A STUDY OF HUMAN CAPITAL CREATION PRACTICES IN SOME INDIAN MANUFACTURING INDUSTRIES

A THESIS

Submitted in partial fulfilment of the requirements for the award of the degree of

DOCTOR OF PHILOSOPHY

in

MANAGEMENT STUDIES

by

BIRASNAV M

DEPARTMENT OF MANAGEMENT STUDIES
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE - 247 667 (INDIA)

JANUARY, 2009

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE

CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in this thesis entitled **A STUDY OF HUMAN CAPITAL CREATION PRACTICES IN SOME INDIAN MANUFACTURING INDUSTRIES** in partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy and submitted in the Department of Management Studies, Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried out during a period from January 2006 to January 2009 under the supervision of Dr. S. Rangnekar, Assistant Professor, Department of Management Studies, Indian Institute of Technology Roorkee, Roorkee, India.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other Institute.

(BIRASNAV M)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

(S. Rangnekar)
Supervisor

Date: 21/01/2009

The Ph.D. Viva-Voce Examination of **Birasnav M**, Research Scholar, has been held on 7th August 09.

Signature of Supervisor

Signature of External Examiner

ABSTRACT

Human capital is considered as intangible asset as long as it contributes for achieving and sustaining firm's competitive advantage. Literatures supportably prove the contribution of human capital on organizational intellectual capital in view of achieving advantage and simultaneously describe human capital as employee's knowledge, skills, capabilities, commitment, know-how, and ideas and health (Skandia, 1998; Snell and Bohlander, 2007; Ulrich *et al.*, 1999; Sullivan, 1999; Becker, 1962). Making the contribution as effective as possible, firms follow human capital theory, which recommends comparing the investment on employees' development with organizational future benefits such as improvement in production methods, processes, and controls (Becker, 1975). However, human capital is naturally movable with employees, and so they have a controlling mechanism on investing in human capital. Due to maximizing organizational benefits for achieving competitive advantage, organizations gradually shift their views on employees from human resources to human capital and constantly strive to implement strategies related to human capital creation or development practices. Therefore, it is obvious that human capital creation at each individual employee symbolizes his/her potential to contribute to organizational financial performance and productivity.

Following the notion that not all kinds of human capital contributes to advanatge, this study analyzes how knowledge based employees, who have high value and unique human capital, perceive their human capital creation through organizational investment. So employees' gender and human capital variables (age, education, rank, and tenure) are needed to be kept constant. The specific focus of this study is to explore and examine the antecedents of employee perceived human capital creation from organizational human resource

management (HRM) factors, knowledge management (KM) system success factors, and leadership factors in the context of Indian manufacturing industries. In this direction, the related measures for HRM, KM system, leadership and perceived human capital creation are identified and modified to suit with Indian manufacturing employees. This study also compares the above factors between private and public firm employees and analyzes the factor structure of each measure. Furthermore, this study attempts to identify the role of HRM factors and KM system factors in the relationship between transformational leadership and perceived human capital creation. To achieve the above objectives, this study has collected data from 470 Indian manufacturing employees, who have high value and unique human capital and interim leadership experience, with the use of both random and non random samplings.

The conducted statistical analyses such as hierarchical regression analysis, correlation analysis, paired t-test, exploratory factor analysis, and confirmatory factor analysis reveal several important findings from this study. The results show that organizational culture, communication, tactical KM, interim leadership, transformational leadership, recruitment strategy, training, performance appraisal, reward strategy, and career management are the antecedents of employee perceived human capital creation. The significant differences between private and public firm employees are found in relation to the antecedents and perceived human capital creation. The exploratory factor analysis identified that HRM measures comprise of reward strategy, career-oriented training, performance appraisal, recruitment strategy, career management, and performance-oriented training factors; KM system measures comprise of factors namely problem solving approach, communication-oriented culture, tactical KM, and innovation-supportive culture; leadership measures

include transformational leadership and interim leadership factors; and perceived human capital creation is an unidimensional construct. Further, this study moderately identifies the associations between these factors and employee's human capital and gender variables. Interestingly, this study finds that KM system factors play a mediator role, and HRM factors play mediator and moderator roles in the relationship between transformational leadership and perceived human capital creation. In testing the three theoretical frameworks or models namely the antecedents of perceived human capital creation model, model of transformational leadership and perceived human capital creation in which KM system factors play a mediator role, and the model of transformational leadership and perceived human capital creation in which HRM factors play a mediator role, confirmatory factor analyses proved the fit of these models with data and suggested that these models are highly preferable than alternative models.

