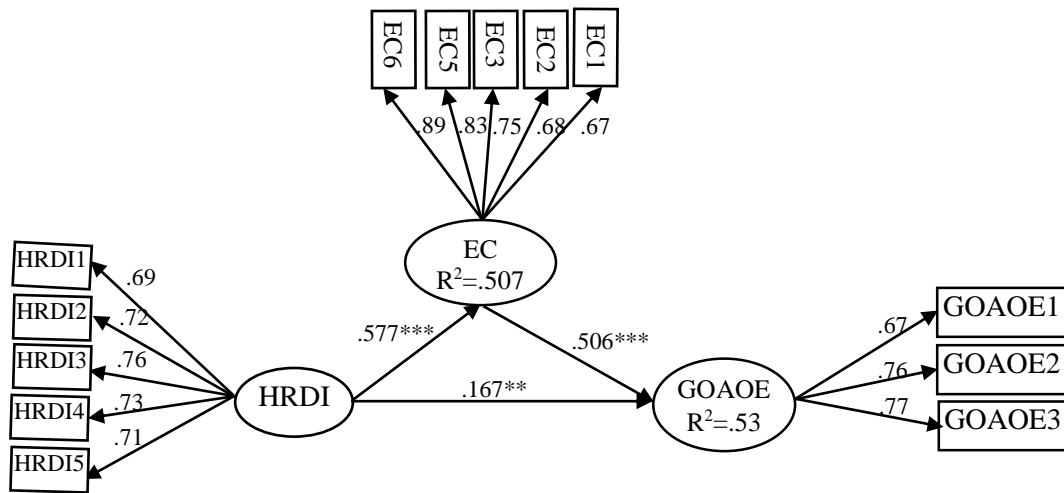


Figure 5.3: EC acting as Mediator between HRD interventions and GOA to OE
 (Source: Compiled by the author. Note: HRDI= HRD interventions; EC=Employee Competencies; GOAEOE = Goal Oriented Approach to Organizational Effectiveness)

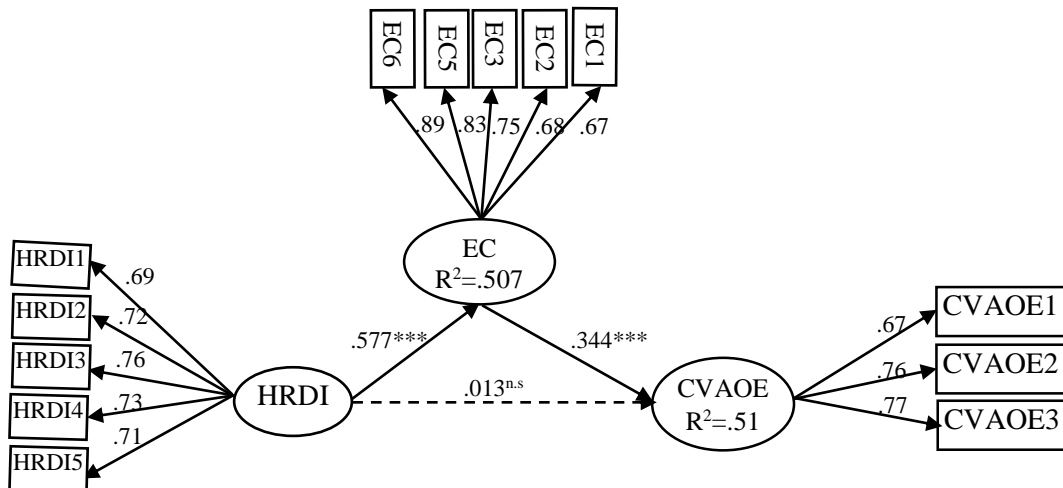


Figure 5.4: EC acting as a Mediator between HRD interventions and CVA to OE
 (Source: Compiled by the author, Note: HRDI= HRD interventions; EC=Employee Competencies; CVAEOE = Competing Values Approach to Organizational Effectiveness)

The analysis of the direct and indirect effects between HRD interventions and goal oriented approach to organizational effectiveness in the mediated model (table 5.27), illustrates a substantial direct effect (.167) and a significant indirect effect (.292), confirming the partial mediation of employee competencies. Figure 5.3, represents the structural model with significant path coefficients for the employee competencies as a mediator between HRD interventions and goal-oriented approach to organizational effectiveness.

Table 5.27: Path Coefficients and Indirect Effects for Individual Mediation Models

<i>Model</i>	<i>Relationship</i>	<i>Total Effects</i>	<i>Direct Effect</i>	<i>Indirect Effect</i>
Model 1	HRD Interventions → GOA Organizational effectiveness (Employee competencies) [#]	.459***	.167**	.292***
Model 2	HRD Interventions → CVA Organizational effectiveness (Employee competencies) [#]	.207***	.013 ^{n.s}	.194**

Source: Compiled by the author.

Note: GOA= Goal oriented approach ; CVA= Competing values approach; # Mediator in parenthesis n.s= not significant

***p<.001, **p<0.01

Table 5.28: Model Fit Indices of the Individual Mediation Models

<i>Fit Index</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Threshold Values</i>
Absolute fit measures			
CMIN/DF	3.408	3.551	≤2**; ≤3*; ≤5*
GFI	0.918	.919	≥.90**, ≥.80*
RMSEA	0.061	.068	≤.08
Incremental fit measures			
TLI	0.947	.935	≥.90**, ≥.80*
CFI	0.956	.946	≥.90**, ≥.80*
Parsimonious fit measures			
AGFI	0.890	.891	The higher, the better
PCFI	0.801	.796	The higher, the better
HOELTER	207 (0.05), 236 (0.01)	201 (.05), 232 (.01)	

Source: Compiled by the author.

Note: Acceptability: ** Acceptable, *Marginal.

The second model examined the mediating role of employee competencies between the HRD interventions and competing values approach to organizational effectiveness. The model fit indices (table 5.28) were acceptable ($\chi^2/df=3.551$, GFI=.919, RMSEA=.070, TLI=.935, CFI=.946, AGFI=.891, PCFI=.796, Hoelter=201 (.05), 232 (.01)). The results reveals that there is significant relationships between HRD interventions and employee competencies ($\beta = .577$, $p<.001$), employee competencies and competing values approach to organizational effectiveness ($\beta = .344$, $p<.001$); and HRD interventions competing values approach to organizational effectiveness ($\beta = .013$, n.s). The analysis of the direct and indirect effects between HRD interventions and competing values approach to organizational effectiveness in the mediated model (table 5.27), illustrates an insignificant direct effect (.013) and a significant indirect effect (.194), confirming the full mediation of employee competencies. Figure 5.4, represents the structural model with path coefficients

for the employee competencies as a mediator between HRD interventions and competing values approach to organizational effectiveness.

Moderated Mediation Analysis

Moderated mediation, also known as conditional indirect effects, occurs when the treatment effect of an independent variable (A) on an outcome variable (C) via a mediator variable (B) differs depending on levels of a moderator variable (D). Specifically, either the effect of variable (A) on the variable (B), and/or the effect of variable (B) on variable (C) depends on the moderating effect of variable (D). An example of moderated mediation conceptual model shown in figure 5.5.

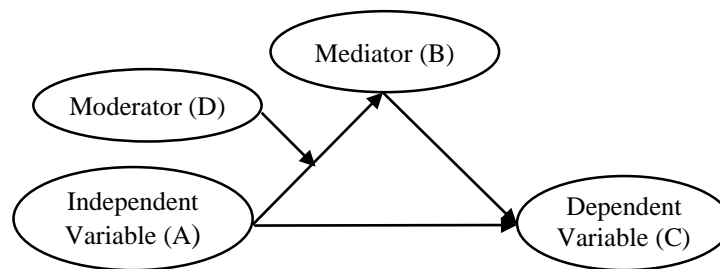


Figure: 5.5 Conceptual model of Moderated Mediation

Source: Author's own

The analysis further examined conditional indirect effect of organizational learning culture on the relationship between HRD interventions and organizational effectiveness through the mediator employee competencies. The primary motive behind this analysis was to evaluate whether organizational learning culture contribute to the mediating effects of employee competencies towards HRD interventions and the two approaches to organizational effectiveness. To examine this moderated mediation effects, present study used Hayes PROCESS (model 7) plugin in SPSS. The analysis is divided in two model. First model examined the moderated mediation relationship of organizational learning culture on HRD interventions and goal oriented approach to organizational effectiveness through the mediator employee competencies. Second model examined the moderated mediation relationship of organizational learning culture on HRD interventions and competing values approach to organizational effectiveness. The results and its interpretations are mentioned below.

First model examined the moderated mediation relationship of organizational learning culture on HRD interventions and goal oriented approach to organizational effectiveness through the mediator employee competencies (Figure 5.6). Initially, examined the relationship between HRD interventions, organizational learning culture and interaction of both variables on employee competencies. The model summary shown in Table 5.29

provides the value of R^2 as .4920 (which is nearer to 0.50), which implies that the independent variables explain 49.20 per cent of the observed variability in employee competencies. This mean that to a large extent i.e more than 49% of the employee competency is influenced by HRD interventions where organization learning culture plays a key moderating role. In several social science research (Abd Rahman et al., 2013; Guan et al., 2015; Saks and Burke-Smalley, 2014; Jiang et al., 2012) the R^2 value with above .45 is accepted as a moderate variance, that can describe the dependent variable and has significant implications. The F value ($F = 154.153, p < .001$) highlights that the variance explained by the predictor items are highly significant.

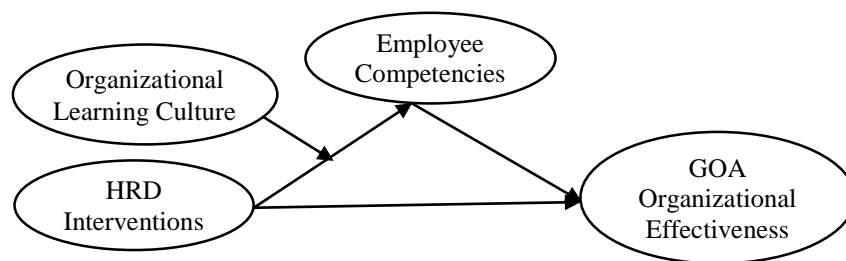


Figure 5.6 Conditional indirect effect of OLC on HRD interventions and GOA to OE

Note: GOA= Goal oriented approach

Source: Author's own

Table 5.29: Model Summary (Employee Competencies)

Model	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	3.7812	.0096	15.9781	.000
HRDI	.5099	.0367	13.8824	.000
OLC	.1699	.0340	4.9908	.000
OLCxHRDI	.0202	.0102	1.9803	.022

$R = .7014, R^2 = .4920, F = 154.153, Sig. = .000$

Source: Compiled by the author.

Note: **Dependent variable:** Employee Competencies; **Independent variables:** HRD Interventions, Organizational Learning Culture; OLCxHRDI: Interaction

The unstandardised coefficients of the independent variables HRD interventions ($\beta = 0.5099, p < 0.01$) and organizational learning culture ($\beta = 0.1699, p < 0.01$) are significant and interactions (OLCxHRDI) effects are also found to significant ($\beta = 0.0202, p < 0.05$). The results indicate that there is significant and positive moderating effect of organizational learning culture on relationship between HRD interventions and employee competencies.

In the table 5.30 shown the results of regression of independent variables employee competencies and HRD interventions on goal oriented approach to organizational effectiveness. The model summary shows the value of R^2 as .4919 (which is nearer to 0.50),

which implies that the independent variables explain 49.19 per cent of the observed variability in goal oriented approach to organizational effectiveness. This means that to an extent i.e. more than 49% of the goal-oriented approach to organizational effectiveness is influenced by HRD interventions and employee competencies.

Table 5.30: Model Summary (Goal oriented approach to OE)

Model	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	1.9302	.0114	10.7869	.000
EC	.5851	.0457	12.8005	.000
HRDI	.1246	.0401	3.1068	.000

R = .7013, R² = .4919, F = 200.1534, Sig. = .000

Source: Compiled by the author.

Note: **Dependent variable:** Goal Oriented Approach to Organizational Effectiveness; **Independent variables:** HRD Interventions, Employee Competencies;

In several social science research (Abd Rahman et al., 2013; Guan et al., 2015; Saks and Burke-Smalley, 2014; Jiang et al., 2012) the R² value with above .45 is accepted as a moderate variance, that can describe the dependent variable and has significant implications. The results indicates that employee competencies ($\beta = 0.5851, p < 0.01$) and HRD interventions ($\beta = 0.1246, p < 0.01$) are significant and positively related with goal-oriented approach to organizational effectiveness.

Table 5.31: Conditional Indirect Effects

Relationship	Total Effects	Direct Effect	Indirect Effect	Conditional Indirect Effect(OLC)			Mediation Type
				Low	Absence	High	
HRDI → EC	.5099	.5099	-	-	-	-	
HRDI → GOA	.1246	.1246	-	-	-	-	
EC → GOA	.5841	.5841	-	-	-	-	
HRDI (OLC) → EC# →GOA	.4257 (Low)	.1246	.2987	.3011	.2987	.3863	Partial
	.4233 (Absence)						
	.5109 (High)						

Source: Compiled by the author.

Note: # indicates mediator, Moderator in parenthesis, ** p < .001, * p < .01,

Note: HRDI = HRD interventions; EC = Employee Competencies; OLC = Organizational Learning Culture; GOA = Goal oriented approach to Organizational Effectiveness

The examination conditional indirect effect of organizational learning culture on the relationship between HRD interventions and goal oriented approach to organizational

effectiveness confirms that in the presence of high organizational learning culture the mediating effect of employee competencies will increase (.5109) compared with the absence of organizational learning culture (.4233) as shown in the table 5.31.

Second model examined the moderated mediation relationship of organizational learning culture on HRD interventions and competing values approach to organizational effectiveness through the mediator employee competencies (Figure 5.7). Initially, examined the relationship between HRD interventions, organizational learning culture and interaction of both variables on employee competencies. The model summary shown in Table 5.32 provides the value of R² as .4920, which implies that the independent variables explain 49.20 per cent of the observed variability in employee competencies. In several social science research (Abd Rahman et al., 2013; Guan et al., 2015; Saks and Burke-Smalley, 2014; Jiang et al., 2012) the R² value with above .45 is accepted as a moderate variance, that can describe the dependent variable and has significant implications. The F value (F = 154.153, p <.001) highlights that the variance explained by the predictor items are highly significant.

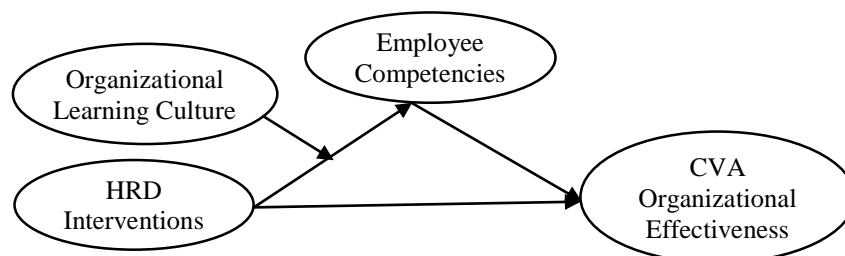


Figure 5.7 Conditional indirect effect of OLC on HRD interventions and CVA to OE
 Source: Author’s own; Note: CVA= Competing values approach

Table 5.32: Model Summary (Employee Competencies)

Model	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	3.7812	.0096	15.9781	.000
HRDI	.5099	.0367	13.8824	.000
OLC	.1699	.0340	4.9908	.000
OLCxHRDI	.0202	.0102	1.9803	.022

R = .7014, R² = .4920, F = 154.153, Sig. = .000

Source: Compiled by the author.

Note: **Dependent variable:** Employee Competencies; **Independent variables:** HRD Interventions, Organizational Learning Culture; OLCxHRDI: Interaction

The unstandardised coefficients of the independent variables HRD interventions ($\beta = 0.5099$, $p < 0.01$) and organizational learning culture ($\beta = 0.1699$, $p < 0.01$) are significant

and interactions (OLCxHRDI) effects are also found to significant ($\beta = 0.0202, p < 0.05$). The results indicate that there is significant and positive moderating effect of organizational learning culture on relationship between HRD interventions and employee competencies.

Table 5.33: Model Summary (Competing values approach to OE)

Model	Unstandardised Coefficients	Std. Error	t	Sig.
(Constant)	1.9302	.2212	11.5018	.000
EC	.3885	.0565	6.8740	.000
HRDI	.0166	.0473	.3503	.072

R = .7060, R² = .4985, F = 154.1534, Sig. = .000

Source: Compiled by the author.

Note: Dependent variable: Competing Values Approach to Organizational Effectiveness; **Independent variables:** HRD Interventions, Employee Competencies;

In the table 5.33 shown the results of regression of independent variables employee competencies and HRD interventions on competing values approach to organizational effectiveness. The model summary shows the value of R² as .4985 (which is nearer to 0.50), which implies that the independent variables explain 49.85 per cent of the observed variability in competing values approach to organizational effectiveness.

Table 5.34: Conditional Indirect Effects

Relationship	Total Effects	Direct Effect	Indirect Effect	Conditional Indirect Effect(OLC)			Mediation Type
				Low	Absence	High	
HRDI → EC	.5099	.5099	-	-	-	-	
HRDI → CVA	.0166	.0166	-	-	-	-	
EC → CVA	.3885	.3885	-	-	-	-	
HRDI (OLC) → EC [#] → CVA	.2176 (Low)	.0166	.1980	.2010	.1980	.2901	Full
	.2146 (Absence)						
	.3067 (High)						

Source: Compiled by the author.

Note: #indicates mediator, Moderator in parenthesis, ** p < .001, * p < .01,

Note: HRDI = HRD interventions; EC = Employee Competencies; OLC = Organizational Learning Culture; CVA = Competing values approach to Organizational Effectiveness

This means that to an extent i.e. more than 49% of the competing values approach to organizational effectiveness is influenced by HRD interventions and employee competencies. In several social science research (Abd Rahman et al., 2013; Guan et al., 2015; Saks and Burke-Smalley, 2014; Jiang et al., 2012) the R² value with above .45 is accepted as a moderate variance, that can describe the dependent variable and has

significant implications. The results indicates that employee competencies ($\beta = 0.5851, p < 0.01$) significant and positively related with competing values approach to organizational effectiveness. The examination conditional indirect effect of organizational learning culture on the relationship between HRD interventions and competing values approach to organizational effectiveness confirms that in the presence of high organizational learning culture the mediating effect of employee competencies will increase (.5109) compared with the absence of organizational learning culture (.4233) as shown in the table 5.34.

Moderation and Mediation Analysis

The research also investigated all the mediation relationships and moderation in a single structural model and estimated its path coefficients to validate the hypothesised research model. The model represents employee competencies as the mediator, HRD interventions as independent, organizational learning culture as moderator, and goal oriented and competing values approach to organizational effectiveness as dependent variables (figure 5.8). Thus, the model tested the direct relationship of HRD interventions with goal oriented and competing values approach to organizational effectiveness and the indirect relationship through the mediators, employee competencies. Further, estimated the moderating effect of organizational learning culture between HRD interventions and employee competencies. The model fit indices show that the data fits considerably to the model. ($\chi^2/df = 3.357$, GFI = .918, RMSEA = .068, TLI = .902, CFI = .912, AGFI = .890, PCFI = .823, Hoelter = 197 (.05), 207 (.01)). Table 5.35 presents the overall fit indexes of the model.

Table 5.35: Model Fit Indices of the Hypothesised Model

<i>Fit Index</i>	<i>Observed Values</i>	<i>Threshold Values</i>
Absolute fit measures		
CMIN/DF	3.357	$\leq 2^{**}; \leq 3^*; \leq 5^*$
GFI	.918	$\geq .90^{**}; \geq .80^*$
RMSEA	.068	$\leq .08$
Incremental fit measures		
TLI	.902	$\geq .90^{**}; \geq .80^*$
CFI	.913	$\geq .90^{**}; \geq .80^*$
Parsimonious fit measures		
AGFI	.890	The higher, the better
PCFI	.823	The higher, the better
HOELTER		197 (.05), 207(.01)

Source: Compiled by the author.