ACKNOWLEDGEMENTS

I am immensely grateful to my supervisor Dr. S. Rangnekar, Assistant professor, Department of Management Studies, for his stipulated guidance and unwavering support and encouragement. This thesis could not have attained its present form, both in content and presentation, without his active interest, direction, and guidance. His unmatched excellence in the subject, bountiful energy, and personal care has been the source of inspiration. He has devoted his invaluable time and taken personal care in motivating me whenever I was disheartened due to rough and tumble in research. His personal counselling and words of encouragement were catalytic whenever I felt a bit apprehensive of the daunting task ahead. His motivational words worked wonders in ensuring the completion of this thesis as per schedule.

I would like to thank Prof. V. K. Nangia, Head of the Department of Management Studies and Prof. T. R. Gulati, Prof. Renu Rastogi, and Dr. Z. Rahman, Student Research Committee (SRC) members, for their continuous administrative support, recommendations, and useful suggestions in every possible way that helped me to accomplish the thesis work as per the drawn schedule.

I am very much thankful to Mr. V. Srinivasan, CBRI Scientist, and Mr. A. Dalpati, Mr. Alok Goel, and Mrs. Geetha Rana of Department of Management Studies, who have helped me to collect data from industries, without whom the data collection process would have surely been a nightmare. I would like to thank Mr. R. C. Goel, former Director, Rajya Sabha, Parliament of India, for his unwavering support to structure this thesis. Furthermore, I would also like to thank all other faculty members of the Department of Management Studies for their unwavering and timely help on various occasions.

I wish to express my special thanks and appreciation to the Ministry of Human Resource and Development, Government of India for providing me financial help in the form of research fellowship and contingent grant for this research. I gratefully acknowledge the expert comments and new ideas of all the reviewers of the journals and conference papers from this research work.

I would like to thank my friends Mr. A. Srinivasan, Mr. P. Purushothaman, Dr. S. Balan, Dr. N. Saravanan, Dr. Arivazhagan, Dr. Muthu Krishnan, Mr. K. Saravanan, Mr. R. Kathiravan, Mr. Parthiban, Mr. Ganapathi, Mr. Ramsankaran, Mr. Rengarajan, Mr. Thangaraj, Mr. Narayana Moorthy, Mr. Ramesh, Ms. Shigufta, Mr. Rajeev Mishra, Mr. Shyam Narayan, and Mr. Devendra Singh, who went hand-in-hand during the period of my doctoral research and particularly for the fruitful leisure-time discussions.

My parents and brothers deserve special mention because they are greatly instrumental in bolstering my determination to achieve my goal. I thank Mr. Muthuraj, Mrs. Thalakkammal Muthuraj, Mr. Sethu Ram Pandian, Mrs. Devi Sethu, Mr. Dhanuskodi, Mrs. Tamizharasi Dhanuskodi, Ms. Raj Kumar, and Ms. Ram Kumar for their much needed and understanding through out these years. I wholeheartedly dedicate this work to my sister M. Selvi who is like an angel to me.

Last but not the least, I am grateful to all those who have helped me directly or indirectly in the successful completion of this thesis.

(Birasnav M)

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INTRODUCTION

1.1 Introduction

Organizations, irrespective of their size or sector, are constantly coping with dynamic and turbulent market environment by changing their business strategies with the help of continuous growth of both information technologies and globalization concepts (Haq and Kannan, 2006). For surviving in this environment, firms develop strategic assets to achieve competitive advantage from their non-tradable, inimitable, and specialized resources and capabilities (Amit and Schoemaker, 1993). This ability of a firm is described as its dynamic capability (Teece *et al.*, 1997). For managing the environment and sustaining competitive advantage together, the focus of firms had been gradually shifted from employee development to human capital development since the last two decades. All firms now realize that achieving and sustaining the advantage depends on employee human capital. Due to the natural mobility of human capital with employees, firms leverage human capital to build intellectual capital for achieving the advantage (Skandia, 1998). In this knowledge era, organizations take efforts to develop and manage human capital in the industrial environment. In this direction, this study takes part in employee perspective human capital creation or development, with specific reference to Indian manufacturing employees. In particular, this chapter presents the surrounding organizational factors of human capital creation such as human resource management (HRM) factors, knowledge management (KM) system factors, and leadership factors.