Note: Acceptability: ** Acceptable, *Marginal.

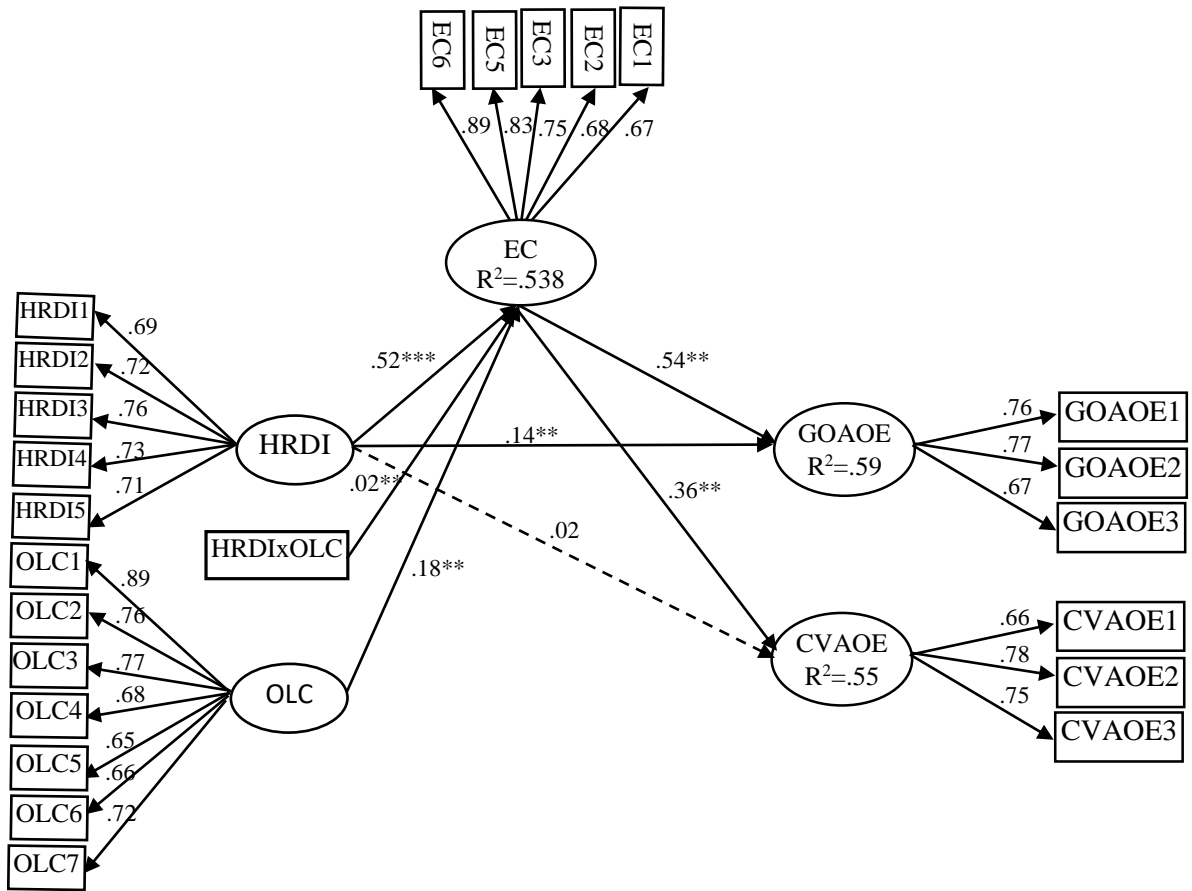
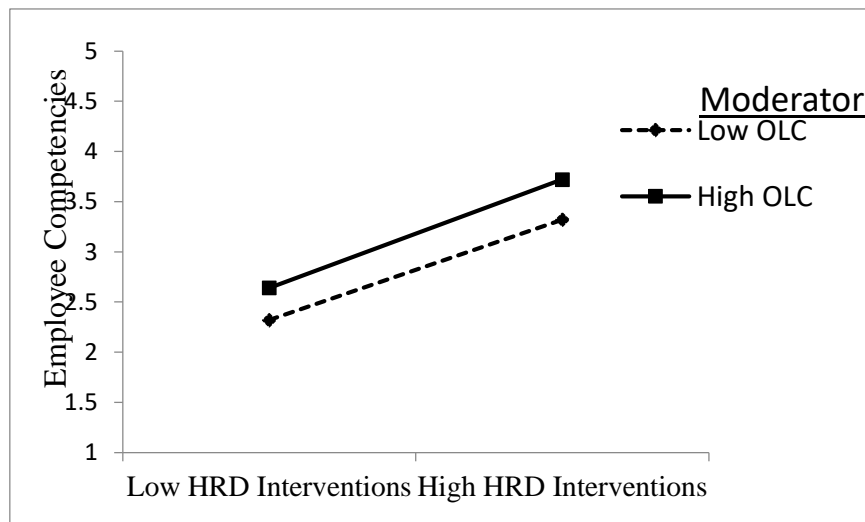


Figure 5.8 Structural Equation Model Paths

Source: Compiled by the author.

(Note: HRDI: HRD interventions; OLC: Organizational Learning Culture; EC: Employee Competencies; GOAOE: Goal oriented approach to organizational effectiveness; CVAOE: Competing values approach to organizational effectiveness)



Graph 5.11 Interaction between HRD interventions and OLC on EC
 (Source: Compiled by the author, Note: OLC = Organizational Learning Culture)

The independent variable HRD interventions is positively and significantly ($\beta = .52, p < .01$) related with employee competencies, supporting hypothesis H₁. Hypothesis H₂ proposed that organizational learning culture would moderate the positive relationship between HRD interventions and employee competencies, where the relationship is stronger when organizational learning culture is higher. The findings presented in figure 5.8 shows that the interaction coefficient for organizational learning culture and HRD interventions was significant ($\beta = .02, p < .05$). A simple slopes test based on one SD above and below the moderator provided further support for the moderated relationship. Graph 5.11 plots the interaction, which shows that the relationship between HRD interventions and employee competencies is stronger when organizational learning culture is high ($B = .54, t = 9.262, p < .001$). This supports Hypothesis H₂. The analysis further indicates that the relationship between HRD interventions and employee competencies is weaker when organizational learning culture is low ($B = .50, t = 8.389, p < .05$).

The coefficients of the hypothesised mediation model reveal both direct effect of the independent variable on the dependent variables as well as the indirect effect due to the presence of a mediator (table 5.36). The direct effects indicate that both HRD interventions ($\beta = .145, p < .001$) and employee competencies ($\beta = .54, p < .001$) relate positively with goal oriented approach to organizational effectiveness. Consequently, the results accept and reinforces hypothesis H₅ and hypothesis H₃. Moreover, HRD interventions has an indirect effect on goal-oriented approach to organizational effectiveness through the mediator employee competencies ($\beta = .280, p < .001$). So, the hypothesis H₆ supported, suggesting partial mediation. Further, employee competencies has positive and significant relationship ($\beta = .36, p < .001$) with competing values approach to organizational effectiveness, accepting hypothesis H₄. Whereas, the direct relationship between HRD interventions and competing values approach to organizational effectiveness is not significant ($\beta = .02, n.s$). Therefore, rejecting hypothesis H₇. Moreover, HRD interventions has an indirect effect on competing values approach to organizational effectiveness through the mediator employee competencies ($\beta = .187, p < .001$). So, the hypothesis H₈ supported, suggesting full mediation.

Table 5.36: Direct, Indirect and Total Effects for Hypothesised Mediation Model

<i>Hypothesized Relationship</i>	<i>Total Effects</i>	<i>Direct Effect</i>	<i>Indirect Effect</i>	<i>Bootstrap 95% Confidence Interval</i>	<i>Sobel's Z value</i>	<i>Mediation Type</i>
HRDI → EC	.520*	.520*	-	-	-	-
HRDI → GOA	.145**	.145**	-	-	-	-
HRDI → CVA	.020	.020	-	-	-	-
EC → GOA	.540**	.540**	-	-	-	-
EC → CVA	.360**	.360**	-	-	-	-
HRDI → GOA (EC)#	.425**	.145*	.280**	(.045, .254)**	2.959***	Partial
HRDI → CVA (EC)#	.207**	.020	.187**	(-.017, .131)**	2.179**	Full

Source: Compiled by the author.

Note: # mediator in parenthesis, ** $p < .001$, * $p < .01$, bootstrap results based on $n = 10000$

Hence, the results of the hypothesised mediation model reinforced the partial mediating role of employee competencies between HRD interventions and goal oriented approach to organizational effectiveness, and full mediating role of employee competencies between HRD interventions and competing values approach to organizational effectiveness, which was previously established in this research through mediation analysis.

Bootstrapping is a popular method to examine the indirect effects of a mediator using the standard errors and confidence interval estimates (Memon et al. 2016). In this study, bootstrapping was performed with 10000 samples by using bias corrected confidence intervals at 95 percent to overcome the abnormality in the data and confirm the indirect effects. The results indicated that upper and lower levels of the indirect effects (table 5.37) did not include zero and the average bootstrap based estimates were close to the ML estimates for all path coefficients. Further, the Z value derived from Sobel's test for all the mediating relationships were significant. Thus, the mediation results were reinforced.

Effect of control variables on study variables

Table 5.37 shows the effect of control variables on employee competencies, goal oriented approach to organizational effectiveness, and competing values approach to organizational effectiveness. The results indicate that only education and work experience has significant and positive influence on the dependent variable, where as the remaining gender, age, designation doesn't show any impact.

Table 5.37: Effect of Control Variables on Dependent Variables

<i>Controls</i>	<i>Employee Competencies</i>	<i>GOA Organizational Effectiveness</i>	<i>CVA Organizational Effectiveness</i>
Gender	.019 ^{n.s}	.211 ^{n.s}	.046 ^{n.s}
Age	.054 ^{n.s}	.048 ^{n.s}	.048 ^{n.s}
Education	.139*	.125*	.029*
Designation	.004 ^{n.s}	.008 ^{n.s}	.040 ^{n.s}
Work Experience	.120**	.137*	.112*
Organization	.021 ^{n.s}	.051 ^{n.s}	.040 ^{n.s}

Source: Compiled by the author.

** p < .001, * p < .01

Table 5.38 shows the effect of control variables on training and development, career management, performance appraisal, team building, employee empowerment and organizational learning culture. The results indicate that only non of the control variables significantly associated with the above mentioned variables.

Table 5.38: Effect of Control Variables on Independent Variables

<i>Controls</i>	<i>TD</i>	<i>CM</i>	<i>PA</i>	<i>TB</i>	<i>EE</i>	<i>OLC</i>
Gender	.016 ^{n.s}	.011 ^{n.s}	.046 ^{n.s}	.031 ^{n.s}	.034 ^{n.s}	.022 ^{n.s}
Age	.186 ^{n.s}	.018 ^{n.s}	.048 ^{n.s}	.131 ^{n.s}	.067 ^{n.s}	.127 ^{n.s}
Education	.083 ^{n.s}	.015 ^{n.s}	.029 ^{n.s}	.046 ^{n.s}	.103 ^{n.s}	.034 ^{n.s}
Designation	.040 ^{n.s}	.018 ^{n.s}	.040 ^{n.s}	.016 ^{n.s}	.132 ^{n.s}	.041 ^{n.s}
Work Experience	.012 ^{n.s}	.170 ^{n.s}	.112 ^{n.s}	.013 ^{n.s}	.036 ^{n.s}	.011 ^{n.s}
Organization	.005 ^{n.s}	.014 ^{n.s}	.040 ^{n.s}	.017 ^{n.s}	.027 ^{n.s}	.013 ^{n.s}

Source: Compiled by the author.

** p < .001, * p < .01

Note: EE = Employee Empowerment; PA = Performance Appraisal; TB = Team Building; CM = Career Management; TD = Training and Development; OLC = Organizational Learning

5.4 Findings of the Study

The analysis of the data acquired from cement manufacturing units provided meaningful insights on the HRD interventions, organizational learning culture, employee competencies, goal oriented approach and competing values approach to organizational effectiveness. Further, the research investigates the mediated and moderated relations among the study variables. Table 5.39 summarises the inferences drawn from the hypotheses testing in the study. Figure 5.9 shows the derived research model after a series of analysis. It was found that the HRD interventions have a significant association with employee competencies of employees in cement manufacturing units. Further, the variables of HRD interventions like training and development, career management, performance appraisal, employee empowerment and team building have a positive and substantial effect on employee competencies. Therefore, hypothesis H₁ and its sub-hypotheses H_{1a}, H_{1b}, H_{1c}, H_{1d}, and H_{1e} were accepted. Subsequently, organizational learning culture has a positive and significant

moderating effect on the relationships between HRD interventions and employee competencies. Additionally, HRD interventions comprising of training and development, career management, performance appraisal, team building and employee empowerment with the interaction of organizational learning culture has significant influence on employee competencies. Thus, the hypothesis H₂ and its sub-hypotheses H_{2a}, H_{2b}, H_{2c}, H_{2d}, and H_{2e} were supported. Furthermore, employee competencies was substantially linked with the goal oriented approach to organizational effectiveness. Subsequently, employee competencies has a positive and significant relationship with optimization of resource, product quality and productivity and cohesive work force. Thus, the hypothesis H₃ and its sub-hypotheses H_{3a}, H_{3b}, and H_{3c} are accepted.

Table 5.39: Inferences drawn on Hypothesis Testing

<i>Hypotheses</i>	<i>Relationship</i>	<i>Standardised β Coefficients</i>	<i>Significance</i>	<i>Result</i>
H ₁	HRDI → EC	.520	***	Accepted
H _{1a}	TD → EC	.321	***	Accepted
H _{1b}	CM → EC	.206	**	Accepted
H _{1c}	PA → EC	.198	**	Accepted
H _{1d}	TB → EC	.167	***	Accepted
H _{1e}	EE → EC	.121	*	Accepted
H ₂	HRDIxOLC → EC	.020	**	Accepted
H _{2a}	TDxOLC → EC	.056	*	Accepted
H _{2b}	CMxOLC → EC	.069	*	Accepted
H _{2c}	PAxOLC → EC	.084	*	Accepted
H _{2d}	TBxOLC → EC	.025	*	Accepted
H _{2e}	EExOLC → EC	.056	**	Accepted
H ₃	EC → GOA	.540	**	Accepted
H _{3a}	EC → OPT	.193	***	Accepted
H _{3b}	EC → PROD	.302	***	Accepted
H _{3c}	EC → COHES	.120	***	Accepted
H ₄	EC → CVA	.360	**	Accepted
H _{4a}	EC → ADP	.354	***	Accepted
H _{4b}	EC → INNO	.257	**	Accepted
H _{4c}	EC → FLEX	.274	***	Accepted
H ₅	HRDI → GOA	.140	**	Accepted
H ₆	HRDI → GOA (EC) [#]	.425	***	Accepted
H ₇	HRDI → CVA	.020	.079	Rejected
H ₈	HRDI → CVA (EC) [#]	.207	**	Accepted

Source: Compiled by the author.

Note: # mediator in parenthesis, *** p < .001, ** p < .01, * p < .05

ADP =Organizational Adaptation; PROD = Product Quality and Productivity; OPT = Optimization of Resources; COHE = Cohesive Workforce; INNO = Organizational Innovation; EE = Employee Empowerment; EC = Employee Competencies; PA = Performance Appraisal; TB = Team Building; CM = Career Management; TD = Training and Development; OLC = Organizational Learning Culture; FLEX = Organizational Flexibility; GOA = Goal Oriented Approach to Organizational Effectiveness; CVA = Competing Values Approach to Organizational Effectiveness

Similar results also found with competing values approach to organizational effectiveness. Consequently, employee competencies has shown positive and significant influence on organizational adaptation, organizational flexibility and organizational innovation. Therefore, hypothesis H₄ and its sub-hypotheses H_{4a}, H_{4b} and H_{4c} supported. Furthermore, HRD intervention are associated with goal-oriented approach to organizational effectiveness. Thus, supporting the hypothesis H₅. The indirect effect of HRD interventions on goal-oriented approach to organizational effectiveness through employee competencies found significant, thus partially accepting the hypothesis H₆. It was observed that the association between the HRD interventions and competing values approach to organizational effectiveness was found insignificant, which directs for the non-acceptance of hypothesis H₇. The indirect effect of HRD interventions on competing values to organizational effectiveness through employee competencies was found significant, thus accepting the hypothesis H₈ and confirming full mediation.

5.5 Discussions

The results of the present study extend the previous research findings by enabling a holistic understanding of how HRD interventions influence employee competencies, goal oriented approach and competing values approach to organizational effectiveness. Additionally, examined the moderating role of organizational learning culture between HRD interventions and employee competencies. More specifically, the results indicate that when the organizations have focused on effective HRD interventions, employees perceived that their competencies might be enhanced. Furthermore, the moderating role of organizational learning culture between HRD interventions and employee competencies provided ample understanding that in the presence of organizational learning culture the relationship strengthens. Furthermore, employee competencies has a significant and positive relationship with goal oriented and competing values approach to organizational effectiveness.

The validation of the hypothesised research model highlights that HRD interventions have a significant relationship with employee competencies of Indian cement industry employees. HRD interventions comprise of variables such as training and development, career management, performance appraisal, team building, and employee empowerment.