1.2 Human Capital

All the organizations concur that intangible resources i.e., human resources are vital knowledge element for sustaining competitive advantage and creating knowledge organization because the competitive advantage is ephemeral and depends less on firm's infrastructure but more on knowledge and skills of the human resources (Laprade, 2005). On moving towards competitive advantage, firms increase their market value through developing intellectual capital from human capital, organizational capital, and customer capital (Skandia, 1998). Importantly, human capital is referred to as employee's knowledge, skills, capabilities, commitment, know-how, and ideas and health (Skandia, 1998; Snell and Bohlander, 2007; Ulrich *et al.*, 1999; Sullivan, 1999; Becker, 1962). In economic perspective, human capital is defined as the ratio of firm's market value to replacement value of its fixed assets (Ulrich *et al.*, 1999). This notion is supported by Becker (1993) who stated that firms leverage employees' collective skills, experience, and knowledge to achieve economic value. In employee perspective, Ulrich *et al.* (1999) defined human capital as the multiplication of employee capability and employee commitment. This definition implies that employee capability itself does not represent human capital rather than employee capability with experience. However, Hudson (1993) described human capital as the combination of genetic inheritance, education, experience, and attitudes about both life and business.

Researchers explained human capital through number of theories:

1. *Transaction cost economics theory*: In this theory, human capital falls under the concept of 'make or buy' decision in which organization employ workforce based on comparing transaction cost (acquisition from market) and bureaucratic cost (internal

development). According to Lepak and Snell (1999), the latter approach is well-suited in the human capital context as it enables firms to monitor employees' performance and efficient deployment of employees. Thus, human capital will have the property of asset specificity (Chen and Lin, 2004).

2. *Human capital theory*: In this theory, organizations compare their investment on employee skills development with future benefits such as improvements in production methods or processes. However, employees have a controlling mechanism to decide the amount of investment (Becker, 1975). Subsequently, Chen and Lin (2004) refer to human capital as the increased training and knowledge received by employees. In this theory, human capital is characterized by specialized skills and non-transferrable skills.

3. *Resource based view of the firm*: This theory emphasizes human capital as distinctive core competencies, which belong to a particular firm and contribute to competitive advantage (Prahalad and Hamel, 1990). According to this theory, human capital possesses the characteristics of rareness, value, inimitability, and non-transferability (Barney, 1991). At this moment, human capital value is quoted as at what extent employee's potential contribute to competitive advantage, and human capital uniqueness is quoted as non-transferrable and inimitable or specific human capital to certain firms. Thus, organizations invest more on employees, who contribute to achieve their goals and mission, and simultaneously, restrict competitors to utilize such investments. In this theory, employees possessing high value and unique skills are called as human capital, and investments made on such employees are human capital investments (Lepak and Snell; 1999; Chen and Lin, 2004).

At the individual level of analysis, Lepak and Snell (2003) identified different forms of knowledge based human capital as: generic human capital (knowledge is acquired generally and so it is not unique); occupational human capital (codifying knowledge throughout a broader professional group); industry-specific human capital (knowledge about a particular industry possessed by individuals at some extent); and firm-specific human capital (knowledge limited in its application to a particular firm). Specifically, firm-specific human capital possessing employees are more productive in their current firm and thus, it contributes to competitive advantage (Matusik, 2002; Lazear, 2003; Lepak and Snell, 2003). Perez and de Pablos (2003) adapted Lepak and Snell's (1999) human capital value-uniqueness framework according to employee's knowledge (see Fig 1.1). Idiosyncratic human capital has uniqueness but provides no value to customer, and they are acquired from partnering firms. Semi skilled or unskilled employees, who have no uniqueness and value, are described as ancillary human capital. Internally developed employees, who possess high value and uniqueness, are core human capital.