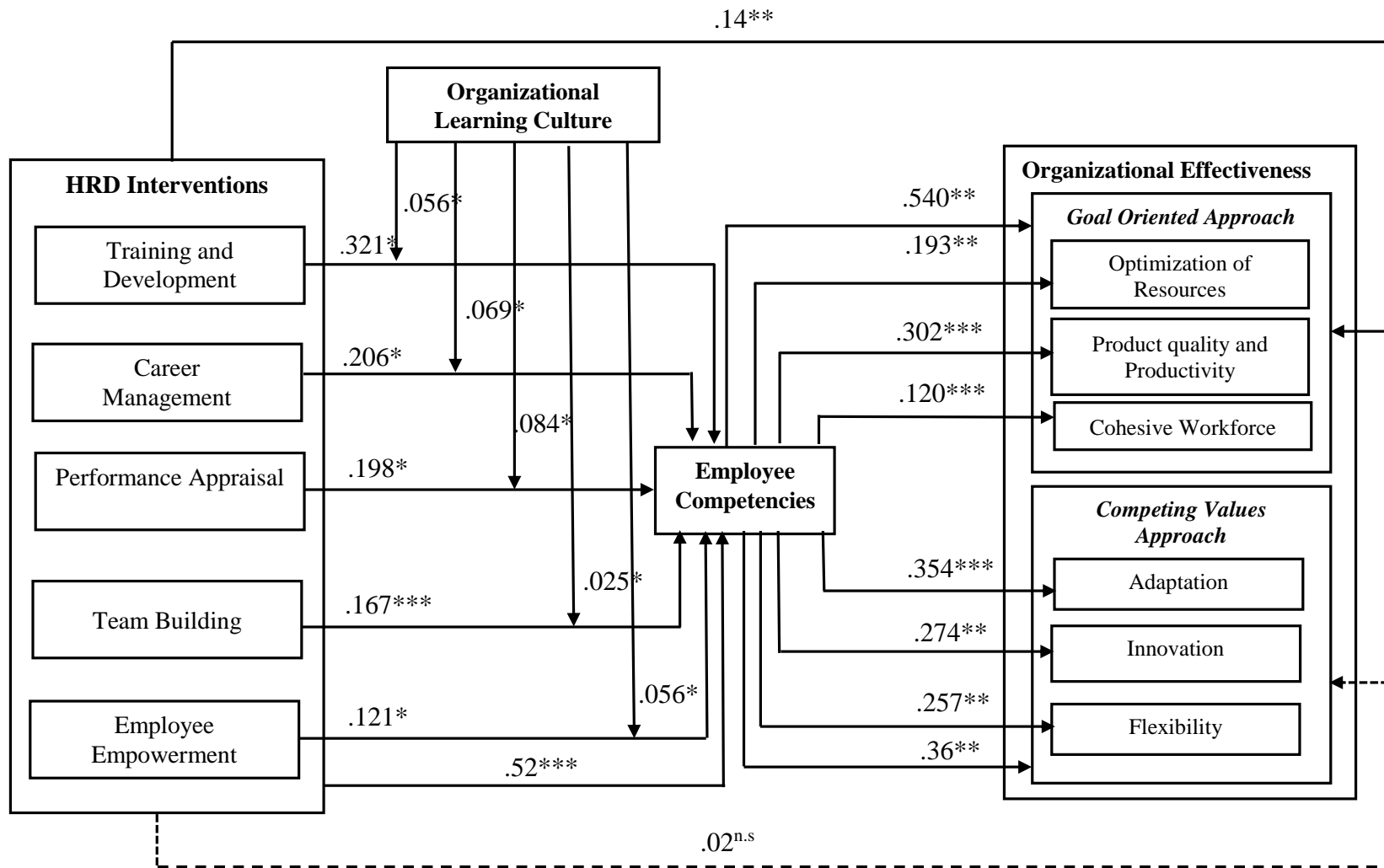


Figure 5.9: Derived Research Model

H_{1a} has examined the influence of training and development on employee competencies and found a positive and significant relationship between both the variables. Thus, results of the study are in congruence with previous studies (Maheshwari and Vohra, 2015; Zumrah et al., 2013; Shin et al., 2012) and showed that effective implementation of training and development would aid in enhancing employee competencies. H_{1b} predicted positive and significant relationship between organizational support for career development and employee competencies. From the result, it is clearly comprehensible that organization that supports individual career development has positive impact on the development of required employee competencies for the organizations, which supports the opinions of McGraw (2014) and Sullivan et al., (2003). H_{1c} also has similar results showing significant and positive relationship between performance appraisal and employee competencies, which is in line with eminent researchers like Berger and Berger (2011) and Kinicki et al., (2013) opinions. The study highlights that team building is a significant determinant of employee competencies as proposed in hypothesis H_{1d}. The results corroborate with the studies of Aga et al., (2016), Beebe and Masterson, (2015), and Tannenbaum et al., (2012) and recognise that goal-setting, interpersonal processes, role-clarification, and problem-solving play an important role in leveraging the employee competencies. The investigation of H_{1e} has evidenced that employee empowerment has a considerable influence on employee competencies of Indian cement industry. The results confirm with the seminal works of Han et al., (2016), Fernandez and Moldogaziev, (2013) and Avolio et al., (2004) and establishes that presence of employee empowerment can lead to enhance of work and organization related knowledge. Further, the results of the analysis confirmed the hypothesis H₁ that the HRD interventions significantly influence employee competencies. The findings corroborate with the previous studies of Nolan and Garavan, (2016), and Yuvaraj and Mulugeta (2013) indicating the importance of HRD interventions in augmenting the competencies of employees of Indian cement industry.

The examination of the hypothesised research model explicitly explains the moderating role of organizational learning culture between the relationship of HRD interventions and employees competencies. The present study has individually examined the moderating role of organizational learning culture on selected HRD interventions. The investigation of H_{2a} has evidenced that organizational learning culture strengthens the positive relationship between training and development and employee competencies. In this respect, the findings of the study empirically validate the hypothesized relation that has been theoretically stated

in many studies (Sung and Choi, 2014; Banerjee et al., 2016). The study highlights that organizational learning culture plays a moderating role in reinforcing the relationship between career management and employee competencies as proposed in hypothesis H_{2b}. This empirical finding validates the theoretical assumptions of renowned researchers (Kim and McLean 2008; Park 2010; Moon and Choi 2016), that career management facilitated by learning environment, may show a positive effect on the development of employee competencies. The investigation of H_{2c} has evidenced that organizational learning culture strengthening the relationship between performance appraisal and employee competencies. The results empirically validates the views of Fried (2012), Joo and Shim (2010) and Henri 2006 and establishes that the presence of organizational learning culture will strengthen the relationship of performance appraisal and employee competencies. H_{2d} also has similar results showing that organizational learning culture plays a significant moderating role between team building and employee competencies. The results of the analysis validates the opinions of eminent scholars like Shuffler et al., 2011 and Van den Bossche et al., (2006). Similarly, hypothesis H_{2e} proposed that organizational learning culture strengthens the positive relationship between employee empowerment and employee competencies. The findings of the present research corroborate with the previous studies Jones et al., (2013) and Kuo et al., (2010) and establishes that in the presence of organizational learning culture strengthens the relationship between employee empowerment and employee competencies.

The research examine the relationship between employee competencies and goal oriented approach to organizational effectiveness. The results displayed that there is a positive and significant relationship of employee competencies with optimization of resources (H_{3a}), cohesive workforce (H_{3b}), and product quality and productivity (H_{3c}), which implies the positive relationship with goal oriented approach to organizational effectiveness supporting hypothesis H₃. The results validates the opinions of Alagaraja (2013), Solkhe and Chaudhary (2012) and Mizzi and Rocco, (2013). Similarly, the research examined the relationship between employee competencies and competing values approach to organizational effectiveness. The outcomes of the analysis confirmed that employee competencies has a significant and positive relationship with organizational adaptation (H_{4a}), organizational flexibility (H_{4b}) and organizational innovation (H_{4c}), suggesting employee competencies has positive and significant relationship with competing values

approach to organizational effectiveness (H₄). The results confirms the view of Basadur et al., (2014), Qian et al., (2013) and Ruiner et al., (2013).

This research work explores the mediating mechanisms of employee competencies as suggested in H₆ and H₈ in the context of Indian cement industry. The investigation of the mediating role of employee competencies between the relationship of HRD interventions and goal-oriented approach to organizational effectiveness, and HRD interventions and competing values approach to organizational effectiveness has not been carried out in previous research and is unique in contemporary literature. The results displayed significant and positive effect of HRD interventions on employee competencies. The exploration of hypothesised research model also demonstrates the positive relationship of HRD interventions and employee competencies with goal-oriented approach to organizational effectiveness. These arguments were opined in H₁, H₃ and H₅ and corroborated with the extant research that examined the robust association between HRD interventions and employee competencies (Sung and Choi, 2014; Kehoe and Wright 2013; Yuvaraj and Mulugeta 2013), positive linkage between HRD interventions and goal oriented approach to organizational effectiveness (Mizzi and Rocco, 2013; Memon, 2014; Solkhe and Chaudhary, 2012), and positive relation of employee competencies with goal oriented approach to organizational effectiveness (Alagaraja, 2013 and Wright et al., 2003). Additionally, the result also establishes the partial mediating effect of employee competencies on the relationship between HRD interventions and goal oriented approach to organizational effectiveness. This finding verifies the Hypothesis H₆ and confirms with the studies of Huang et al., (2007) and Zhao et al., (2013). Thus, HRD interventions directly influences the goal-oriented approach to organizational effectiveness as well as indirectly affects the goal-oriented approach to organizational effectiveness through employee competencies.

Similarly, the research explored the mediating role between HRD interventions and competing values approach to organizational effectiveness. The results displayed significant and positive effect of HRD interventions on employee competencies, which corroborates with the views of eminent scholars (Sung and Choi, 2014; Kehoe and Wright 2013; and Yuvaraj and Mulugeta 2013). The exploration of hypothesised research model also demonstrates the positive relationship of employee competencies with competing values approach to organizational effectiveness validating the opinions of Yilmaz and Ergun, (2008) and Ruiner et al., (2013). Whereas, HRD interventions insignificantly related

to competing values approach to organizational effectiveness. Thus, supporting the H₁ and H₄ only and rejecting H₇. Which implies full mediation of employee competencies between the relationship of HRD interventions and competing values approach to organizational effectiveness and accepting H₈. The outcomes of the research support contemporary literature and provide new insights for better measures towards optimum utilization of human resource for very survival and sustainable growth of the Indian cement manufacturing organizations.

This chapter reflecting in detail about the data analysis and interpretation, findings and discussion. The responses of the respondents were assessed for its reliability and validity before the utilisation of analytical tools of measurement. Descriptive statistics, correlation analysis, multiple regression analysis, exploratory and confirmatory factor analysis, and structural equation modelling were broadly used to validate the model fit of the hypothesized research model. The validation and inferences of the hypotheses were documented throughout the study. This chapter is very essential for this thesis as it validates the notion that HRD interventions have significant impact on employee competencies, as well as employee competencies are significantly associated with organizational effectiveness. Further, analysis confirmed the moderating role of organizational learning culture in the relationship between HRD interventions and employee competencies. In addition, a conscious effort was made to validate the mediating role of employee competencies between HRD interventions and organizational effectiveness.

Chapter 6

Conclusion

The final chapter of this thesis discusses the summary of the research and presents a set of recommendations for improvement of HRD interventions, employee competencies and enhancement of organizational effectiveness of the Indian cement-manufacturing units. It also demonstrates the theoretical and practical implications of this study. Further, it illustrates the research limitations and proposes the directions for future research. Finally, this chapter provides a general conclusion for the whole study.

6.1 Summary

The central focus of the study was to conduct an examination of the impact of HRD interventions on organizational effectiveness through employee competencies. An opinion survey was conducted through a structured questionnaire to elicit the responses of the employees on the study variables. Subsequently, the primary data was analysed using statistical tools for the derivation of the study outcomes. Finally, the specific objectives of the study were achieved in the course of the research work.

The first objective was to study the influence of HRD interventions on employee competencies. Five HRD interventions were deduced from the extant literature that played a crucial role towards augmenting the employee competencies. These were training and development, career management, performance appraisal, team building, employee empowerment. The empirical analysis revealed that training and development has positive and significant influence on employee competencies; there is positive relationship between career management and employee competencies; and performance appraisal exhibit a positive influence on employee competencies; and team building has a considerable impact on employee competencies. Further, results found that employee empowerment significantly influence employee competencies.

The second objective was to examine the moderating role of organizational learning culture between HRD interventions and employee competencies. The study has examined the moderating role of organizational learning culture individually with the selected HRD interventions. The outcomes of the moderation analysis has shown that organizational learning culture strengthened the relationship between training and development and employee competencies; there is positive and significant moderating effect of

organizational learning culture with career management and employee competencies. Further, organizational learning culture played significant role in reinforcing the relationship between performance appraisal and employee competencies; organizational learning culture strengthened the positive relationship between team building and employee competencies; and the moderating effect of organizational learning culture has a positive and significant relationship between employee empowerment and employee competencies. Additionally, the results of the analysis has showed that organizational learning culture has played a significant role in strengthening the relationship between HRD interventions and employee competencies.

Third objective was to examine the relationship between employee competencies and goal oriented approach to organizational effectiveness. The results displayed that there is a positive and significant relationship of employee competencies with optimization of resources, cohesive workforce, and product quality and productivity, which implies the positive relationship with goal oriented approach to organizational effectiveness. Fourth objective is to measure the impact of employee competencies on competing values approach to organizational effectiveness. The findings revealed that there is a positive relationship with organizational adaptation, innovation, and flexibility. Further, found that a positive relationship in between employee competencies and competing values approach to organizational effectiveness.

Fifth objective was to explore the mediating role of employee competencies between HRD interventions and goal oriented approach to organizational effectiveness. The results of mediation analysis displayed a significant and positive mediating relationship of employee competencies between HRD interventions and goal oriented approach to organizational effectiveness. Sixth objective was also to explore the mediating role of employee competencies between HRD interventions and competing values approach to organizational effectiveness. The findings revealed that a positive mediating role of employee competencies was established.

6.2 Suggestions

The present study has developed a framework that considers HRD interventions and organizational learning culture in enhancing employee competencies and organizational effectiveness. The empirical validation of the proposed framework highlights certain points

that can enhance the effectiveness of the cement-manufacturing units. Based on the results of this study, the following suggestions are made:

- Training and development plays a crucial role in enhancing the employee competencies in the cement manufacturing organizations. In this context, organizations that directly links their training and development policy with the business strategy achieve effective outcomes such as enhancement of employee competencies behavioural change, improved individual performance etc. Moreover, organizations should focus on implementation of routine and need based training programs for enhancement of the employee's knowledge and sharpening of skills. Subsequently, employee requirements concerning to training and development should be fulfilled through the various activities undertaken by the organizations.
- The study explored the substantial effect of career management on enhancement of employee competencies. The cement-manufacturing units should seek active participation of employees in recognizing the developmental needs. Further, employees should be encouraged for upgradation of their present skills. In addition, organizations should carry out specific initiatives to ensure that employees properly utilize the time beyond the scheduled working hours to enrich their competencies.
- The research emphasized on the significant role of performance appraisal towards augmentation of employee competencies in cement manufacturing organizations. Periodic and systematic performance assessments must be conducted by the respective organizations for evaluation of the employees' performance. Based on the appraisal results, organizations can assist the employees in discovering their hidden potential and talent. Performance appraisal system should be effectively practised in these organizations for overall growth of the employees.
- The study also reinforced the fact that team building leads to enhancement of employee competencies. The organization should embed work teams that comprises of members with complementary skill set which facilitate effective team communication and exchange of positive feedback. Further, the organization should foster an open communication system with standardized methods of information sharing to augment the competencies of the employees.
- The research confirmed the substantial role of employee empowerment supplementing towards acquiring of competencies. The organizations should ensure that employees are aware of the organizational goals and have clarity of roles and

responsibilities. Further, the management should acknowledge the employee initiatives and involve them in decision-making process. Additionally, employees can be encouraged for active participation in the joint forums where they can freely express and share their opinions and thoughts.

- The study found that organizational learning culture strengthens the relationship between HRD interventions and employee competencies. The responsibility of the organization lies in creating a culture where employees are encouraged for continuous learning. Moreover, a climate should be created where employees can openly discuss mistakes with their superiors and colleagues for the purpose of learning and rectification of themselves. Hence, organizations should provide the necessary resources as desired by the employees relating to the assigned job.
- The proposed HRD interventions and organizational learning culture are vital to augment the competencies of employees of Indian cement industry. However, they must be tailored according to the priorities, characteristics and context of the cement manufacturing organization.

6.3 Implications of the Study

This research has made significant theoretical and practical contributions, which are listed below:

6.3.1 Theoretical Implications

From a theoretical perspective, the present study attempts to add to the existing body of HRD literature by integrating the role of HRD interventions and organizational learning culture in the augment of employee competencies towards the enhancement of organizational effectiveness. The following are the important contributions based on the findings of the study to the theory.

- The study provides a deeper understanding of how HRD interventions have influenced organizational effectiveness, by identifying employee competencies as a mediator and organisational learning culture as a moderator. The study has supplemented the previous studies on HRD practices and organizational performance relationship, which were characterised by weak and inconsistent results (Fleetwood and Hesketh, 2008; Hesketh and Fleetwood, 2006; Paauwe, 2009; Wall and Wood, 2005).
- The study has focused on employees' competencies, which adds value and extends the extant literature, focuses primarily on the broader and general dimensions of

human capital (Wei et al., 2011). Although small, the study emphasised on employees' competencies provides a new direction for HRD and organisational effectiveness research.

- The study results also confirmed that the relationship between HRD interventions and employees' competencies can be strengthened by fostering organizational learning culture. This study therefore provides support for a contingency perspective in HRD research that with a positive organizational learning culture; the effects of HRD interventions on the development of employees' competencies can be enhanced (Barney, 2001; Priem and Butler, 2001). By demonstrating that the organizational learning culture moderates the HRD interventions and employee competencies relationship, this study builds on a recent stream of research examining the resource based view from a contingency perspective (Aragón-Correa and Sharma, 2003; Lu et al., 2015).
- Several studies assessed effectiveness of training and development with attributes like effective training and development policy (McGrath, 2012), presence of professional trainers (Shen-Miller et al., 2015), well-furnished training centres (Ghosh et al., 2011). This study has confirmed two important aspects for effective implementation of training and development interventions, which are identification of training needs and providing of timely feedback owing to the performance assessment results.
- In majority of the studies, the variable career management is related to parameters like encouragement from superiors and colleagues (Crawshaw and Game, 2015), transparency in career management (Sullivan et al., 2003), and career counselling (Guan et al., 2015). However, provision for sponsorship and study leave also play a major role in career management for enhancement of employee competencies. The approval of study leaves and funding for higher education from the organization reassure the employees to pursue their studies. Similarly, regular assessment of skills and abilities can help employees to measure their strength and weakness as well as guide them to be skilful in their jobs.
- Previous works measured employee empowerment with attributes like accessibility to the information (Maynard et al., 2012), supportive employer-employee relations (Fernandez and Moldogaziev, 2013), participation in planning and scheduling (Luoh et al., 2014), and involvement in decision making (Dainty et al., 2002). The

research includes few other parameters such as employees feel a healthy atmosphere to extend their creative suggestions and participate in establishing the goals and objectives of the job.

- This study also offers important contributions to the HRD literature. Incorporating HRD interventions within a competency based theory framework is generative in terms of helping us to understand the underlying mechanism (employee competencies) through which HRD interventions affect organizational effectiveness. By examining employee competencies as mediator between HRD interventions and goal-oriented approach to organizational effectiveness, HRD interventions and competing values approach to organizational effectiveness, is a unique attempt in the existing literature relating to the relationship between HRD and organizational effectiveness.
- The present research has deliberated a holistic model that consists of HRD interventions, organizational learning culture, employee competencies, goal-oriented and competing values approach to organizational effectiveness. Specifically, this research model provided empirical evidences for the strong association between employee competencies and organizational effectiveness, wherein HRD interventions are the antecedents of employee competencies. Further, the model also confirmed the moderating effect of organizational learning culture in the relationship between HRD interventions and employee competencies. Additionally, the study empirically validated the mediating effects of employee competencies in the relationship between HRD interventions and two approaches of organizational effectiveness. The uniqueness of this research lies in the validation of holistic model that explains all the above-mentioned relationships, which is contributing another aspect to the established HRD literature.
- Finally, this study extends the application of HRD practices and organizational effectiveness to a new context (i.e. the emerging economy of India). The present study demonstrates that in emerging economies, characterised by environmental turbulence and uncertainties, the implementation of HRD practices will help the organisations to perform better by increasing the competency level of their employees.

6.3.2 Practical Implications

This study will definitely assist to resolve the existing issues and challenges relating to enhancement of organizational effectiveness and help the practitioners and policy makers to design appropriate strategies for the development of employee competencies. The key implications of this research work are discussed below:

- The study has given proper attention to the HRD interventions, which are crucial in enhancing the competencies of the employees of Indian cement manufacturing units. The HRD interventions are designed by the organisations to fill up the competency gap between the prevailing and expected competencies of the employees. The study will motivate the employees to be attentive and actively participate in all the organisational initiatives directed towards competency building.
- Viewing the crucial role played by organisational learning culture in fostering the impact of HRD interventions on competency building, employees should contribute for building of a positive learning culture that is characterised by sharing of knowledge and skills that enables them to create, accumulate and build high levels of competencies among themselves.
- This research provides a vital and flexible tool for enhancement of employee competencies in the hands of HRD managers, administrators, and practitioners that can be stimulated by the elements of HRD interventions and organizational learning culture. Further, the improved employee competencies can enhance organizational effectiveness. This may encourage and enable the organizations to reform certain HRD interventions as well as building of a learning culture in the workplace for reaping benefits for the employees as well as the organization.
- The cement-manufacturing units must consider organizational learning culture as an important strategy and develop clear plans and policies to implement in the work place. HRD practitioners should adopt the theoretical organizational learning culture as a guide to create a friendly, supportive environment and encourage knowledge sharing. The knowledge-sharing behaviour dimension must outline the practical actions for organizational members. The HRD efforts must provide physical spaces and allow employees to get to know each other to facilitate information sharing.
- This research may stimulate debate among the HRD policy makers on the requisites and paybacks of HRD practices based on pragmatic insights. Further, the study promotes the inception of HRD studies in cement manufacturing organizations that

embrace multi-level perspectives for developing practices that can foster employee competencies and enhance organizational effectiveness.

- The very success of developmental measures for enhancement of employee competencies towards organizational effectiveness requires strong governmental support and synergistic effort of all the stakeholders. This research endeavours to kindle discussions among cement manufacturing organizations and policy makers to develop effective HRD interventions. Thus, this work supports the crusade to enhance employee competencies through effective implementation of HRD interventions as the top priority for enhancing organizational effectiveness.
- This study would not only add value to the cement-manufacturing units but also the manufacturing industry as a whole wherein the influence of employee competencies on two approaches to organizational effectiveness: goal-oriented approach (optimization of resources, productivity and product quality, cohesive workforce) and competing values approach (organizational adaptation, organizational flexibility, and organizational innovation) can be effectively measured. Hence, this research work holds much value and relevance for the organizations involved in the process of manufacturing.
- The study findings provide support for suggestions for HRD practitioners those who are aiming at enhancing employee competencies for organizational effectiveness. While training initiatives will right-skill people and enhance their self-efficacy. Career management will help analyze their abilities and interests to better match their personal needs with the needs of the organization. Performance management, on the other hand, will help in gaining insight about employees' potential, communicating change goals and motivating them to be ready for change. Whereas team building and employee empowerment interventions will assist the employees to enhance their employer relations. Therefore, the study recommends that focus on the chosen HRD interventions will enhance employee competencies, which in turn will be instrumental in garnering goal oriented approach and competing values approach to organizational effectiveness.

6.4 Limitations of the Study

The study presents a number of important insights, at the same time; it suffers from the following limitations:

- The research was cross-sectional study because the data for this study were collected from individual respondents at a single point of time. The results may differ from a longitudinal study, where the progress may be examined over a period.
- The research analyses were based on cement industry employees of India, therefore limiting the generalizability of the research findings. Furthermore, this research was conducted in India, thus there is also a limitation of the research findings for generalisation particularly for organizations in developed or Western countries.
- The respondents of the study only consider employees directly involved in the production process of cement, however, the study excluded employees working in the captive mines of the respective cement-manufacturing units.
- The responses gathered in this research are mostly the subjective perceptions of the employees. Although, the subjective evaluations obtained through multi-item scales are generally consistent with objective measures, but differences between the perceptions and objective data may exist.
- The study relied on self-reported and reflective recollections of the indicators of the variables based on the perception of the employees who volunteered their participation. Because of the perceptual nature of the data, there is the possibility of common method bias. However, the results of Harman's single factor test suggested that such bias is not a serious concern in this study.
- The study used cross-sectional design, which means that the direction of the relationship shown in the research model should not be interpreted as a causal relationship, but as associations that might suggest a certain causal relationship that should be confirmed in future longitudinal research.
- The limitation of this study is the contextual effect in the responses because this study was undertaken on a voluntary participation basis and respondents were given choice of completing the questionnaire anywhere such that at work or outside work. In this questionnaire, it was not required to state where the questionnaire had been completed. Thus, it is possible that respondents could have been affected by the environment or other factors when they completed the survey.

6.6 Conclusion

The very purpose of this research was to provide an empirical evidence for improving employee competencies and enhancing organizational effectiveness of the Indian cement-

manufacturing units. The findings highlights that implementation of HRD interventions and policies of organizational learning culture can contribute towards enhancement of employee competencies. This research also provided a novel model depicting the relationship between HRD interventions and organizational effectiveness in Indian cement industry along with the moderation and mediation effects of organizational learning culture and employee competencies respectively. In the presence of effective organizational learning culture, the high performance HRD interventions augment employee competencies which results in improved goal-oriented approach to organizational effectiveness (cohesive workforce, optimization of resources and product quality and productivity) and competing values approach to organizational effectiveness (organizational adaptability, flexibility and innovation).

The relevance of this research work is to address the problems of the cement-manufacturing sector in India, which is dealing with issues of skill gaps and incompetent workforce. In this context, organizations can refer to this study and redesign their policies by giving more emphasis on HRD interventions and learning culture that can ultimately lead to enhancement of employee competencies. Consequently, employee competencies can positively influence the organizational effectiveness of cement manufacturing units. Hence, the study will pave the way for manufacturing organizations to overcome skills gaps by enhancing employee competencies and thereby improving organizational effectiveness.

Conceptual and empirical endeavours can be directed towards exploring other promising mechanisms in organizations, such as knowledge management and learning processes. The balanced consideration of internal and external mechanisms, along with the inclusion of both quantitative and qualitative HRD dimensions, would enrich the theoretical and practical underpinnings of HRD, related to various organizational outcomes. This study is an initial step towards developing and validating a multidimensional measure of HRD in a work context. In the future, based on the internal and external environmental conditions of an organization, the derived model can be further refined. The proactive measures of an organization will help in designing and implementation of HRD interventions for capacity building of employees. Therefore, HRD interventions supported by organizational learning culture is an important aspect for improving knowledge, skills and positive behaviour towards building organizational effectiveness. Lastly, through this research a sincere attempt was made to integrate the employee competencies as a core competence in enhancing organizational effectiveness. This can be possible by embedding HRD

interventions and organizational learning culture with the aid of strategic plans at the organizational and governmental level.

6.5 Scope for Future Research

- The sample of the study is limited to employees of cement manufacturing units in the Indian states of Andhra Pradesh and Odisha. Therefore, future studies may take in account employees in other Indian states, developing and developed countries to extend and validate the findings of this study.
- Future studies can also test the role of other mediators except employee competencies to explain the relationship between HRD interventions and organizational effectiveness.
- In addition to organizational learning culture, other contextual factors, such as leadership, national culture or organisational structure may also serve as moderators to interact with HRD interventions to affect competency development.
- The study provided a model representing the relationship between HRD interventions and organizational effectiveness. The appropriateness of this model may be examined on different categories of cement manufacturing units in other regions and countries, and future researchers/scholars may further advance the derived model towards scientific, meaningful, and universal acceptance among the peers.
- First, the study used cross sectional design, which means that the direction of the relationship should not be interpreted as a causal relationship, but as associations that might suggest a certain causal relationship that should be confirmed in future longitudinal research. For longitudinal study design, the employees with low employee competencies will have to be identified first to form our study group. A yearlong HRD intervention will be provided to the group members. Thereafter, the employees in the study group will be measured for any improvement in employee competencies. This exercise may establish the causal relationship between the independent variables and dependent variables.

Bibliography

- Abd Rahman, A., Imm Ng, S., Sambasivan, M., and Wong, F. (2013). Training and organizational effectiveness: moderating role of knowledge management process. *European Journal of Training and Development*, 37(5), 472-488.
- ACC Ltd. (2014). *Sustainable Development Report 2014: ACC Ltd.* Retrieved from http://www.acclimited.com/assets/new/pdf/ACCSR030915_1.pdf
- ACC Ltd. (2015). *Sustainable Development Report 2015: ACC Ltd.* Retrieved from http://www.acclimited.com/assets/new/pdf/ACC-SD-Report_02_240816.pdf.
- Adelaide Brighton Cement (2016). *Adelaide Brighton Cement Sustainability Report 2016.* Retrieved from http://www.annualreports.com/HostedData/AnnualReports/PDF/ASX_ABC_2015.pdf.
- Adelaide Brighton Cement (2016). Retrieved from <http://adbri.com.au/careers#careers-cement>.
- Aga, D. A., Noorderhaven, N., and Vallejo, B. (2016). Transformational leadership and project success: The mediating role of team building. *International Journal of Project Management*, 34(5), 806-818.
- Agarwal, U. A., Datta, S., Blake-Beard, S., and Bhargava, S. (2012). Linking LMX, innovative work behaviour and turnover intentions: The mediating role of work engagement. *Career Development International*, 17(3), 208-230.
- Aguinis, H. (2009). An expanded view of performance management. *Performance management: Putting research into practice*, 1-43.
- Aguinis, H. and Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society, *Annual Review of Psychology*, 60, 451-474.
- Akkermans, J., Schaufeli, W. B., Brenninkmeijer, V., and Blonk, R. W. B. (2013). The role of career competencies in the Job Demands—Resources model. *Journal of Vocational Behavior*, 83(3), 356-366.
- Alagaraja, M. (2013). HRD and HRM Perspectives on Organizational Performance: A Review of Literature. *Human Resource Development Review*, 12(2), 117-143.
- Alagaraja, M. and Dooley, L. M. (2003). Origins and historical influences on human resource development: A global perspective. *Human Resource Development Review*, 2(1), 82-96.
- Alagaraja, M., Cumberland, D. M., and Choi, N. (2015). The mediating role of leadership and people management practices on HRD and organizational performance. *Human Resource Development International*, 18(3), 220-234.
- Alcázar, F. M., Fernández, P. M. R., and Gardey, G. S. (2005). Researching on SHRM: An analysis of the debate over the role-played by human resources in firm success. *Management Revue*, 16(2), 213-241.
- ALDamoe, F. M. A., Yazam, M., and Ahmid, K. B. (2012). The mediating effect of HRM outcomes (employee retention) on the relationship between HRM practices and organizational performance. *International Journal of Human Resource Studies*, 2(1), 75.
- Alfalla-Luque, R., Marin-Garcia, J. A., and Medina-Lopez, C. (2015). An analysis of the direct and mediated effects of employee commitment and supply chain integration on organisational performance. *International Journal of Production Economics*, 162, 242-257.

- Alfes, K., Shantz, A. D., Truss, C., and Soane, E. C. (2013). The link between perceived human resource management practices, engagement and employee behaviour: a moderated mediation model. *The International Journal of Human Resource Management*, 24(2), 330-351.
- Anhui Conch Cement (2016). Retrieved from <http://english.conch.cn/sm2111111234.asp/>.
- Aragón-Correa, J. A. and Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review*, 28(1), 71-88.
- Arbuckle, J. L. (2009). AMOS (Version 18.0). Crawfordville, FL: Amos Development Corporation.
- Aritzeta, A., Swales, S., and Senior, B. (2007). Belbin's team role model: Development, validity and applications for team building. *Journal of Management Studies*, 44(1), 96-118.
- Armstrong, M. (2009). *Armstrong's handbook of performance management: an evidence-based guide to delivering high performance*. Kogan Page Publishers.
- Atinc, G., Simmering, M. J., and Kroll, M. J. (2011). Control variable use and reporting in macro and micromanagement research. *Organizational Research Methods*, 15(1), 57-74.
- Avolio, B. J., Zhu, W., Koh, W., and Bhatia, P. (2004). Transformational leadership and organizational commitment: Mediating role of psychological empowerment and moderating role of structural distance. *Journal of organizational behavior*, 25(8), 951-968.
- Babu, T. N. and Reddy, G. S. N. (2013). Role of HRM practices in Indian cement industry. *International Journal of Marketing, Financial Services and Management Research*, 2(8), 46-52.
- Baird, K. and Wang, H. (2010). Employee empowerment: extent of adoption and influential factors. *Personnel Review*, 39(5), 574-599.
- Bal, P. M. and De Lange, A. H. (2015). From flexibility human resource management to employee engagement and perceived job performance across the lifespan: A multisample study. *Journal of Occupational and Organizational Psychology*, 88(1), 126-154.
- Bal, P. M., Kooij, D. T., and De Jong, S. B. (2013). How do developmental and accommodative HRM enhance employee engagement and commitment? The role of psychological contract and SOC strategies. *Journal of Management Studies*, 50(4), 545-572.
- Balaji, C. and Karthikeyan, R. (2014). HRD climate among the employees in Chettinad Cement Corporation Limited, Karur. *International Journal of Applied Research*, 1(1), 1-5.
- Banerjee, P., Gupta, R., and Bates, R. (2016). Influence of Organizational Learning Culture on Knowledge Worker's Motivation to Transfer Training: Testing Moderating Effects of Learning Transfer Climate. *Current Psychology*, 1-12.
- Barnett, R. B. and Bradley, L. (2007). The impact of organisational support for career development on career satisfaction. *Career Development International*, 12(7), 617-636.
- Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management Science*, 32(10), 1231-1241.
- Barney, J. B. (2001). Is the resource-based "view" a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26(1), 41-56.

- Baron, R. M. and Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bartlett, K. R. (2003). Accidental trainers versus HRD professionals. *Human Resource Development Quarterly*, 14(2), 231-234.
- Bartram, D. (2004). Assessment in organisations. *Applied Psychology*, 53(2), 237-259.
- Baruch, Y. and Ramalho, N. (2006). Communalities and distinctions in the measurement of organizational performance and effectiveness across for-profit and non-profit sectors. *Nonprofit and Voluntary Sector Quarterly*, 35(1), 39-65.
- Basadur, M., Gelade, G., and Basadur, T. (2014). Creative problem-solving process styles, cognitive work demands, and organizational adaptability. *The Journal of Applied Behavioral Science*, 50(1), 80-115.
- Bates, R. and Chen, H. C. (2004). Human resource development value orientations: a construct validation study. *Human Resource Development International*, 7(3), 351-370.
- Bates, R. and Khasawneh, S. (2005). Organizational learning culture, learning transfer climate and perceived innovation in Jordanian organizations. *International Journal of Training and Development*, 9(2), 96-109.
- Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods*, 8(3), 274-289.
- Bednall, T. C., Sanders, K., and Runhaar, P. (2014). Stimulating informal learning activities through perceptions of performance appraisal quality and human resource management system strength: A two-wave study. *Academy of Management Learning & Education*, 13(1), 45-61.
- Beebe, S. A. and Masterson, J. T. (2014). *Communicating in small groups: Principles and practices*. Pearson Higher Ed.
- Bello-Pintado, A. (2015). Bundles of HRM practices and performance: empirical evidence from a Latin American context. *Human Resource Management Journal*, 25(3), 311-330.
- Berger, L. and Berger, D. (2010). *The talent management handbook: Creating a sustainable competitive advantage by selecting, developing, and promoting the best people*. McGraw Hill Professional.
- Bharadwaj, S. and Menon, A. (2000). Making innovation happen in organizations: individual creativity mechanisms, organizational creativity mechanisms or both? *Journal of Product Innovation Management*, 17(6), 424-434.
- Bhatnagar, J. (2012). Management of innovation: Role of psychological empowerment, work engagement and turnover intention in the Indian context. *The International Journal of Human Resource Management*, 23(5), 928-951.
- Birdi, K. S. (2005). No idea? Evaluating the effectiveness of creativity training. *Journal of European Industrial Training*, 29(2), 102-111.
- Bloor, G. and Dawson, P. (1994). Understanding professional culture in organizational context. *Organization Studies*, 15(2), 275-295.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: Wiley.
- Bowen, D. E. and Lawler, E. E. (1995). Empowering service employees. *Sloan Management Review*, 36(4), 73.
- Boyatzis, R.E. (1982). *The Competent Manager: A Model for Effective Performance*, John Wiley & Sons, New York, NY.

- Bradley, B. H., Postlethwaite, B. E., Klotz, A. C., Hamdani, M. R., and Brown, K. G. (2012). Reaping the benefits of task conflict in teams: the critical role of team psychological safety climate. *Journal of Applied Psychology*, 97(1), 151.
- Braun, S., Peus, C., Weisweiler, S., and Frey, D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly*, 24(1), 270-283.
- Brooks, K. and Nafukho, F.M. (2006). Human resource development, social capital, emotional intelligence: Any link to productivity? *Journal of European Industrial Training*, 30(2), 117-128.
- Brown, T. C., Warren, A. M., and Khattar, V. (2016). The Effects of Different Behavioral Goals on Transfer from a Management Development Program. *Human Resource Development Quarterly*, 27(3), 349-372.
- Browne, M. W. and Cudeck, R. (1993). *Alternative ways of assessing model fit*. In Bollen, K. A. and Long, J. S. (Eds.), *Testing Structural Equation Models* (pp. 136–162). Beverly Hills, CA: Sage Publications.
- Bunch, K. J. (2007). Training failure as a consequence of organizational culture. *Human Resource Development Review*, 6(2), 142-163.
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming* (2nd Ed.). New York: Routledge.
- Callow, N., Smith, M. J., Hardy, L., Arthur, C. A., and Hardy, J. (2009). Measurement of transformational leadership and its relationship with team cohesion and performance level. *Journal of Applied Sport Psychology*, 21(4), 395-412.
- Camelo-Ordaz, C., Garcia-Cruz, J., Sousa-Ginel, E., and Valle-Cabrera, R. (2011). The influence of human resource management on knowledge sharing and innovation in Spain: the mediating role of affective commitment. *The International Journal of Human Resource Management*, 22(07), 1442-1463.
- Cameron, K. S. and Quinn, R. E. (2005). *Diagnosing and changing organizational culture: Based on the competing values framework*. John Wiley & Sons.
- Campbell, J. W. (2015). Identification and Performance Management: An Assessment of Change-Oriented Behavior in Public Organizations. *Public Personnel Management*, 44(1), 46-69.
- Campbell, J.P. (1977). On the nature of organizational effectiveness. Goodman P.S. and Pennings J.M. (Eds), *New Perspective on Organizational Effectiveness*, Jossey-Bass, San Francisco, pp. 13-22.
- Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., and Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel Psychology*, 64(1), 225-262.
- Cardy, R. L. and Selvarajan, T. T. (2006). Competencies: Alternative frameworks for competitive advantage, *Business Horizons*, 49(3): 235-245.
- Cartwright, S. and Baron, H. (2002), Culture and organizational effectiveness, in Robertson, I.T., Callinan, M. and Bartram, D. (Eds), *Organizational Effectiveness: The Role of Psychology*. Chichester: John Wiley & Sons.
- Catano, V. M., Darr, W. and Campbell, C. A. (2007). Performance appraisal of behavior-based competencies: A reliable and valid procedure, *Personnel Psychology*, 60(1): 201-230.
- CEMEX Sustainability Development Report (2015). Retrieved from <http://www.cemex.com/SustainableDevelopment/files/CemexSustainableDevelopmentReport2015.pdf>.
- Chalofsky, N. and Lincoln, C. (1983) *Up the HRD Ladder*, Reading, MA: Addison- Wesley.

- Chaudhary, R., Rangnekar, S., and Barua, M. (2013). Human resource development climate in India: examining the psychometric properties of HRD climate survey instrument. *Vision*, 17(1), 41-52.
- Chaudhary, R., Rangnekar, S., and Barua, M. K. (2012). HRD climate, occupational self-efficacy and work engagement: A study from India. *The Psychologist-Manager Journal*, 15(2), 86-105.
- Chen, C. J. and Huang, J. W. (2009). Strategic human resource practices and innovation performance: The mediating role of knowledge management capacity. *Journal of Business Research*, 62(1), 104-114.
- Chen, C. Y. and Li, C. I. (2013). Assessing the spiritual leadership effectiveness: The contribution of follower's self-concept and preliminary tests for moderation of culture and managerial position. *The Leadership Quarterly*, 24(1), 240-255.
- Chen, G., Kirkman, B. L., Kanfer, R., Allen, D., and Rosen, B. (2007). A multilevel study of leadership, empowerment, and performance in teams. *Journal of Applied Psychology*, 92(2), 331.
- Chen, H. C. and Naquin, S. S. (2006). An integrative model of competency development, training design, assessment center, and multi-rater assessment. *Advances in Developing Human Resources*, 8(2), 265-282.
- Chen, N. (2008). Internal/Employee Communication and Organizational Effectiveness: a study of Chinese corporations in transition. *Journal of Contemporary China*, 17(54), 167-189.
- Chen, T. Y., Chang, P. L., and Yeh, C. W. (2006). The effects of career development programs on R&D personnel in Taiwan. *Asia Pacific Journal of Human Resources*, 44(3), 318-341.
- Chen, Y., Tang, G., Jin, J., Li, J., and Paillé, P. (2015). Linking market orientation and environmental performance: The influence of environmental strategy, employee's environmental involvement, and environmental product quality. *Journal of Business Ethics*, 127(2), 479-500.
- Cheramie, R. (2013). An examination of feedback-seeking behaviors, the feedback source and career success. *Career Development International*, 18(7), 712-731.
- Chermack, T. J. and Kasshanna, B. K. (2007). The use and misuse of SWOT analysis and implications for HRD professionals. *Human Resource Development International*, 10(4): 383-399.
- Chiang, F. F. and Birtch, T. A. (2010). Appraising Performance across Borders: An Empirical Examination of the Purposes and Practices of Performance Appraisal in a Multi-Country Context. *Journal of Management Studies*, 47(7), 1365-1393.
- Choi, W. and Jacobs, R. L. (2011). Influences of formal learning, personal learning orientation, and supportive learning environment on informal learning. *Human Resource Development Quarterly*, 22(3), 239-257.
- Clardy, A. (2008). The strategic role of human resource development in managing core competencies. *Human Resource Development International*, 11(2), 183-197.
- Clarke, M. (2013). The organizational career: not dead but in need of redefinition. *The International Journal of Human Resource Management*, 24(4), 684-703.
- Clarke, N. (2004). HRD and the challenges of assessing learning in the workplace. *International Journal of Training and Development*, 8(2), 140-156.
- Colbert, A. E., Barrick, M. R., and Bradley, B. H. (2014). Personality and leadership composition in top management teams: Implications for organizational effectiveness. *Personnel Psychology*, 67(2), 351-387.