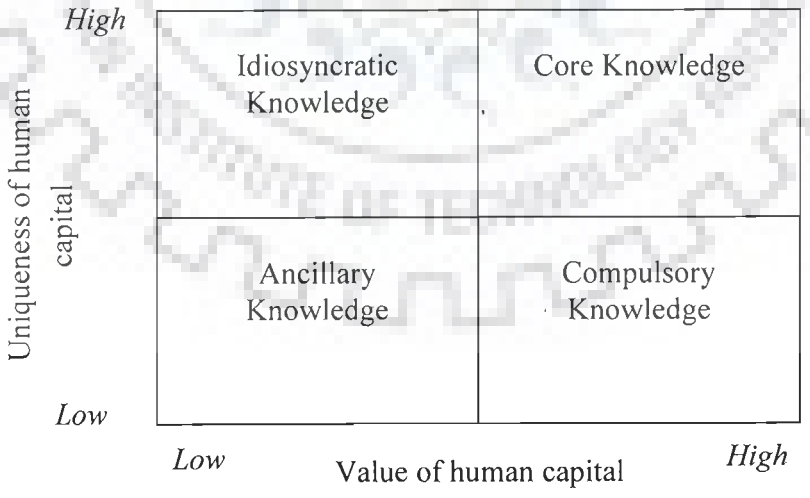

Fig 1.1 Types of human capital (Source: Perez and de Pablos, 2003)

Finally, compulsory human capital is a particular group of employees, who have high value but no uniqueness, and have enough opportunities to get developed internally.

1.3 Organizational Human Resource Management Factors

HRM is an important studying field in which much research attention is being given on creating core competencies, because of its "policies, practices, and systems that influence employees' behavior, attitudes, and performance" (Noe *et al.*, 2000, p. 4). Organizational HRM is an integrated system from which a set of dynamic and effective human resource practices are derived and executed to develop and manage employees in view of achieving business strategic goals and consequently exploit organizational benefits. Since the last two decades, firms have begun to invest financial resources on high technologies and modern production systems (e.g. computer aided manufacturing, computer integrated manufacturing, and flexible manufacturing system) to gain overall operational performance improvement. Correspondingly, they also confront the challenges of implementing a human resource system which constitutes of various practices such as recruiting and selecting knowledgeables, developing the necessary skills and knowledge of employees, frequently appraising employees' performance, and encouraging employees to reinforce their innovative behaviors for operationalizing the manufacturing systems.

1.3.1 Recruitment Strategy

Recruitment is a process of locating potential individuals who may join the organization and encouraging them to apply for existing or anticipated job openings (Snell and

Bohlander, 2007). Through formal recruitment, an organization makes efforts to inform the applicants or knowledgeables about the required qualifications to perform the job. However, an organization can also use employees' network of contacts to recruit talents through informal recruitment. In this knowledge economy, devising a strategy for recruitment identifies and attracts talents in every organization through which core competencies are built up. Ghosh and Geetika (2007) define recruitment strategy as "the process of creating a strategic plan for the organization, having specific requirements for each job and aligning them with the corporate and business strategies of the organization" (p. 6). The dimensions of this strategy (whom to recruit, from where to recruit, and how to recruit), bring in different kinds of human capital to meet organization's current and anticipated needs. Lepak and Snell (1999) explained these dimensions through a framework of interrelating both employment modes and human capital characteristics i.e., value and uniqueness (see Fig 1.2).

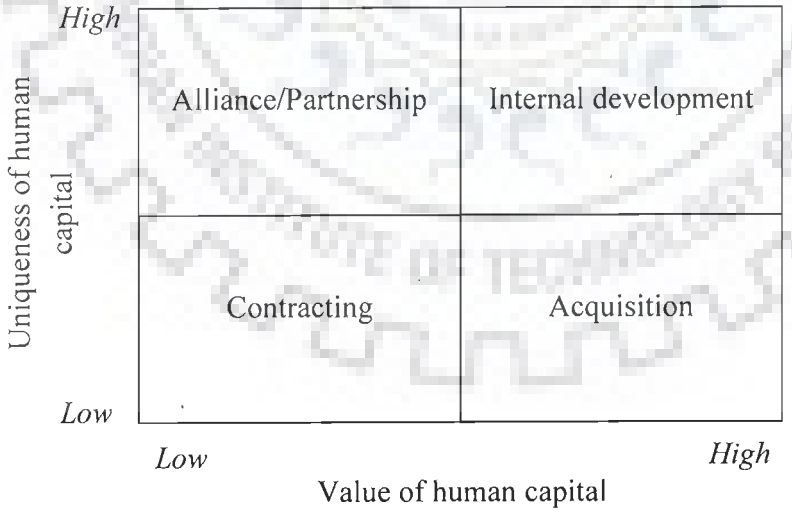

Fig 1.2 Human capital and employment modes (Source: Lepak and Snell, 1999)

1.3.1.1 Internal development

The first quadrant, high uniqueness and value of human capital, represents firm-specific human capital of a particular organization and hence, it is rarely available in the external labor market. To develop this capital, firms should involve in commitment creation based internal development of current workforce. Since this mode enables employees to undergo development of skills which are specifically non-transferable to other firms but valuable in the current firm. Due to these reasons, firms are less likely to lose such capital, and they therefore build up human capital pool (Becker, 1976). Thus, internal development mode is more preferable when firms require employees who mainly contribute to strategic mission and objectives and sustain competitive advantage.