- Collings, D. G. and Mellahi, K. (2009). Strategic talent management: A review and research agenda. *Human Resource Management Review*, 19(4), 304-313.
- Confessore, S. J. and Kops, W. J. (1998). Self-directed learning and the learning organization: Examining the connection between the individual and the learning environment. *Human Resource Development Quarterly*, 9(4), 365-375.
- Connolly, T., Conlon, E. J., and Deutsch, S. J. (1980). Organizational effectiveness: A multiple-constituency approach. *Academy of Management Review*, 5(2), 211-218.
- Conway, E., Fu, N., Monks, K., Alfes, K., and Bailey, C. (2015). Demands or resources? The relationship between HR practices, employee engagement, and emotional exhaustion within a hybrid model of employment relations. *Human Resource Management*, 55(5), 905-917.
- Conway, J. M. and Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25(3), 325-334.
- Cooper, R. D. and Schindler, S. P. (2014). *Business research methods*. (12th Ed). New Delhi: McGraw Hill Education.
- Cornerstonemag (2015). Retrieved from <http://cornerstonemag.net/the-rise-and-potential-peak-of-cement-demand-in-the-urbanized-world/>.
- Cortina, J. M., Chen, G., and Dunlap, W. P. (2001). Testing interaction effects in LISREL: Examination and illustration of available procedures. *Organizational Research Methods*, 4(4), 324-360.
- Craig, R. (1976) *Training and Development Handbook*, (2nd edn), New York: McGraw-Hill.
- Crawshaw, J. R. and Game, A. (2015). The role of line managers in employee career management: an attachment theory perspective. *The International Journal of Human Resource Management*, 26(9), 1182-1203.
- Creswell, J. W. (2008). *Educational Research: Planning, conducting, and evaluating quantitative and qualitative research*. (3rd Ed.). Upper Saddle River: Pearson
- Cromwell, S. E. and Kolb, J. A. (2004). An examination of work-environment support factors affecting transfer of supervisory skills training to the workplace. *Human Resource Development Quarterly*, 15(4), 449-471.
- Cullen, K. L., Edwards, B. D., Casper, W. C., and Gue, K. R. (2014). Employees' adaptability and perceptions of change-related uncertainty: Implications for perceived organizational support, job satisfaction, and performance. *Journal of Business and Psychology*, 29(2), 269-280.
- Cummings, T. and Worley, C. (2005). *Organizational Development and Change*, Ohio, South-Western.
- Dainty, A. R., Bryman, A., and Price, A. D. (2002). Empowerment within the UK construction sector. *Leadership & Organization Development Journal*, 23(6), 333-342.
- De Vaus, D. (2013). *Surveys in social research*. Routledge.
- De Vos, A. and Dries, N. (2013). Applying a talent management lens to career management: The role of human capital composition and continuity. *The International Journal of Human Resource Management*, 24(9), 1816-1831.
- Decramer, A., Smolders, C., Vanderstraeten, A., and Christiaens, J. (2012). The impact of institutional pressures on employee performance management systems in higher education in the Low Countries. *British Journal of Management*, 23(S1), S88-S103.

- Delaney, J. T. and Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39(4), 949-969.
- Delery, J. and Gupta, N. (2016). Human resource management practices and organizational effectiveness: internal fit matters. *Journal of Organizational Effectiveness: People and Performance*, 3(2), 139-163.
- DeNisi, A. and Smith, C. E. (2014). Performance appraisal, performance management, and firm-level performance: a review, a proposed model, and new directions for future research. *The Academy of Management Annals*, 8(1), 127-179.
- DeNisi, A. S. and Pritchard, R. D. (2006). Performance appraisal, performance management and improving individual performance: A motivational framework. *Management and Organization Review*, 2(2): 253-277.
- Detert, J. R., Schroeder, R. G., and Mauriel, J. J. (2000). A framework for linking culture and improvement initiatives in organizations. *Academy of Management Review*, 25(4), 850-863.
- Diamantidis, A. D. and Chatzoglou, P. D. (2014). Employee post-training behaviour and performance: evaluating the results of the training process. *International Journal of Training and Development*, 18(3), 149-170.
- Díaz-Fernández, M., López-Cabrales, A., and Valle-Cabrera, R. (2014). A contingent approach to the role of human capital and competencies on firm strategy. *Business Research Quarterly*, 17(3), 205-222.
- Dollinger, M. J. and Golden, P. A. (1992). Inter organizational and collective strategies in small firms: Environmental effects and performance. *Journal of Management*, 18(4), 695-715.
- Dust, S. B., Resick, C. J., and Mawritz, M. B. (2014). Transformational leadership, psychological empowerment, and the moderating role of mechanistic–organic contexts. *Journal of Organizational Behavior*, 35(3), 413-433.
- Dusterhoff, C., Cunningham, J. B., and MacGregor, J. N. (2014). The effects of performance rating, leader–member exchange, perceived utility, and organizational justice on performance appraisal satisfaction: Applying a moral judgment perspective. *Journal of Business Ethics*, 119(2), 265-273.
- Egan, T. M., Upton, M. G., and Lynham, S. A. (2006). Career development: Load-bearing wall or window dressing? Exploring definitions, theories, and prospects for HRD-related theory building. *Human Resource Development Review*, 5(4), 442-477.
- Egan, T. M., Yang, B., and Bartlett, K. R. (2004). The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resource Development Quarterly*, 15(3), 279-301.
- Ehlen, C., van der Klink, M., Roentgen, U., Curfs, E., and Boshuizen, H. (2013). Knowledge productivity for sustainable innovation: social capital as HRD target. *European Journal of Training and Development*, 38(1/2), 54-74.
- Ehrhardt, K., Miller, J. S., Freeman, S. J., and Hom, P. W. (2011). An examination of the relationship between training comprehensiveness and organizational commitment: Further exploration of training perceptions and employee attitudes. *Human Resource Development Quarterly*, 22(4), 459-489.
- Ellinger, E. A. and Ellinger, A. D. (2013). Leveraging human resource development expertise to improve supply chain managers' skills and competencies. *European Journal of Training and Development*, 38(1/2), 118–135.

- Eric Soderquist, K., Papalexandris, A., Ioannou, G., and Prastacos, G. (2010). From task-based to competency-based: A typology and process supporting a critical HRM transition. *Personnel Review*, 39(3), 325-346.
- Erkutlu, H. (2011). The moderating role of organizational culture in the relationship between organizational justice and organizational citizenship behaviors. *Leadership & Organization Development Journal*, 32(6), 532-554.
- Ertürk, A. and Vurgun, L. (2015). Retention of IT professionals: Examining the influence of empowerment, social exchange, and trust. *Journal of Business Research*, 68(1), 34-46.
- EUROCEMENT (2016). Retrieved from <http://www.eurocement.ru/cntnt/eng10/careers/qualificat.html>.
- Evans, W. R. and Davis, W. D. (2005). High-performance work systems and organizational performance: The mediating role of internal social structure. *Journal of Management*, 31(5), 758-775.
- Faisal Ahammad, M., Mook Lee, S., Malul, M., and Shoham, A. (2015). Behavioral ambidexterity: The impact of incentive schemes on productivity, motivation, and performance of employees in commercial banks. *Human Resource Management*, 54(S1), s45-s62.
- Fan, D., Cui, L., Zhang, M. M., Zhu, C. J., Härtel, C. E., and Nyland, C. (2014). Influence of high performance work systems on employee subjective well-being and job burnout: empirical evidence from the Chinese healthcare sector. *The International Journal of Human Resource Management*, 25(7), 931-950.
- Fernandez, S. and Moldogaziev, T. (2012). Using employee empowerment to encourage innovative behavior in the public sector. *Journal of Public Administration Research and Theory*, 23(1), 155-187.
- Fernandez, S. and Moldogaziev, T. (2013). Employee empowerment, employee attitudes, and performance: Testing a causal model. *Public Administration Review*, 73(3), 490-506.
- Field, A. (2009). *Discovering statistics using SPSS*. Sage publications.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Fleetwood, S. and Hesketh, A. (2008). Theorising under-theorisation in research on the HRM-performance link. *Personnel Review*, 37(2), 126-144.
- Fletcher, C. and Williams, R. (1996). Performance Management, Job Satisfaction and Organizational Commitment. *British Journal of Management*, 7(2), 169-179.
- Fong, C. Y., Ooi, K. B., Tan, B. I., Lee, V. H., and Yee-Loong Chong, A. (2011). HRM practices and knowledge sharing: an empirical study. *International Journal of Manpower*, 32(5/6), 704-723.
- Fong, K. H. and Snape, E. (2015). Empowering leadership, psychological empowerment and employee Outcomes: Testing a multi-level mediating model. *British Journal of Management*, 26(1), 126-138.
- Fornell, C. and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Froehlich, D., Segers, M., and Van den Bossche, P. (2014). Informal workplace learning in Austrian banks: The influence of learning approach, leadership style, and organizational learning culture on managers' learning outcomes. *Human Resource Development Quarterly*, 25(1), 29-57.
- Gaertner, G. H. and Ramnarayan, S. (1983). Organizational effectiveness: An alternative perspective. *Academy of Management Review*, 8(1), 97-107.

- Garavan, T. N. (2007). A strategic perspective on human resource development. *Advances in Developing Human Resources*, 9(1): 11-30.
- Garavan, T. N. and McCarthy, A. (2008). Collective learning processes and human resource development. *Advances in Developing Human Resources*, 10(4), 451-471.
- Garavan, T. N., Carbery, R., and Rock, A. (2012). Mapping talent development: definition, scope and architecture. *European Journal of Training and Development*, 36(1), 5-24.
- Garavan, T. N., Gunnigle, P., and Morley, M. (2000). Contemporary HRD research: a triarchy of theoretical perspectives and their prescriptions for HRD. *Journal of European Industrial Training*, 24(2/3/4), 65-93.
- Garavan, T. N., McGuire, D., and Lee, M. (2015). Reclaiming the “D” in HRD: A typology of development conceptualizations, antecedents, and outcomes. *Human Resource Development Review*, 14(4), 359-388.
- Garavan, T. N., O'Donnell, D., McGuire, D., and Watson, S. (2007). Exploring perspectives on human resource development: An introduction. *Advances in Developing Human Resources*, 9(1), 3-10.
- Garavan, T., Shanahan, V., Carbery, R., and Watson, S. (2016). Strategic human resource development: towards a conceptual framework to understand its contribution to dynamic capabilities. *Human Resource Development International*, 19(4), 289-306.
- García-Morales, V. J., Jiménez-Barrionuevo, M. M., and Gutiérrez-Gutiérrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, 65(7), 1040-1050.
- Garrido-Moreno, A., Lockett, N., and García-Morales, V. (2014). Paving the way for CRM success: The mediating role of knowledge management and organizational commitment. *Information & Management*, 51(8), 1031-1042.
- Garvin, D. A. (1993). Building a learning organization. *Harvard Business Review*, 71(4), 78-91.
- Gavino, M. C., Wayne, S. J., and Erdogan, B. (2012). Discretionary and transactional human resource practices and employee outcomes: The role of perceived organizational support. *Human Resource Management*, 51(5), 665-686.
- Georgopoulos, B. S. and Tannenbaum, A. S. (1957). A study of organizational effectiveness. *American Sociological Review*, 22(5), 534-540.
- Gerhart, B. (2005). Human resources and business performance: Findings, unanswered questions, and an alternative approach. *Management Review*, 174-185.
- Ghosh, P., Prasad Joshi, J., Satyawadi, R., Mukherjee, U., and Ranjan, R. (2011). Evaluating effectiveness of a training programme with trainee reaction. *Industrial and Commercial Training*, 43(4), 247-255.
- Gilbert, C., De Winne, S., and Sels, L. (2011). The influence of line managers and HR department on employees' affective commitment. *The International Journal of Human Resource Management*, 22(8), 1618-1637.
- Gilley, J.W., Egghland, S.A. and Gilley, M.A. (2009). *Principles of Human Resource Development*, Basic Books, New York, NY.
- Gin Choi, Y., Kwon, J., and Kim, W. (2013). Effects of attitudes vs experience of workplace fun on employee behaviors: Focused on Generation Y in the hospitality industry. *International Journal of Contemporary Hospitality Management*, 25(3), 410-427.

- Given, L. M. (2008). *The Sage encyclopaedia of qualitative research methods*. New Delhi: Sage Publications India Pvt Ltd.
- Glaveli, N. and Karassavidou, E. (2011). Exploring a possible route through which training affects organizational performance: the case of a Greek bank. *The International Journal of Human Resource Management*, 22(14), 2892-2923.
- Global Cement Directory (2016). Retrieved from <http://www.globalcement.com/directory>.
- Global Cement Magazine (2015). Retrieved from <http://www.globalcement.com/magazine/articles/964-preview-the-top-100-global-cement-companies-and-global-per-capita-capacity-trends>.
- Gold, A.H., Malhotra, A., and Segars, A.H. (2001). Knowledge management: an organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214.
- Gómez, C. and Rosen, B. (2001). The leader-member exchange as a link between managerial trust and employee empowerment. *Group & Organization Management*, 26(1), 53-69.
- Govaerts, N. and Dochy, F. (2014). Disentangling the role of the supervisor in transfer of training. *Educational Research Review*, 12, 77-93.
- Granrose, C. S. and Portwood, J. D. (1987). Matching individual career plans and organizational career management. *Academy of Management Journal*, 30(4), 699-720.
- Greasley, K., Bryman, A., Dainty, A., Price, A., Soetanto, R., and King, N. (2005). Employee perceptions of empowerment. *Employee Relations*, 27(4), 354-368.
- Green, K. W., Wu, C., Whitten, D., and Medlin, B. (2006). The impact of strategic human resource management on firm performance and HR professionals' work attitude and work performance. *The International Journal of Human Resource Management*, 17(4), 559-579.
- Guan, Y., Zhou, W., Ye, L., Jiang, P., and Zhou, Y. (2015). Perceived organizational career management and career adaptability as predictors of success and turnover intention among Chinese employees. *Journal of Vocational Behavior*, 88, 230-237.
- Gumusluoglu, L. and Ilsev, A. (2009). Transformational leadership, creativity, and organizational innovation. *Journal of Business Research*, 62(4), 461-473.
- Guo, Y., Wang, C., and Feng, Y. (2014). The Moderating Effect of Organizational Learning Culture on Individual Motivation and ERP System Assimilation at Individual Level. *Journal of Software*, 9(2), 365-373.
- Hage, J. T. (1999). Organizational innovation and organizational change. *Annual Review of Sociology*, 25(1), 597-622.
- Haines III, V. Y. and St-Onge, S. (2012). Performance management effectiveness: practices or context? *The International Journal of Human Resource Management*, 23(6), 1158-1175.
- Hair, J. F., Black, W. C., Babin B. J., and Anderson, R. E. (2014). *Multivariate data analysis*. Essex: Pearson Education Limited.
- Hamlin, R. G. (2004). In support of universalistic models of managerial and leadership effectiveness: Implications for HRD research and practice. *Human Resource Development Quarterly*, 15(2), 189-215.
- Han, S. H., Seo, G., Yoon, S. W., and Yoon, D. Y. (2016). Transformational leadership and knowledge sharing: Mediating roles of employee's empowerment, commitment, and citizenship behaviors. *Journal of Workplace Learning*, 28(3), 130-149.

- Han, T. S., Chiang, H. H., and Chang, A. (2010). Employee participation in decision-making, psychological ownership and knowledge sharing: mediating role of organizational commitment in Taiwanese high-tech organizations. *The International Journal of Human Resource Management*, 21(12), 2218-2233.
- Harbison, F. H. and Myers, C. A. (1964). *Education, manpower, and economic growth: Strategies of human resource development*. Tata McGraw-Hill Education.
- Harris, S. G. and Mossholder, K. W. (1996). The affective implications of perceived congruence with culture dimensions during organizational transformation. *Journal of Management*, 22(4), 527-547.
- Hartnell, C. A., Ou, A. Y., and Kinicki, A. (2011). Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology*, 96(4), 677.
- Haslinda, A. (2009). Outcomes of human resource development interventions. *Journal of Social Sciences*, 5(1), 25-32.
- Hassi, A. and Storti, G. (2011). Organizational training across cultures: variations in practices and attitudes. *Journal of European Industrial Training*, 35(1), 45-70.
- Hatum, A. and Pettigrew, A. M. (2006). Determinants of organizational flexibility: a study in an emerging economy. *British Journal of Management*, 17(2), 115-137.
- He, H., Baruch, Y., and Lin, C. P. (2014). Modelling team knowledge sharing and team flexibility: The role of within-team competition. *Human relations*, 67(8), 947-978.
- Heidelberg Cement Sustainability Report (2015). Retrieved from <http://www.heidelbergcement.com/en/sustainability-reports>.
- Henri, J. F. (2006). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, 31(1), 77-103.
- Hesketh, A. and Fleetwood, S. (2006). Beyond measuring the human resources management-organizational performance link: Applying critical realist meta-theory. *Organization*, 13(5), 677-699.
- Hesketh, B. and Ivancic, K. (2002). Enhancing performance through training. *Psychological Management of Individual Performance*, 249-265.
- Hirschi, A. (2014). Hope as a resource for self-directed career management: Investigating mediating effects on proactive career behaviours and life and job satisfaction. *Journal of Happiness Studies*, 15(6), 1495-1512.
- Hitt, M. A., Biermant, L., Shimizu, K., and Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13-28.
- Ho, R. (2006). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. Florida: Taylor & Francis Group.
- Hoch, J. E. and Kozlowski, S. W. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, 99(3), 390.
- Hogan, S. J. and Coote, L. V. (2014). Organizational culture, innovation, and performance: A test of Schein's model. *Journal of Business Research*, 67(8), 1609-1621.
- Hollenbeck, J. R., DeRue, D. S., and Guzzo, R. (2004). Bridging the gap between I/O research and HR practice: Improving team composition, team training, and team task design. *Human Resource Management*, 43(4), 353-366.
- Hoon Song, J., Kolb, J. A., Hee Lee, U., and Kyoung Kim, H. (2012). Role of transformational leadership in effective organizational knowledge creation

- practices: Mediating effects of employees' work engagement. *Human Resource Development Quarterly*, 23(1), 65-101.
- Hosmani, A.P. and Hameed, S.T. (2013). Employee performance appraisal in cement industry: A case study of ACC Ltd, Wadi, Gubarga. *District. International Journal of Research in Commerce & Management*, 4(7), 30-33.
- Hu, L. T. and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55.
- Hui, C., Lee, C., and Wang, H. (2015). Organizational inducements and employee citizenship behavior: The mediating role of perceived insider status and the moderating role of collectivism. *Human Resource Management*, 54(3), 439-456.
- Human resource and skill requirement in the construction materials and building hardware (2015). Retrieved from <http://www.nsdcindia.org/pdf/construction-matl-bldg-hardware.pdf>.
- Human resource and skill requirement in the construction materials and building hardware (2012-17). National Skill Development Corporation. Retrieved from <http://www.nsdcindia.org/sites/default/files/files/Construction-Material-Building-Hardware.pdf>.
- Hung, R. Y. Y., Yang, B., Lien, B. Y. H., McLean, G. N., and Kuo, Y. M. (2010). Dynamic capability: Impact of process alignment and organizational learning culture on performance. *Journal of World Business*, 45(3), 285-294.
- International Monetary Fund's (IMF) October (2015). Retrieved from <https://www.imf.org/external/pubs/ft/weo/2015/02/pdf/text.pdf>.
- Jaccard, J. and Wan, C. (1996). *LISREL approaches to interaction effects in multiple regression*. Sage University Paper Series on Quantitative Applications in the Social Sciences (Series no. 07–114). Thousand Oaks, CA: Sage.
- Jain, A. K. and Moreno, A. (2015). Organizational learning, knowledge management practices and firm's performance: an empirical study of a heavy engineering firm in India. *The Learning Organization*, 22(1), 14-39.
- Jansen, J. J., Van Den Bosch, F. A., and Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), 1661-1674.
- Janssen, O. (2004). The barrier effect of conflict with superiors in the relationship between employee empowerment and organizational commitment. *Work & Stress*, 18(1), 56-65.
- Jaypee Group (2016). Retrieved from <http://www.jalindia.com/cement.html>.
- Jeffrey Hill, E., Grzywacz, J. G., Allen, S., Blanchard, V. L., Matz-Costa, C., Shulkin, S., and Pitt-Catsoupes, M. (2008). Defining and conceptualizing workplace flexibility. *Community, Work and Family*, 11(2), 149-163.
- Jiang, J. Y. and Liu, C. W. (2015). High performance work systems and organizational effectiveness: The mediating role of social capital. *Human Resource Management Review*, 25(1), 126-137.
- Jiang, K., Lepak, D. P., Hu, J., and Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55(6), 1264-1294.
- Jo, S. J. and Park, S. (2016). Critical review on power in organization: Empowerment in human resource development. *European Journal of Training and Development*, 40(6), 390–406.