1.3.1.2 Acquisition

The second quadrant represents high valuable but low unique human capital. The knowledge-focused firm can acquire such characterized employees from external labor market. This mode facilitates firm to exploit the benefits of the employee skills which developed somewhere else. Thereby, organization experiences immediate increase in productivity and savings by reducing the expenditures from such employee development (Lepak and Snell, 1999).

1.3.1.3 Contracting

The third quadrant explains both low value and unique human capital which rarely contribute to firm's competitive advantage. By outsourcing or contracting employees, for example, administrative employees such as clerical, support, and maintenance,

organizations could reduce their overhead costs. Hence, employees recruited from this mode have limited organizational involvement.

1.3.1.4 Alliance/Partnership

The last quadrant, low value but high unique human capital, represents the alliance mode through which a firm utilizes idiosyncratic knowledge from other firms in a manner of shared outcomes. This mode enables firms to share valuable information through collaborative action. Indian manufacturing firms, for instance, Maruti Udyog Limited and Bharat Petroleum Corporation Limited, are partnering with international management consultants for adopting innovative practices (Som, 2007).

1.3.2 Training

Goldstein (1983) defined training as "the acquisition of skills, concepts, or attitudes which result in improved performance in another environment" (p. 3). In particular, training is a kind of planned learning system through which employees develop their human capital (Dhar and Dhar, 2003). Hence, Chen and Lin (2004) refer to human capital as the increased training and knowledge received by employees. For nurturing and strengthening organizational competencies (core set of knowledge and expertise), firms conduct various programs to train their employees for developing skills. In addition, implementing new technologies in the firm requires employees to continuously hone their knowledge, skills, and abilities to cope with new processes and systems. However, organizations train their new employees to match up their knowledge, skills, and abilities with required performance. According to Ulrich *et al.*'s (1999) build strategy, firms

robustly invest in training programs to develop their current employees when they are difficult to attract external talents. Therefore, training tends to focus more narrowly towards short term performance concerns. Conversely, development tends to be oriented more towards broadening an individual's skills for future responsibilities. Due to these reasons, Wayne *et al.* (1999) stated training as one of the variables of human capital.

Snell and Bohlander (2007) describe four phases of systematic training such as needs assessment, design, implementation, and evaluation. During first phase, organization assesses needs through organization analysis, task analysis, and person analysis. Examining the internal and external working environment, strategies, and available resources, organization analysis identifies the focal area of the firm to be trained. To identify the job activities involved in that area and skills needed to perform such jobs, task analysis reviews job descriptions. Thereafter, person analysis investigates the set of employees who require training. In second phase, organization designs appropriate training program by analyzing the receptiveness and readiness of the participating employees and characteristics of the instructor or trainer. In third phase, organization decides the types of training methods for employees. For instance, in-basket, business games, and case studies methods are particularly in practice for improving top and middle managers' decision making skills (Flippo, 1984). Finally, organization evaluates the conducted training programs by measuring return on investment, which is the ratio of increased profits or improved productivity to training expenditures. Amount of training an organization gives to its employees is positively related with its revenues and overall profitability. This relationship would be highly significant only when allowing employees

who have comparably less potential. Overall, Indian manufacturing industries give emphasis on training and development in terms of money spent (Budhwar, 2003).

1.3.3 Performance Appraisal

Apart from recruitment and training methods, human capital is generated from performance appraisal, since it effectively reveals the focal areas in which an employee lacks competencies and requires improvement. Having performance appraisal as a mandatory process, it recommends an employee corrective actions on developing current skills and changing developmental behaviors. Wilson and Western (2000) quoted performance appraisal as "the annual interview that takes place between the manager and the employee to discuss the individual's job performance during the previous 12 months and the compilation of action plans to encourage improved performance" (p. 384). Additionally, Harper (1996) quoted this appraisal process as performance review and development, because it concentrates on the development of each employee's capabilities, career potential, and professional success. Organization hereby could reap productivity benefits when this process highlights the employees' deficient skills.

As employee development is the primary focus of performance appraisal, it transforms appraisers from judges to coaches, and then provides significant feedback and suggestions on employee's strengths and weaknesses and improving job performance. Overall, appraisal creates an opportunity to identify issues for discussion, eliminate potential problems, and set new goals for achieving high performance (Rao, 2006). In organizations, appraisal evaluates an employee's traits, behaviors, competencies, goal achievement, and improvement potential. However, this evaluation is not necessarily to

be identical to same categorical employees (Gwynne, 2002; Mondy and Noe, 2005). Traits are evaluated on the basis of employee's attitude, appearance, and initiative. Behavior of a manager is evaluated on the basis of leadership style. Further, competencies comprise of a broad range of knowledge, skills, traits, and behaviors that may be technical in nature. Indian manufacturing companies, for example, Indian Oil Corporation Limited, appraises job knowledge, initiative and original thinking, leadership, and organizing things of employees (Rao, 2006). Performance appraisal effectively functions to develop employee's human capital when an organization: encourages face-to-face discussion between the manager and the employees over the hurdles of acquiring new skills; changes the appraiser's attitude on employee's appraisal by perceiving that benefit will be derived from the resources (time, energy, etc.) spent in this process; and conducts performance appraisal more than once in a year.

1.3.4 Reward Strategy

Firms are devising methods to harness their employee's actions towards their interests as firms do not actually own human capital. In this connection, reward systems are a kind of investments to encourage employees to perform well in their activities. Lawler (1994) described reward strategy as an integrated reward approach linking company strategy, pay systems, and employee behaviors. The following are the common goals of a strategic reward policy, which directly and indirectly creates human capital: to reward employees' past performance; to remain competitive in the labor market; to maintain salary equity among employees; and to mesh employees' future performance with organizational goals (Lepak and Snell, 1999). If employees observe unequitable reward, they would more

likely to leave the organization and in case of deciding to continue, high probability is prevalent to show low performance (Adams, 1963). In firms, total rewards comprise of transactional rewards and relational rewards. The former is a kind of tangible rewards of pay and benefits arising from transactions between the employer and employees, whereas the latter is a kind of intangible rewards of appreciation and recognition involve in with learning and development (Armstrong, 2007). Transactional rewards compensate employees for the different skills or increased knowledge they possess rather than for the job they hold in a designed job category. It represents a fundamental change in the attitude of management regarding how work should be organized and how employees should be paid for their work efforts. Recognition, an immediate reward or positive feedback from managers, acknowledges employees' contributions, for instance, to a team. Self-esteem, one of the needs of the Maslow theory, is closely related to relational reward, and these needs fulfill the employee's desire for achievement and the desire for reputation or status (Robbins and Sanghi, 2006). These pay plans encourage employees to earn higher wages by learning and performing a wider variety of skills or displaying an array of competencies that can be applied to a variety of organizational requirements (Snell and Bohlander, 2007). Finally, pay and incentives of a compensation system should focus employees' risk-taking attitude to promote innovativeness and group-based compensation to create knowledge organization (Yahya and Goh, 2002)

1.3.5 Career Management

Flippo (1984) defined career as "a sequence of separate but related work activities that provides continuity, order, and meaning in a person's life" (p. 248). To have a successful

career, employees involve in creating own career path instead of organization creating path. So encouraging employees to be responsible for their own careers and offering assistance in the form of feedback on their career performance are the responsibility of human resource (HR) managers on employees' career management. Greenhaus *et al.* (2000) define career management as "the process by which individuals develop insight into themselves and their environment, formulate career goals and strategies, and acquire feedback regarding career progress" (p. 423). In view of plan, develop, and manage employee's career, organizations involve in conducting career planning workshops, job posting, career counseling, and job redesign (Scholz, 1987; Greenhaus *et al.*, 2000; Snell and Bohlander, 2007). For effectively managing career, organizational needs (innovation, growth, productivity, etc) should be linked with individual career needs (performance, education, and training) in such a way that employees improve personal effectiveness and attain satisfaction with achieving organization's strategic objectives (Snell and Bohlander, 2007).