- Johnson, B. and Christensen, L. (2008). *Educational research: Quantitative, qualitative, and mixed approaches*. Sage.
- Jones, J. (1981) 'The organizational universe', in J. Jones and J. Pfeiffer (eds) *The 1981 Annual Handbook for Group Facilitators*, San Diego, CA: University Associates.
- Jones, R., Latham, J., and Betta, M. (2013). Creating the illusion of employee empowerment: lean production in the international automobile industry. *The International Journal of Human Resource Management*, 24(8), 1629-1645.
- Joo, B. K. and Park, S. (2010). Career satisfaction, organizational commitment, and turnover intention: The effects of goal orientation, organizational learning culture and developmental feedback. *Leadership & Organization Development Journal*, 31(6), 482-500.
- Joo, B. K. and Ready, K. J. (2012). Career satisfaction: The influences of proactive personality, performance goal orientation, organizational learning culture, and leader-member exchange quality. *Career Development International*, 17(3), 276-295.
- Joo, B. K. and Shim, J. H. (2010). Psychological empowerment and organizational commitment: the moderating effect of organizational learning culture. *Human Resource Development International*, 13(4), 425-441.
- Joo, B. K. B. (2010). Organizational commitment for knowledge workers: The roles of perceived organizational learning culture, leader-member exchange quality, and turnover intention. *Human Resource Development Quarterly*, 21(1), 69-85.
- Joo, B. K. B. and Lim, T. (2009). The effects of organizational learning culture, perceived job complexity, and proactive personality on organizational commitment and intrinsic motivation. *Journal of Leadership & Organizational Studies*, 16(1), 48-60.
- Joo, B. K. B., Song, J. H., Lim, D. H., and Yoon, S. W. (2012). Team creativity: The effects of perceived learning culture, developmental feedback and team cohesion. *International Journal of Training and Development*, 16(2), 77-91.
- Joreskog, K. and Yang, F. (1996). *Nonlinear structural equation models: The Kenny-Judd model with interaction effects*. In G. A. Marcoulides & R. E. Schumaker (Eds.), *Advanced structural equations modeling techniques* (pp. 57-88). Hillsdale, NJ: Erlbaum.
- Jose, P.E. (2013). *Doing statistical mediation and moderation*. New York: Guilford Press.
- Kabanoff, B. and Brown, S. (2008). Knowledge structures of prospectors, analyzers, and defenders: Content, structure, stability, and performance. *Strategic Management Journal*, 29(2), 149-171.
- Kandemir, D. and Hult, G. T. M. (2005). A conceptualization of an organizational learning culture in international joint ventures. *Industrial Marketing Management*, 34(5), 430-439.
- Kanter, R. M. (1993). *Men and Women of the Corporation* (2nd Ed.). New York: Basic books.
- Katou, A. A. (2009). The impact of human resource development on organisational performance: Test of a causal model. *Journal of Behavioral and Applied Management*, 10(3), 335.
- Kehoe, R. R. and Wright, P. M. (2013). The impact of high-performance human resource practices on employees' attitudes and behaviors. *Journal of Management*, 39(2), 366-391.
- Kenny, D. A. and Judd, C. M. (1984). Estimating the nonlinear and interactive effects of latent variables. *Psychological Bulletin*, 96(1), 201.

- Kessler, E. H. (2004). Organizational innovation: A multi-level decision-theoretic perspective. *International Journal of Innovation Management*, 8(3), 275-295.
- King, A. W., Fowler, S. W., and Zeithaml, C. P. (2001). Managing organizational competencies for competitive advantage: The middle-management edge. *The Academy of Management Executive*, 15(2): 95-106.
- Kinicki, A. J., Jacobson, K. J., Peterson, S. J., and Prussia, G. E. (2013). Development and validation of the performance management behavior questionnaire. *Personnel psychology*, 66(1), 1-45.
- Klein, C., Diaz-Granados, D., Salas, E., Le, H., Burke, C. S., Lyons, R., and Goodwin, G. F. (2009). Does team building work? *Small Group Research*, 40(2), 181-222.
- Kline, R.B. (2005), *Principles and practice of structural equation modelling*. (2nd Ed.) New York: The Guilford Press.
- Kmieciak, R., Michna, A., and Meczynska, A. (2012). Innovativeness, empowerment and IT capability: evidence from SMEs. *Industrial Management & Data Systems*, 112(5), 707-728.
- Kolb, A. Y. and Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2), 193-212.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.
- Kontoghiorghes, C., Awbre, S. M., and Feurig, P. L. (2005). Examining the relationship between learning organization characteristics and change adaptation, innovation, and organizational performance. *Human Resource Development Quarterly*, 16(2), 185-212.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. (2nd Ed). New Delhi: New Age International.
- Kovjanic, S., Schuh, S. C., Jonas, K., Quaquebeke, N. V., and Dick, R. (2012). How do transformational leaders foster positive employee outcomes? A self-determination-based analysis of employees' needs as mediating links. *Journal of Organizational Behavior*, 33(8), 1031-1052.
- Kraimer, M. L., Seibert, S. E., Wayne, S. J., Liden, R. C., and Bravo, J. (2011). Antecedents and outcomes of organizational support for development: the critical role of career opportunities. *Journal of Applied Psychology*, 96(3), 485.
- Krishnan, V. R. (2012). Transformational leadership and personal outcomes: empowerment as mediator. *Leadership & Organization Development Journal*, 33(6), 550-563.
- Kucherov, D. and Zavyalova, E. (2012). HRD practices and talent management in the companies with the employer brand. *European Journal of Training and Development*, 36(1), 86-104.
- Kumar, P. (2015). Technological development and change in cement industry in India. *International Journal of Recent Scientific Research*, 6(4), 3575-3588.
- Kuo, T. H., Ho, L. A., Lin, C., and Lai, K. K. (2010). Employee empowerment in a technology advanced work environment. *Industrial Management & Data Systems*, 110(1), 24-42.
- Kuvaas, B. (2006). Performance appraisal satisfaction and employee outcomes: mediating and moderating roles of work motivation. *The International Journal of Human Resource Management*, 17(3): 504-522.
- Kuvaas, B. and Dysvik, A. (2009). Perceived investment in employee development, intrinsic motivation and work performance. *Human Resource Management Journal*, 19(3), 217-236.

- Kuvaas, B. and Dysvik, A. (2010). Exploring alternative relationships between perceived investment in employee development, perceived supervisor support and employee outcomes. *Human Resource Management Journal*, 20(2), 138-156.
- LafargeHolcim Sustainability Report (2015). Retrieved from http://www.lafargeholcim.com/sites/lafargeholcim.com/files/atoms/files/06132016-press-lafargeholcim_sustainability_report_print_2015.pdf.
- Lancaster, S., Di Milia, L., and Cameron, R. (2013). Supervisor behaviours that facilitate training transfer. *Journal of Workplace Learning*, 25(1), 6-22.
- Laschinger, H. K. S. (1996). A theoretical approach to studying work empowerment in nursing: a review of studies testing Kanter's theory of structural power in organizations. *Nursing Administration Quarterly*, 20(2), 25-41.
- Lau, C. M. and Ngo, H. Y. (2004). The HR system, organizational culture, and product innovation. *International Business Review*, 13(6), 685-703.
- Laursen, K. and Foss, N. J. (2003). New human resource management practices, complementarities and the impact on innovation performance. *Cambridge Journal of Economics*, 27(2), 243-263.
- Lawler, E. E. and Ledford, G. E. (1997). New approaches to organizing: competencies, capabilities and the decline of the bureaucratic model. *Creating tomorrow's organizations: A handbook for future research in organizational behavior*. Chichester, England: Wiley & Sons.
- Leach, D. J., Wall, T. D., and Jackson, P. R. (2003). The effect of empowerment on job knowledge: An empirical test involving operators of complex technology. *Journal of Occupational and Organizational Psychology*, 76(1), 27-52.
- Lee, M.M. (2013). *The History, Status and Future of HRD*, in The Routledge Companion to Human Resource Development (Eds), Poell, R., Rocco, T and Roth, G, Routledge, 3-12.
- Lepak, D. P. and Snell, S. A. (2002). Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations. *Journal of Management*, 28(4), 517-543.
- LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., and Saul, J. R. (2008). A meta-analysis of teamwork processes: tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology*, 61(2), 273-307.
- Levinthal, D. A. and Marino, A. (2015). Three facets of organizational adaptation: selection, variety, and plasticity. *Organization Science*, 26(3), 743-755.
- Lewis, R. E. and Heckman, R. J. (2006). Talent management: A critical review. *Human Resource Management Review*, 16(2), 139-154.
- Liden, R. C., Wayne, S. J., and Sparrowe, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85(3), 407-416.
- Long, C. S., Wan Ismail, W. K., and Amin, S. M. (2013). The role of change agent as mediator in the relationship between HR competencies and organizational performance. *The International Journal of Human Resource Management*, 24(10), 2019-2033.
- Love, P.E.D. and Martin, R.S. (1996). Approaches to organisational effectiveness and their application to construction organisations. *Proceedings 12th Annual Conference and Annual General Meeting*, The Association of Researchers in Construction

- Management, Sheffield Hallam University, South Yorkshire, pp. 1-10, available at: <http://eprints.qut.edu.au/4524/1/4524.pdf> (accessed 23 May 2016).
- Lu, C. M., Chen, S. J., Huang, P. C., and Chien, J. C. (2015). Effect of diversity on human resource management and organizational performance. *Journal of Business Research*, 68(4), 857-861.
- Luoh, H. F., Tsaur, S. H., and Tang, Y. Y. (2014). Empowering employees: job standardization and innovative behavior. *International Journal of Contemporary Hospitality Management*, 26(7), 1100-1117.
- MacCallum, R. C., Widaman, K. F., Zhang, S., and Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84-99.
- MacKinnon, D. P. and Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review*, 17(2), 144-158.
- Maheshwari, S. and Vohra, V. (2015). Identifying critical HR practices impacting employee perception and commitment during organizational change. *Journal of Organizational Change Management*, 28(5), 872-894.
- Malhotra, N.K. and Dash, S. (2013). *Marketing research: An applied orientation* (6th Ed.). Delhi: Pearson Education in South Asia.
- Manojlovich, M. (2005). Linking the practice environment to nurses' job satisfaction through nurse-physician communication. *Journal of Nursing Scholarship*, 37(4), 367-373.
- Maria, R. F. S. (2003). Innovation and organizational learning culture in the Malaysian public sector. *Advances in Developing Human Resources*, 5(2), 205-214.
- Marler, J. H. (2012). Strategic human resource management in context: a historical and global perspective. *The Academy of Management Perspectives*, 26(2), 6-11.
- Marsick, V. J. and Watkins, K. E. (1994). The learning organization: An integrative vision for HRD. *Human Resource Development Quarterly*, 5(4), 353-360.
- Marsick, V. J. and Watkins, K. E. (2003). Demonstrating the value of an organization's learning culture: the dimensions of the learning organization questionnaire. *Advances in Developing Human Resources*, 5(2), 132-151.
- Martin, H. J. and Hrivnak, M. W. (2009). Creating disciples: The transformation of employees into trainers. *Business Horizons*, 52(6), 605-616.
- Mathieu, J. E. and Schulze, W. (2006). The influence of team knowledge and formal plans on episodic team process-performance relationships. *Academy of Management Journal*, 49(3), 605-619.
- Mathieu, J. E., Tannenbaum, S. I., and Salas, E. (1992). Influences of individual and situational characteristics on measures of training effectiveness. *Academy of Management Journal*, 35(4), 828-847.
- Maynard, M. T., Gilson, L. L., and Mathieu, J. E. (2012). Empowerment—fad or fab? A multilevel review of the past two decades of research. *Journal of Management*, 38(4), 1231-1281.
- McDonald, K. S. and Hite, L. M. (2005). Reviving the relevance of career development in human resource development. *Human Resource Development Review*, 4(4), 418-439.
- McGrath, S. (2012). Vocational education and training for development: A policy in need of a theory? *International Journal of Educational Development*, 32(5), 623-631.
- McLagan, P. (1989) *Models for HRD Practice*, Alexandria, VA: ASTD Press.
- Meeus, M. T., Oerlemans, L. A., and Hage, J. (2001). Sectoral patterns of interactive learning: an empirical exploration of a case in a Dutch region. *Technology Analysis & Strategic Management*, 13(3), 407-431.

- Memon, K. R. (2014). Strategic role of HRD in employee skill development: An employer perspective. *Journal of Human Resource Management*, 2(1), 27-32.
- Memon, M. A., Salleh, R., and Baharom, M. N. R. (2016). The link between training satisfaction, work engagement and turnover intention. *European Journal of Training and Development*, 40(6), 407-429.
- Men, L. R. and Stacks, D. W. (2013). The impact of leadership style and employee empowerment on perceived organizational reputation. *Journal of Communication Management*, 17(2), 171-192.
- Menon, S. (2001). Employee empowerment: An integrative psychological approach. *Applied Psychology*, 50(1), 153-180.
- Mittal, S. and Dhar, R. L. (2015). Transformational leadership and employee creativity: mediating role of creative self-efficacy and moderating role of knowledge sharing. *Management Decision*, 53(5), 894-910.
- Mizzi, R. C. and Rocco, T. (2013). Deconstructing dominance: Toward a reconceptualization of the relationship between collective and individual identities, globalization, and learning at work. *Human Resource Development Review*, 12(3), 364-382.
- Mohideen, R. K. and Alphonse, A. S. (2015). A study on employee's perception on human resource management practices in cement industries special reference to Madras Cement Ltd. *International Journal of Management*, 6(1), 578-586.
- Montesino, M. U. (2002). Strategic alignment of training, transfer-enhancing behaviors, and training usage: A post training study. *Human Resource Development Quarterly*, 13(1), 89-108.
- Muduli, A. (2015). High performance work system, HRD climate and organisational performance: an empirical study. *European Journal of Training and Development*, 39(3), 239-257.
- Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., and Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105(3), 430-445.
- Mumford, M. D. (2000). Managing creative people: Strategies and tactics for innovation. *Human Resource Management Review*, 10(3), 313-351.
- Murphy, C., Cross, C., and McGuire, D. (2006). The motivation of nurses to participate in continuing professional education in Ireland. *Journal of European Industrial Training*, 30(5), 365-384.
- Murray, P. and Donegan, K. (2003). Empirical linkages between firm competencies and organisational learning. *The Learning Organization*, 10(1), 51-62.
- Nadler, L. (1970) *Developing Human Resources*, Houston: Gulf.
- Nadler, L. and Nadler, Z. (1990). *The handbook of human resource development* (2nd ed.). New York: John Wiley.
- Nafukho, F. M. (2009). HRD's role in identifying, measuring, and managing knowledge assets in the intangible economy. *Advances in Developing Human Resources*, 11(3), 399-410.
- Needle, D. (2010). *Business in context: An introduction to business and its environment*. Cengage Learning EMEA.
- Neirotti, P. and Paolucci, E. (2013). Why do firms train? Empirical evidence on the relationship between training, technological, and organizational change. *International Journal of Training and Development*, 17(2), 93-115.
- Newman, A., Thanacoody, R., and Hui, W. (2011). The impact of employee perceptions of training on organizational commitment and turnover intentions: a study of

- multinationals in the Chinese service sector. *The International Journal of Human Resource Management*, 22(8), 1765-1787.
- Ng, T. W., Eby, L. T., Sorensen, K. L., and Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology*, 58(2), 367-408.
- Nguyen, T. N., Truong, Q., and Buyens, D. (2010). The relationship between training and firm performance: A literature review. *Research & Practice in Human Resource Management*, 18(1), 36–45.
- Nielsen, P. A. (2013). Performance management, managerial authority, and public service performance. *Journal of Public Administration Research and Theory*, 26(4), 1-28.
- Nikolaou, I., Gouras, A., Vakola, M., and Bourantas, D. (2007). Selecting change agents: Exploring traits and skills in a simulated environment. *Journal of Change Management*, 7(3-4), 291-313.
- Niles, S.G. and Bowsbey, H. (2002). *Career Development Interventions in the 21st Century*, Pearson Education, Upper Saddle River.
- Nilsson, S. and Ellström, P. E. (2012). Employability and talent management: challenges for HRD practices. *European Journal of Training and Development*, 36(1), 26-45.
- Niu, K. H. (2010). Knowledge management practices and organizational adaptation: Evidences from high technology companies in China. *Journal of Strategy and Management*, 3(4), 325-343.
- Nolan, C. T. and Garavan, T. N. (2016). Human resource development in SMEs: a systematic review of the literature. *International Journal of Management Reviews*, 18(1), 85-107.
- Noruzay, A., Dalfard, V. M., Azhdari, B., Nazari-Shirkouhi, S., and Rezazadeh, A. (2013). Relations between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance: an empirical investigation of manufacturing firms. *The International Journal of Advanced Manufacturing Technology*, 64(5-8), 1073-1085.
- Nunnally, J. C. (1978). *Psychometric methods*. New York: McGraw-Hill.
- OCL Indi Ltd. (2016). Retrieved from http://www.ocl.in/cement_div_profile.html
- OCL India Ltd Annual Report (2015). Retrieved from http://www.oclindiaLtd.in/report_upload/report_1.pdf
- Olekar, R.O and Pushpavathi, N. (2014). A comparative study of performance appraisal in cement industries. *International Journal of Marketing and Technology*, 4(2), 27-40.
- Olsen, T. H. and Stensaker, I. (2014). A change-recipient perspective on training during organizational change. *International Journal of Training and Development*, 18(1), 22-36.
- Osborne, J. W. and Costello, A. B. (2009). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Pan-Pacific Management Review*, 12(2), 131-146.
- Outlookmoney. (2016). Cementing its place Easing cost pressures in FY16 and improving utilisations in FY17 make it an attractive sector to explore. Retrieved from <http://www.outlookindia.com/outlookmoney/invest/cementing-its-place-399>.
- Paauwe, J. (2009). HRM and performance: Achievements, methodological issues and prospects. *Journal of Management Studies*, 46(1), 129-142.