In general, career management deals with career exploration, career goal, and career strategy. Career exploration is the process of evaluating self and surrounding environment to collect information to manage one's occupation (Bluestein, 1989). Briefly, it deals with where one explores, how one explores, how much one explores, and what one explores about the available opportunities in the internal and external environment (Stumpf *et al.*, 1983). Career goal is a goal that an employee wants to attain in future, for example, different position or promotion, salary hike, or skill or knowledge acquisition (Noe, 1996; Greenhaus *et al.*, 2000). It signifies that an employee has a clear layout of the future and performs necessary actions towards the satisfaction of needs

through guidelines (Greenhaus *et al.*, 1995). Career strategy is a strategy devised to attain a set of career goals by participating with superior who act as mentor (Greenhaus *et al.*, 2000). This strategy comprises of interpersonal and intrapersonal strategies. The former enables employees to develop positive affect through self-nomination and accessing network. The latter enables employees to develop competencies and skills within a unit (Noe, 1996).

1.4 Organizational Knowledge Management System Factors

Davenport and Prusak (1998) described knowledge as "a fluid mix of framed experience, values, contextual information, insight that provides a framework for evaluating and incorporating new experience and information. It originates and is applied in the minds of knowers" (p. 5). Knowledge is characterized by transferability, capacity for aggregation, appropriability, and specialization, and therefore, could be utilized throughout the firm (Grant, 1996). Many knowledge management (KM) researchers generally quote two kinds of knowledge as explicit knowledge and tacit knowledge. Explicit knowledge is documentable and sharable knowledge through information technologies, for example, databases and instruction books. In contrast, tacit knowledge resides in the employee's mind, behavior, and perception, for example, intuitions, insights, beliefs, and values (Yahya and Goh, 2002; Chaudhary, 2005). These two kinds of knowledge possessed by employees about processes, methods, and machines build up organizational knowledge. KM is a cyclic process in which developing new knowledge, securing new and existing knowledge, distributing knowledge, and combining available knowledge stages are executed and therefore, it does not deal with control (Liebowitz and Beckman, 1998;

Bollinger and Smith, 2001). As said earlier, knowledge is one of the components of human capital. Therefore, factors lead to success of the KM would have certain impact on human capital development. The effectiveness or success of KM is generally viewed from knowledge process capability and knowledge infrastructure capability of an organization (Lindsey, 2002). In line with Lindsey, tactical KM process is considered as knowledge process capability, and communication and organizational culture are considered as knowledge infrastructure capability. Thus, this section deals with tactical KM, organizational culture, and communication are the factors which significantly lead to KM success or KM system success (Jennex and Olfman, 2005). Though organizational KM system comprises of many factors, this study particularly considers these factors for human capital development.

1.4.1 Tactical Knowledge Management

According to Bukowitz and Williams (1999), knowledge workers in the organization daily follow tactical KM, which includes gathering information, using information to create value, learning from what they create, and feeding back the new knowledge into the system. Following this, Filius *et al.* (2000) describe tactical KM as the process of knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, and knowledge application. Knowledge acquisition involves in the processes of collecting information about the requirements of customers and acquires knowledge externally when it is missing in the organization. Knowledge creation activities include development of new knowledge or replacement of existing knowledge within the organization's tacit and explicit knowledge (Lu and Tsai, 2004). According to Nonaka

(1994), knowledge is created when there is a transition between tacit and explicit knowledge. Fig 1.3 exhibits knowledge creation through transitional processes.

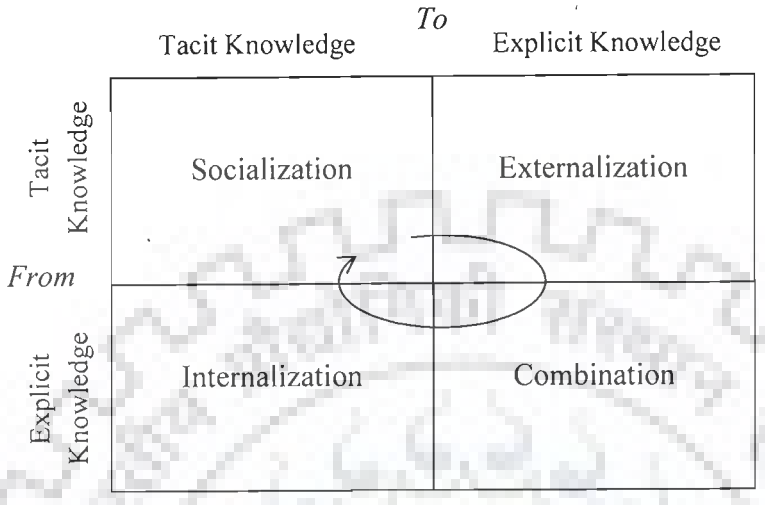

Fig 1.3 Modes of knowledge creation (Source: Nonaka, 1994)