- Pangil, F. and Moi Chan, J. (2014). The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness. *Journal of Knowledge Management*, 18(1), 92-106.
- Park, C. H., Kim, W., and Song, J. H. (2015). The Impact of Ethical Leadership on Employees' In-Role Performance: The Mediating Effect of Employees' Psychological Ownership. *Human Resource Development Quarterly*, 26(4), 385-408.
- Park, Y. (2010). The predictors of subjective career success: An empirical study of employee development in a Korean financial company. *International Journal of Training and Development*, 14(1), 1-15.
- Park, Y. and Rothwell, W. J. (2009). The effects of organizational learning climate, career-enhancing strategy, and work orientation on the protean career. *Human Resource Development International*, 12(4), 387-405.
- Peretz, H. and Fried, Y. (2012). National cultures, performance appraisal practices, and organizational absenteeism and turnover: a study across 21 countries. *Journal of Applied Psychology*, 97(2), 448.
- Perrow, C. (1961). The analysis of goals in complex organisations. *American Sociological Review*, 26(6), 854-866.
- Perry-Smith, J. E., and Blum, T. C. (2000). Work-family human resource bundles and perceived organizational performance. *Academy of Management Journal*, 43(6), 1107-1117.
- Peterson, R. A. and Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, 98(1), 194-198.
- Ping Jr, R. A. (1995). A parsimonious estimating technique for interaction and quadratic latent variables. *Journal of Marketing Research*, 336-347.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.
- Polit, D. F. and Beck, C. T. (2004). *Nursing research: Principles and methods*. Lippincott Williams & Wilkins.
- Portland cement Association (2016). Retrieved from <http://www.cement.org/docs/default-source/market-economics-pdfs/forecasts/summer-forecast-sample.pdf?sfvrsn=2>.
- Preacher, K. J. and Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-731.
- Preacher, K. J., Rucker, D. D., and Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185-227.
- Pretoria Portland cement (2016). Retrieved from <http://www.ppc.co.za/about-us/careers/>.
- Pretoria Portland Cement Company Sustainability Report (2015). Retrieved from https://www.ppc.co.za/Media/PPC_2015_AR.pdf.
- Price, J.L. (1972). The study of organizational effectiveness. *The Sociological Quarterly*, 13(1), 3-15.
- Priem, R. L. and Butler, J. E. (2001). Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review*, 26(1), 22-40.
- Punch, K. (2003). *Survey research: The basics*. New Delhi: Sage Publications India Pvt Ltd.
- Punch, K. (2003). *Survey research: The basics*. New Delhi: Sage Publications India Pvt Ltd.

- Qian, C., Cao, Q., and Takeuchi, R. (2013). Top management team functional diversity and organizational innovation in China: The moderating effects of environment. *Strategic Management Journal*, 34(1), 110-120.
- Quinn, R. E. and Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public productivity review*, 122-140.
- Rahman, A. A., Imm Ng, S., Sambasivan, M., and Wong, F. (2013). Training and organizational effectiveness: moderating role of knowledge management process. *European Journal of Training and Development*, 37(5), 472-488.
- Rai, H. and Singh, M. (2013). A study of mediating variables of the relationship between 360-feedback and employee performance. *Human Resource Development International*, 16(1), 56-73.
- Rao, T. V. (1991). Professionalisation of HRD: New Challenges.
- Rathod, R. (2015). An analysis of HRD practices in Indian cement industries. *International Journal of Exclusive Management Research*, 5(4), 1-9.
- Rathod, R. S. (2012). The effectiveness of trainer's role in cement industry: an empirical study on unit's employees working in North Karnataka. *International Journal of Multidisciplinary Research*, 2(6), 49-57.
- Real, J. C., Roldán, J. L., and Leal, A. (2014). From entrepreneurial orientation and learning orientation to business performance: analysing the mediating role of organizational learning and the moderating effects of organizational size. *British Journal of Management*, 25(2), 186-208.
- Reimann, B. C. (1975). Organizational effectiveness and management's public values: A canonical analysis. *Academy of Management Journal*, 18(2), 224-241.
- Report on working group on cement industry for XII five year plans (2012-2017). Retrieved from http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wgprep_cement.pdf.
- Report on working group on cement industry for XII five year plans (2012-2017). Ministry of commerce and industry. Retrieved from http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wgprep_cement.pdf.
- Riordan, C. M., Vandenberg, R. J., and Richardson, H. A. (2005). Employee involvement climate and organizational effectiveness. *Human Resource Management*, 44(4), 471-488.
- Rosh, L., Offermann, L. R., and Van Diest, R. (2012). Too close for comfort? Distinguishing between team intimacy and team cohesion. *Human Resource Management Review*, 22(2), 116-127.
- Rowold, J. (2008). Multiple effects of human resource development interventions. *Journal of European Industrial Training*, 32(1): 32-44.
- Roy, M. H. and Dugal, S. S. (2005). Using employee gainsharing plans to improve organizational effectiveness. *Benchmarking: An International Journal*, 12(3), 250-259.
- Roy, S. D. (2004). Employment dynamics in Indian industry: adjustment lags and the impact of job security regulations. *Journal of Development Economics*, 73(1), 233-256.
- Rubio-Andrés, M., and Gutiérrez-Broncano, S. (2014). Influence of Organizational Flexibility in High Performance Work Practices. In *Work Organization and Human Resource Management* (pp. 125-134). Springer International Publishing.

- Ruiner, C., Wilkens, U., and Küpper, M. (2013). Patterns of organizational flexibility in knowledge-intensive firms—going beyond existing concepts. *Management Revue*, 24(3), 162-178.
- Russ-Eft, D. F. (2014). Human resource development, evaluation, and sustainability: what are the relationships? *Human Resource Development International*, 17(5): 545-559.
- Saks, A. M. and Burke-Smalley, L. A. (2014). Is transfer of training related to firm performance? *International Journal of Training and Development*, 18(2), 104-115.
- Salas, E. and Kosarzycki, M. P. (2003). Why don't organizations pay attention to (and use) findings from the science of training? *Human Resource Development Quarterly*, 14(4), 487-491.
- Salas, E., Priest, H. A. and DeRouin, R. E. (2004). Team Building. In Stanton, N.A., Hedge, A., Brookhuis, K., Salas, E., and Hendrick, H. W. (Eds.) *Handbook of Human Factors and Ergonomics Methods*. CRC Press.
- Salas, E., Rozell, D., Mullen, B., and Driskell, J. E. (1999). The effect of team building on performance: An integration. *Small Group Research*, 30(3), 309-329.
- Salas, E., Tannenbaum, S. I., Kraiger, K., and Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice? *Psychological Science in the Public Interest*, 13(2), 74-101.
- Santos, A. and Stuart, M. (2003). Employee perceptions and their influence on training effectiveness. *Human Resource Management Journal*, 13(1), 27-45.
- Santos-Vijande, M. L., López-Sánchez, J. Á., and Trespalacios, J. A. (2012). How organizational learning affects a firm's flexibility, competitive strategy, and performance. *Journal of Business Research*, 65(8), 1079-1089.
- Saratun, M. (2016). Performance management to enhance employee engagement for corporate sustainability. *Asia-Pacific Journal of Business Administration*, 8(1), 84-102.
- Sasirekha, A and Ashok, J (2013). A study on HRD climate in a public sector cement company: an empirical study. *Life Science Journal*, 10(5s), 422-430
- Satyanarayana, M. R. and Reddy, R. J. (2012). Labour welfare measures in cement industries in India. *International Journal of Physical and Social Sciences*, 2(7). 11-21.
- Saunila, M., Tikkamäki, K., and Ukko, J. (2015). Managing performance and learning through reflective practices. *Journal of Organizational Effectiveness: People and Performance*, 2(4), 370-390.
- Semeijn, J. H., Van Der Heijden, B. I., and Van Der Lee, A. (2014). Multisource ratings of managerial competencies and their predictive value for managerial and organizational effectiveness. *Human Resource Management*, 53(5), 773-794.
- Senécal, J., Loughhead, T. M., and Bloom, G. A. (2008). A season-long team-building intervention: Examining the effect of team goal setting on cohesion. *Journal of Sport and Exercise Psychology*, 30(2), 186-199.
- Senge, P.M. (1990). *The fifth discipline: The art and practice of learning organization*. New York: Currency Doubleday.
- Shalley, C. E. and Gibson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity? *The Leadership Quarterly*, 15(1), 33-53.

- Sharma, H. (2014). Importance and performance of managerial training in Indian companies—an empirical study. *Journal of Management Development*, 33(2), 75-89.
- Sharma, N. P., Sharma, T., and Agarwal, M. N. (2016). Measuring employee perception of performance management system effectiveness: Conceptualization and scale development. *Employee Relations*, 38(2), 224-247.
- Shen-Miller, D. S., Schwartz-Mette, R., Van Sickle, K. S., Jacobs, S. C., Grus, C. L., Hunter, E. A., & Forrest, L. (2015). Professional competence problems in training: A qualitative investigation of trainee perspectives. *Training and Education in Professional Psychology*, 9(2), 161.
- Shih, H. A., Chiang, Y. H., and Hsu, C. C. (2006). Can high performance work systems really lead to better performance? *International journal of Manpower*, 27(8), 741-763.
- Shin, J., Taylor, M. S., and Seo, M. G. (2012). Resources for change: The relationships of organizational inducements and psychological resilience to employees' attitudes and behaviors toward organizational change. *Academy of Management Journal*, 55(3), 727-748.
- Shipton, H., West, M. A., Dawson, J., Birdi, K., and Patterson, M. (2006). HRM as a predictor of innovation. *Human Resource Management Journal*, 16(1), 3-27.
- Shivaramkrishnan, G. and Sulaiman, M. (2014). Study on Potential Appraisal Metrics for Managerial Employees. *Prabandhan: Indian Journal of Management*, 7(9), 60-72.
- Shrivastava, A. and Purang, P. (2011). Employee perceptions of performance appraisals: A comparative study on Indian banks. *The International Journal of Human Resource Management*, 22(03), 632-647.
- Shuck, B., Twyford, D., Reio, T. G., and Shuck, A. (2014). Human resource development practices and employee engagement: Examining the connection with employee turnover intentions. *Human Resource Development Quarterly*, 25(2), 239-270.
- Shuffler, M. L., DiazGranados, D., and Salas, E. (2011). There is a Science for That: Team Development Interventions in Organizations. *Current Directions in Psychological Science*, 20(6), 365-372.
- Simosi, M. (2012). The moderating role of self-efficacy in the organizational culture-training transfer relationship. *International Journal of Training and Development*, 16(2), 92-106.
- Singh, K. (2003). Strategic HR orientation and firm performance in India. *International Journal of Human Resource Management*, 14(4), 530-543.
- Singh, K. (2004). Impact of HR practices on perceived firm performance in India. *Asia Pacific Journal of Human Resources*, 42(3), 301-317.
- Singh, S. K. and Banerjee, S. (2005). Trainer roles in cement industry trainer roles in cement industry. *Delhi Business Review*, 6(2), 75-81.
- Sivakumar, P. and Kumar, R.K. (2016). An empirical study of effectiveness of HRD practices in Tamilnadu cement industries. *Journal of Exclusive Management Science*, 5(11), 1-4.
- Škerlavaj, M., Song, J. H., and Lee, Y. (2010). Organizational learning culture, innovative culture and innovations in South Korean firms. *Expert Systems with Applications*, 37(9), 6390-6403.
- Škerlavaj, M., Song, J. H., and Lee, Y. (2010). Organizational learning culture, innovative culture and innovations in South Korean firms. *Expert Systems with Applications*, 37(9), 6390-6403.

- Skill gap assessment for the state of Andhra Pradesh: A district-wise analysis (2012-2017). National Skill Development Corporation. Retrieved from <http://www.nsdcindia.org/sites/default/files/files/ap-sg-report.pdf>.
- Skill gap assessment for the state of Odisha: A district-wise analysis (2012-2017). National Skill Development Corporation. Retrieved from <http://www.nsdcindia.org/sites/default/files/files/odisha-skill-gap-report.pdf>.
- Smith, D. (1990). *The Dictionary for Human Resource Development*, Alexandria, VA: ASTD Press.
- Smith, G. T., McCarthy, D. M., and Anderson, K. G. (2000). On the sins of short-form development. *Psychological Assessment*, 12(1), 102-111.
- Smith, K. G., Collins, C. J., and Clark, K. D. (2005). Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms. *Academy of Management Journal*, 48(2), 346-357.
- Soderquist, E. K., Papalexandris, A., Ioannou, G., and Prastacos, G. (2010). From task-based to competency-based: A typology and process supporting a critical HRM transition. *Personnel Review*, 39(3), 325-346.
- Solkhe, A. and Chaudhary, N. (2012). Role of HRD in enhancing organizational performance: Empirical evidence from Indian manufacturing sector. *Udyog Pragathi: The Journal for Practicing Managers*, 36(4), 20-35.
- Song, J. H., Kim, H. M., and Kolb, J. A. (2009). The effect of learning organization culture on the relationship between interpersonal trust and organizational commitment. *Human Resource Development Quarterly*, 20(2), 147-167.
- Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review*, 92, 434-459.
- Spencer, L. M., Ryan, G., and Bernhard, U. (2008). Cross-cultural competencies in a major multinational industrial firm. *Emotional Intelligence: Theoretical and Cultural Perspectives*, 191-208.
- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 1442-1465.
- Srivastava, V., Geetika, and Singh, T. (2010). HR practices, quality of work life and organizational efficiency: with special reference to IT enabled service sector in India. *Indian Journal of Training and Development*, 40(3), 1-10.
- Stiehl, S. K., Felfe, J., Elprana, G., and Gatzka, M. B. (2015). The role of motivation to lead for leadership training effectiveness. *International Journal of Training and Development*, 19(2), 81-97.
- Stone, K. B. (2010). Kaizen teams: Integrated HRD practices for successful team building. *Advances in Developing Human Resources*, 12(1), 61-77.
- Stumpf, S. A., Doh, J. P., and Tymon, W. G. (2010). The strength of HR practices in India and their effects on employee career success, performance, and potential. *Human Resource Management*, 49(3), 353-375.
- Sturges, J., Conway, N., and Liefoghe, A. (2010). Organizational support, individual attributes, and the practice of career self-management behavior. *Group & Organization Management*, 35(1), 108-141.
- Sturges, J., Guest, D., Conway, N., and Davey, K. M. (2002). A longitudinal study of the relationship between career management and organizational commitment among graduates in the first ten years at work. *Journal of Organizational Behavior*, 23(6), 731-748.

- Sullivan, S. E., Martin, D. F., Carden, W. A., and Mainiero, L. A. (2003). The road less traveled: How to manage the recycling career stage. *Journal of Leadership & Organizational Studies*, 10(2), 34-42.
- Sun, L. Y., Aryee, S., and Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. *Academy of Management Journal*, 50(3), 558-577.
- Sundstrom, E. D., Lounsbury, J. W., Gibson, L. W., and Huang, J. L. (2016). Personality Traits and Career Satisfaction in Training and Development Occupations: Toward a Distinctive T&D Personality Profile. *Human Resource Development Quarterly*, 27(1), 13-40.
- Sung, S. Y. and Choi, J. N. (2014). Multiple dimensions of human resource development and organizational performance. *Journal of Organizational Behavior*, 35(6), 851-870.
- Supeli, A. and Creed, P. A. (2016). The longitudinal relationship between protean career orientation and job satisfaction, organizational commitment, and intention-to-quit. *Journal of Career Development*, 43(1), 66-80.
- Swanson, R. A. (1995). Human resource development: Performance is the key. *Human Resource Development Quarterly*, 6(2), 207-213.
- Swanson, R. A. (2009). Economic foundation of human resource development: Advancing the theory and practice of the discipline. *Advances in Developing Human Resources*, 10(6), 763-769.
- Swanson, R. A. and Holton, E. F. (2001). *Foundations of human resource development*. San Francisco: Berrett-Koehler.
- Swanson, R. A. and Holton, E. F. (2009). *Foundations of human resource development*. San Francisco: Berrett-Koehler.
- Szabla, D. B. (2007). A multidimensional view of resistance to organizational change: Exploring cognitive, emotional, and intentional responses to planned change across perceived change leadership strategies. *Human Resource Development Quarterly*, 18(4), 525-558.
- Tannenbaum, S. I., Mathieu, J. E., Salas, E., and Cohen, D. (2012). Teams are changing: Are research and practice evolving fast enough. *Industrial and Organizational Psychology*, 5(1), 2-24.
- Tarique, I. and Schuler, R. S. (2010). Global talent management: Literature review, integrative framework, and suggestions for further research. *Journal of World Business*, 45(2), 122-133.
- Tharenou, P., Saks, A. M., and Moore, C. (2007). A review and critique of research on training and organizational-level outcomes. *Human Resource Management Review*, 17(3), 251-273.
- The Ramco Cement Ltd (2016). Retrieved from <http://www.ramcocements.in/about-us.aspx>.
- Torres-Coronas, T. and Arias-Oliva, M. 2008. *Encyclopaedia of Human Resources Information Systems: Challenges in e-HRM*. Information Science Reference, New York.
- Trehan, S. and Setia, K. (2014). Human resource management practices and organizational performance: An Indian perspective. *Global Journal of Finance and Management*, 6(8), 789-796.
- Tseng, C. C. and McLean, G. N. (2008). Strategic HRD practices as key factors in organizational learning. *Journal of European Industrial Training*, 32(6), 418-432.

- Tung, H. L. and Chang, Y. H. (2011). Effects of empowering leadership on performance in management team: Mediating effects of knowledge sharing and team cohesion. *Journal of Chinese Human Resources Management*, 2(1), 43-60.
- Turel, O. and Connelly, C. E. (2012). Team spirit: The influence of psychological collectivism on the usage of e-collaboration tools. *Group Decision and Negotiation*, 21(5), 703-725.
- Ugwu, F. O., Onyishi, I. E., and Rodríguez-Sánchez, A. M. (2014). Linking organizational trust with employee engagement: the role of psychological empowerment. *Personnel Review*, 43(3), 377-400.
- UltraTech Cement Ltd Sustainability Report (2014). Retrieved from <http://www.ultratechcement.com/common/UltraTechCSR1214flipbook/>.
- UltraTech Cement Ltd Sustainability Report (2015). Retrieved from <http://www.ultratechcement.com/common/images/downloads/Better%20Zero%20than%20One2015.PDF>.
- United States Geological Survey (2013). Retrieved from <https://minerals.usgs.gov/minerals/pubs/commodity/cement/mcs-2016-cemen.pdf>.
- Van den Bossche, P., Gijsselaers, W. H., Segers, M., and Kirschner, P. A. (2006). Social and cognitive factors driving teamwork in collaborative learning environments team learning beliefs and behaviors. *Small Group Research*, 37(5), 490-521.
- van der Rijt, J., Van den Bossche, P., van de Wiel, M. W., Segers, M. S., and Gijsselaers, W. H. (2012). The role of individual and organizational characteristics in feedback seeking behaviour in the initial career stage. *Human Resource Development International*, 15(3), 283-301.
- van Esch, E., Wei, L. Q., and Chiang, F. F. (2016). High-performance human resource practices and firm performance: the mediating role of employees' competencies and the moderating role of climate for creativity. *The International Journal of Human Resource Management*, 1-26. (Early Citation)
- Vijayalakshmi, M. R. (2012). A Research on the Efficacy of Employee Training in Cement Manufacturing Company, Trichirapalli. *Journal of Contemporary Research in Management*, 3(2), 13-19.
- Vijeta, V. and Raman, A. (2011). A study on employee training effectiveness of cement industry in Dhanbad. *Asian Mirror International Journal of Research*, 1(2), 1-11.
- Walker, R. M., Damanpour, F., and Devece, C. A. (2011). Management innovation and organizational performance: The mediating effect of performance management. *Journal of Public Administration Research and Theory*, 22(2), 367-386.
- Wall, T. D. and Wood, S. J. (2005). The romance of human resource management and business performance, and the case for big science. *Human Relations*, 58(4), 429-462.
- Wang, J., Tolson, H., Chiang, T. L., and Huang, T. Y. (2010). An exploratory factor analysis of workplace learning, job satisfaction, and organizational commitment in small to midsize enterprises in Taiwan. *Human Resource Development International*, 13(2), 147-163.
- Wei, L. Q., Liu, J., and Herndon, N. C. (2011). SHRM and product innovation: Testing the moderating effects of organizational culture and structure in Chinese firms. *The International Journal of Human Resource Management*, 22(01), 19-33.

- Weigl, M., Mueller, A., Hornung, S., Zacher, H., and Angerer, P. (2013). The moderating effects of job control and selection, optimization, and compensation strategies on the age-work ability relationship. *Journal of Organizational Behavior*, 34(5), 607-628.
- Weldy, T. G. (2009). Learning organization and transfer: strategies for improving performance. *The Learning Organization*, 16(1), 58-68.
- Werner, J. M. and Desimone, R. L. (2006), Human Resource Development: Foundation, Framework, and Application, Cengage Learning Publications, Delhi.
- Whitehead, P. (2001). Team building and culture change: Well-trained and committed teams can successfully roll out culture change programmes. *Journal of Change Management*, 2(2), 184-192.
- Wright, P. M., Gardner, T. M., and Moynihan, L. M. (2003). The impact of HR practices on the performance of business units. *Human Resource Management Journal*, 13(3), 21-36.
- Yang, C. C. and Lin, C. Y. Y. (2009). Does intellectual capital mediate the relationship between HRM and organizational performance? Perspective of a healthcare industry in Taiwan. *The International Journal of Human Resource Management*, 20(9), 1965-1984.
- Yilmaz, C. and Ergun, E. (2008). Organizational culture and firm effectiveness: An examination of relative effects of culture traits and the balanced culture hypothesis in an emerging economy. *Journal of World Business*, 43(3), 290-306.
- Yoon, J. and Christopher Kayes, D. (2016). Employees' self-efficacy and perception of individual learning in teams: The cross-level moderating role of team-learning behavior. *Journal of Organizational Behavior*. 37(7), 1044-1060.
- Youndt, M. A., Subramaniam, M., and Snell, S. A. (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management studies*, 41(2), 335-361.
- Yuchtman, E. and Seashore, S.E. (1967). A system resource approach to organizational effectiveness. *American Sociological Review*, 32(6), 891-903.
- Yuvaraj, S. and Mulugeta, K. (2013), Analysis of the strategic orientation of HRD practices and managers' awareness towards the concepts of HRD in Ethiopia. *Research Journal Social Science and Management*, 3(1), 186-198.
- Zhang, X. and Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1), 107-128.
- Zheng, W., Yang, B., and McLean, G. N. (2010). Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. *Journal of Business Research*, 63(7), 763-771.
- Zikmund, W. G., Babin, B. J. Carr, J. C., and Griffin, M. (2010). *Business Research Methods*. (8th Ed.). Canada: South-Western Cengage Learning.
- Zumrah, A. R., Boyle, S., and Fein, E. C. (2013). The consequences of transfer of training for service quality and job satisfaction: an empirical study in the Malaysian public sector. *International Journal of Training and Development*, 17(4), 279-294.

Appendix I

Questionnaire

Declaration: Information collected through this questionnaire will be used for academic purpose only.

Section-I: Socio - Demographic Information

PERSONAL DETAILS					
GENDER	MALE		FEMALE		
AGE GROUP (yrs)	20-30	31-40	41-50	51-60	
MARITAL STATUS	SINGLE		MARRIED		
EDUCATION	DESIGNATION				
WORK EXPERIENCE (yrs)	00-05	06-10	11-15	16-20	21-ABOVE

I would be very grateful if you would indicate your opinion on each statement by giving a tick (√) on the number given at the right hand side.

SCALE: Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1

Express your opinion regarding training and development initiatives of your organization.

TD1	The organization has a sound and effective T&D policy.	1 2 3 4 5
TD2	Organization links HRD interventions with business strategy.	1 2 3 4 5
TD3	The organization has a full-fledged T&D department with competent professionals.	1 2 3 4 5
TD4	Training centres are furnished and well equipped with instruments.	1 2 3 4 5
TD5	Superiors are playing a key role towards identification of training needs of the subordinates.	1 2 3 4 5
TD6	The organization is always emphasizing on need based and routine training programmes.	1 2 3 4 5
TD7	Standardised work procedures and methods are followed for enhancement of the performance of individuals during the post training period.	1 2 3 4 5
TD8	Providing of regular feedback to the employees as a routine culture of HRD.	1 2 3 4 5
TD9	The activities of T&D programme provided meet the needs of the employees	1 2 3 4 5
TD10	Training and development helps in building competencies of employees	1 2 3 4 5

Convey your views regarding the career development prospects of the individuals.

CM1	Planning for utilization of time beyond scheduled work.	1 2 3 4 5
CM2	Seniors are encouraging the subordinates towards individual career development.	1 2 3 4 5
CM3	Provision of study leave for individuals to acquire higher professional degrees.	1 2 3 4 5
CM4	The organization is sponsoring employees for higher study.	1 2 3 4 5
CM5	Active participation of employees in identification of developmental needs.	1 2 3 4 5
CM6	Encouragement for acquiring of new skills and abilities.	1 2 3 4 5
CM7	Emphasis on encouragement of the employees for continuing education.	1 2 3 4 5
CM8	Transparency in management of careers of employees.	1 2 3 4 5
CM9	Accessibility to the knowledge resources of the organization.	1 2 3 4 5
CM10	Career management helps in building competencies of employees.	1 2 3 4 5

Can you extend your personal opinion on the appraisal system of the organization?		
PA1	Aware of performance appraisal procedure of the organization.	1 2 3 4 5
PA2	Periodic review of performance of the employees.	1 2 3 4 5
PA3	Performance appraisal helps an individual for self-improvement and career growth.	1 2 3 4 5
PA4	Proper compensation and rewards are linked to employee performance.	1 2 3 4 5
PA5	Appraisal system in organization bridges the gap between pay and performance.	1 2 3 4 5
PA6	Appraisal system helps to identify the strengths and weakness of employees.	1 2 3 4 5
PA7	Appraisal system has scope for helping each employee to discover their hidden talent and potential.	1 2 3 4 5
PA8	The appraisal system provides an opportunity for self-review and reflection.	1 2 3 4 5
PA9	Performance appraisal as an appropriate mean for continuous growth and development of employees.	1 2 3 4 5
PA10	Performance appraisal helps in building competencies of employees.	1 2 3 4 5
Rate your views on employee empowerment practices of the organisation.		
EE1	Employees feel a healthy atmosphere to extend their creative suggestions.	1 2 3 4 5
EE2	Individuals can participate in planning and scheduling of daily activities.	1 2 3 4 5
EE3	Prevailing climate of employer – employee relations.	1 2 3 4 5
EE4	Employees are involved in the decision making process of different forums.	1 2 3 4 5
EE5	Participate in establishing the goals and objectives for my job.	1 2 3 4 5
EE6	Accessibility to the information and resources need to perform in a better way.	1 2 3 4 5
EE7	There is freedom to express views even if it is contrary to the resolutions to be taken.	1 2 3 4 5
EE8	Have a significant influence over what happens in my department.	1 2 3 4 5
EE9	Prior discussion of superiors with subordinates on implementation of any policy, procedure, rules, and regulations.	1 2 3 4 5
EE10	Employee empowerment helps in building competencies of employees towards better performance.	1 2 3 4 5
Do you feel teamwork as a measure to enhance the maturity of individuals?		
TB1	Team members have the complementary skill sets to accomplish their roles within the team.	1 2 3 4 5
TB2	The team uses an effective short and long-term strategic plan.	1 2 3 4 5
TB3	All members of a team are well aware about the target set for them.	1 2 3 4 5
TB4	Team members are familiar with each other's roles and job responsibilities.	1 2 3 4 5
TB5	The team has the support and resources it needs to meet expectations.	1 2 3 4 5
TB6	The team members communicate well with one another.	1 2 3 4 5
TB7	Everyone on a team has a significant amount of influence on decisions that affect team performance.	1 2 3 4 5
TB8	Everyone on the team knows and understands the team's priorities.	1 2 3 4 5
TB9	Team assignment will help the members to grow and mature with a given time.	1 2 3 4 5

TB10	The competencies of people can be enhanced by giving emphasis on HRD interventions by the organization.	1	2	3	4	5
HRDI	HRD interventions act as leverage for organisational effectiveness.	1	2	3	4	5

Express your opinion regarding the prevailing organizational learning culture of the organization.

OLC1	Employees are encouraged for continuous learning	1	2	3	4	5
OLC2	Trust and confidence as a way of organizational life.	1	2	3	4	5
OLC3	Organization provides the required resources as desired by the employees relating to the assigned jobs.	1	2	3	4	5
OLC4	Employees openly discuss mistakes with superiors and colleagues in order to learn from them.	1	2	3	4	5
OLC5	Organization enables people to get needed information at any time quickly and easily.	1	2	3	4	5
OLC6	Employees continually look for opportunities to learn.	1	2	3	4	5
OLC7	Organizational learning culture plays a moderator role in enhancing the employee competencies in the relationship with HRD interventions	1	2	3	4	5

Please respond with respect to the characteristics of a competent employee.

EC1	Employees are exhibiting positive job attitude at work.	1	2	3	4	5
EC2	Employees are self –motivated in the organization.	1	2	3	4	5
EC3	Individuals are tolerant to work pressure and ambiguity.	1	2	3	4	5
EC4	Employees have the ability to perform the duties successfully.	1	2	3	4	5
EC5	Individuals are applying their acquired specialized knowledge at work place.	1	2	3	4	5
EC6	People demonstrate team spirit while working in teams.	1	2	3	4	5
EC7	Employees are always committed to assigned work and the organization.	1	2	3	4	5
EC8	Competent employees are the real drivers of organizational effectiveness.	1	2	3	4	5

Convey your views regarding the indicators of organizational effectiveness.

OPT1	Organization focuses on optimal utilization of resources	1	2	3	4	5
OPT2	Have the information about the availability of the resource and have them available at the right time	1	2	3	4	5
OPT3	Wastage of organizational resources is in decreasing trend.	1	2	3	4	5
PROD1	Increase in productivity of the organization	1	2	3	4	5
PROD2	Increase in the reliability of products	1	2	3	4	5
PROD3	Less number of errors in the production process	1	2	3	4	5
COHES1	Climate of confidence and trust among the employees.	1	2	3	4	5
COHES2	Proper interaction and knowledge sharing among the members enhanced the degree of cohesiveness among them.	1	2	3	4	5
COHES3	Employees are ready to accept any kind of change, which is required for the organization.	1	2	3	4	5
COHES4	Presence of interpersonal relationship between employees	1	2	3	4	5
FLEX1	Employees are flexible to organizational shifts in the environment	1	2	3	4	5
FLEX2	Employees are committed towards organizations goals and objectives.	1	2	3	4	5
FLEX3	Open environment for all to learning and implementation of new ideas and thoughts.	1	2	3	4	5
ADP1	Employees are ready to accept new rules and regulation in the organization.	1	2	3	4	5
	Employees are enjoying autonomy with respect to the assigned task.	1	2	3	4	5

ADP2	New ways to manage business according to change	1 2 3 4 5
ADP3	Adoption of new business policy and strategy in order to get a competitive advantage.	1 2 3 4 5
INNO1	Emphasis on research and development.	1 2 3 4 5
INNO2	Involvement and encouragement of employees for innovative ideas towards development of the work system.	1 2 3 4 5
INNO3	Continued emphasis on new products, process and technology by the organization	1 2 3 4 5
INNO4	In present scenario, the organization has become much more innovative.	1 2 3 4 5

Any Suggestions/Opinions.

Appendix II

Moderation Procedure

The three-step procedure outlined by Cortina et al. (2001) to carry out Ping's (1995) MSEM approach. This approach is also carried out by Conway et al (2015).

Step1: Standardize all indicators for the independent variable X (training and development, S_{xn} , $n = [1, 6]$), Y (career management, S_{ym} , $m = [1, 5]$), P (performance appraisal, S_{pa} , $a = [1, 5]$), Q (team building, S_{qb} , $b = [1,5]$), R (employee empowerment, S_{rc} , $c = [1,5]$) and moderator Z (organizational learning Culture, S_{zl} , $l = [1, 7]$)

Step 2: Create interaction term

$$XZ = \sum_{n=1}^6 S_{xn} * \sum_{l=1}^7 S_{zl}$$

$$YZ = \sum_{m=1}^5 S_{zm} * \sum_{l=1}^7 S_{zl}$$

$$PZ = \sum_{a=1}^5 S_{pa} * \sum_{l=1}^7 S_{zl}$$

$$QZ = \sum_{b=1}^5 S_{qb} * \sum_{l=1}^7 S_{zl}$$

$$RZ = \sum_{c=1}^5 S_{rc} * \sum_{l=1}^7 S_{zl}$$

Step 3: Fix the measurement properties for interaction terms XZ, YZ, PZ, QZ, and RZ.

Λ_{xz} : Path from latent interaction XZ to indicator xz: $\Lambda_{xz} = \lambda_{xz} =$

$$XZ = \sum_{n=1}^6 \lambda_{xn} * \sum_{l=1}^7 \lambda_{zl}$$

Where λ_{xn} are the path coefficients from latent independent variable X (Training and Development) to its indicators S_{xn} , $n = [1, 6]$

λ_{zl} are the path coefficients from latent moderator Z (Organizational Learning Culture) to its indicators S_{zl} , $l = [1, 7]$

Λ_{yz} : Path from latent interaction YZ to indicator yz: $\Lambda_{yz} = \lambda_{yz} =$

$$YZ = \sum_{m=1}^5 \lambda_{ym} * \sum_{l=1}^7 \lambda_{zl}$$

Where λ_{ym} are the path coefficients from latent independent variable Y (Career Development) to its indicators S_{ym} , $m = [1, 5]$

λ_{zl} are the path coefficients from latent moderator Z (Organizational Learning Culture) to its indicators S_{zl} , $l = [1, 7]$

Λ_{PZ} : Path from latent interaction PZ to indicator pz: $\Lambda_{PZ} = \lambda_{pz} =$

$$PZ = \sum_1^5 \lambda_{pa} * \sum_1^7 \lambda_{zl}$$

Where λ_{pn} are the path coefficients from latent independent variable P (Performance Appraisal) to its indicators S_{pn} , $n = [1, 5]$

λ_{zl} are the path coefficients from latent moderator Z (Organizational Learning Culture) to its indicators S_{zl} , $l = [1, 7]$

Λ_{QZ} : Path from latent interaction QZ to indicator qz: $\Lambda_{QZ} = \lambda_{qz} =$

$$QZ = \sum_1^5 \lambda_{qa} * \sum_1^7 \lambda_{zl}$$

Where λ_{qn} are the path coefficients from latent independent variable Q (team building) to its indicators S_{pn} , $n = [1, 5]$

λ_{zl} are the path coefficients from latent moderator Z (Organizational Learning Culture) to its indicators S_{zl} , $l = [1, 7]$

Λ_{RZ} : Path from latent interaction RZ to indicator rz: $\Lambda_{RZ} = \lambda_{rz} =$

$$RZ = \sum_1^5 \lambda_{ra} * \sum_1^7 \lambda_{zl}$$

Where λ_{rn} are the path coefficients from latent independent variable R (employee empowerment) to its indicators S_{pn} , $n = [1, 5]$

λ_{zl} are the path coefficients from latent moderator Z (Organizational Learning Culture) to its indicators S_{zl} , $l = [1, 7]$

Dissemination

International Peer Reviewed Journals

Potnuru, R. K. G., and Sahoo, C. K. (2016). HRD interventions, employee competencies and organizational effectiveness: an empirical study. *European Journal of Training and Development*, 40(5), 345-365.

National Peer Reviewed Journals

Potnuru, R. K. G. and Sahoo, C. K. (2014). Role of training towards competitive advantage: A qualitative Approach. *Indian Journal of Training and Development*, 44(1), 32-40.

Potnuru, R. K. G. and Sahoo, C. K. (2015). Role of technology-based training towards Competency Building. *Productivity*, 55(4), 388-394.

Papers Communicated (Under Review Stage)

Potnuru, R. K. G. and Sahoo, C. K. The Moderating effect of organizational learning culture between HRD interventions and employee competencies towards organizational effectiveness. *Human Resource Development International*.

Potnuru, R. K. G., Sahoo, C. K. and Sharma, R. Relationship between HRD interventions, employee readiness for change, organizational readiness for change and organizational adaptability: A comparative study across the middle and lower level managers. *Human Resource Development Quarterly*.

Potnuru, R.K.G. and Sahoo, C.K. HRD Interventions and Employee Competencies: Moderating role of Organizational Learning Culture. *South Asian Journal of Management*.

Conference Papers

Potnuru, R. K. G. and Sahoo, C. K. (2015). Strategic Approach of HRD Interventions and employee competency towards organizational effectiveness: An empirical study. International conference on evidence based management, held during 20st -21st, March 2015, at BITS Pilani (Received Best Paper Award).

Potnuru, R. K. G. and Sahoo, C. K. (2015). The role of HRD interventions and employee competencies in enhancing organizational effectiveness: The moderating role of organizational learning culture. IMRA-IIMB International conference: Inclusive growth & profits with a purpose: New management paradigm, held during 16th-18th, December 2015, at Indian Institute of Management Bangalore.

Potnuru, R. K. G., Sahoo, C. K. and Sharma, R (2015). Employee voice as a moderator between the constructs HR practices, commitment to change and successful change: Validation through moderated structural equation modelling. IMRA-IIMB International conference: Inclusive growth & profits with a purpose: New management paradigm, held during 16th-18th, December 2015, at Indian Institute of Management Bangalore.

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- [2006-2008] Master of Business Management from AITAM (JNTU Hyd), with First Class.
- [2003-2006] Bachelor of Science (B.Sc) from Government Arts College for Men, Srikakulam, with First Class.
- [2001-2003] Intermediate from Sri Sai Krishna Junior College, Srikakulam, with First Class.
- [2000-2001] S.S.C from Don Boscoss School, Narsipatnam, with First Class.

Work Experience

- Working as Teaching Assistant in School of Management, National Institute of Technology, Rourkela from 01-11-2012 to till date.
- Worked as Asst. Professor in the Department of Management Studies in Sri Sivani Institute of Technology Srikakulam from 12-10-2010 to 29-10-2012.
- Worked as part time Research Associate in Metric Consultancy, Pune.
- Worked as Asst. Professor to teach management subjects in Jagannath Institute of Technology and Management at Paralakhemundi from 19-01-2010 to 11-10-2010.

Academic Honors & Awards

- Qualified for Lectureship in U.G.C. – National Eligibility Test (NET), December 2011.
- Received best paper award in International conference on Evidenced based Management conducted by BITS Pilani, for the paper entitled “Impact of HRD interventions on organizational effectiveness: A study on Indian cement industry”.
- Secured second prize in state level Quiz competition in Intermediate.
- Received best all-rounder of the school award in ninth class in Kendriya Vidyalaya Srikakulam.

Software Proficiency

- Operating System (Windows 2007, 2008, 2010)
- Application Packages (MS-Office, SPSS 20, AMOS 20, SMART PLS)