Socialization: This process facilitates employees to acquire tacit knowledge with or without language from others. In firms, sharing work experiences among employees and acquiring tacit knowledge by observing and emulating what their mentors doing are the happenings of the socialization process (Nonaka, 1994).

Externalization: This process crystallizes tacit knowledge in the form of explicit knowledge that conveys a particular message to others. Thus, it produces a new knowledge among recipients. Metaphors, analogies, visuals, and diagrams in the organization are the externalized knowledge.

Combination: This process redefines the existing explicit knowledge by adding or sorting information after making conversations with others into systematic explicit knowledge, and a new knowledge thus occurs. Computer systems facilitate this process by creating explicit knowledge from the pool of explicit knowledge (Nonaka, 1994).

Internalization: This process converts explicit knowledge into tacit knowledge through 'learning by doing' (Nonaka *et al.*, 2001). Once this knowledge is internalized with employees' tacit knowledge, their practical knowledge of know-how or know-why would be updated. The internalized knowledge is then shared with co-workers to refine organizational knowledge through socialization process, and hereby, this process cyclically continues.

In general, individuals' developed knowledge is then articulated and amplified into databases or handbooks. Whatever the mode of knowledge, it should be shared or transferred to other employees. Usually, individuals, teams, and departments often share ideas, opinions, gossip knowledge, and expertise through formal and informal meetings. It is essential to choose the most effective way for transferring knowledge, which could be applied for other tasks within the organization. The potentially valuable portions of these communications, discussions, arguments, and collaborations made are repeatedly available to the next stage of the KM process. Based on the nature of the task and type of knowledge to be transferred, Dixon (2000) categorizes knowledge transfer as serial (gained knowledge is applied again by same team), near (gained explicit knowledge is adapted by other team), far (gained tacit knowledge used by other department), strategic (gained knowledge is applied to do strategic work), and expert transfer (acquiring expertise from other organization). Finally, knowledge application is an activity of applying the created knowledge into a company's products, processes, and services to create value for the firm.

1.4.2 Organizational Culture

Knowledge is a crucial factor behind sustainable competitive advantage and overall success of companies, and knowledge issues are closely interlinked with organizational culture (Davenport and Prusak, 1998). As culture has no fixed or broadly agreed meaning, many authors have explained their view about organizational culture. Specifically, Miron *et al.* (2004) define organizational culture as "a set of beliefs and values shared by members of the same organization, which influence their behaviors" (p. 179). Culture is not inside of employee's head, but somewhere between the heads of a group of employees of the organization where symbols and meanings are publicly expressed through work group interactions, in board meetings, and also in material objects (Alvesson, 2002). In addition, culture prevails in the organization through artifacts, language in the form of jokes and metaphors, behavior patterns in the form of rituals and ceremonies, norms of behavior, heroes, symbols, and symbolic actions, and history (Brown, 1995). On relating to human capital, a knowledge-enriching culture in the organization is characterized by empowered individuals, active learning from customers, results of individual's own actions, a constant search for improvement and innovation, boundary crossing individuals spend much time on interacting with non-team members, encouragement of experimentation rather than blindly following rules, and willingness to share knowledge widely among colleagues, who may be in different groups (Skyrme, 2001).

Scholz (1987) explained the three dimensions of culture namely evolution-induced (how cultures change over time), internal-induced (how the internal circumstances of an organization affect its culture), and external-induced (how an organization's environment

affects its culture). Though no organization is likely to precisely fit with any one of the above categories, Fig 1.4 shows how culture types create climate to work with risk-taking capability and skills for human capital development. The production culture has weak property rights since the production process requires high standardization of the work and low skill requirements. In bureaucratic culture, the property rights are derived from the position due to increasing non-routineness. In professional culture, the task variety and difficulty of handling tasks are high. Therefore, the property rights are vested in the person rather than in the position (Scholz, 1987). Many researchers described various forms of organizational culture namely:

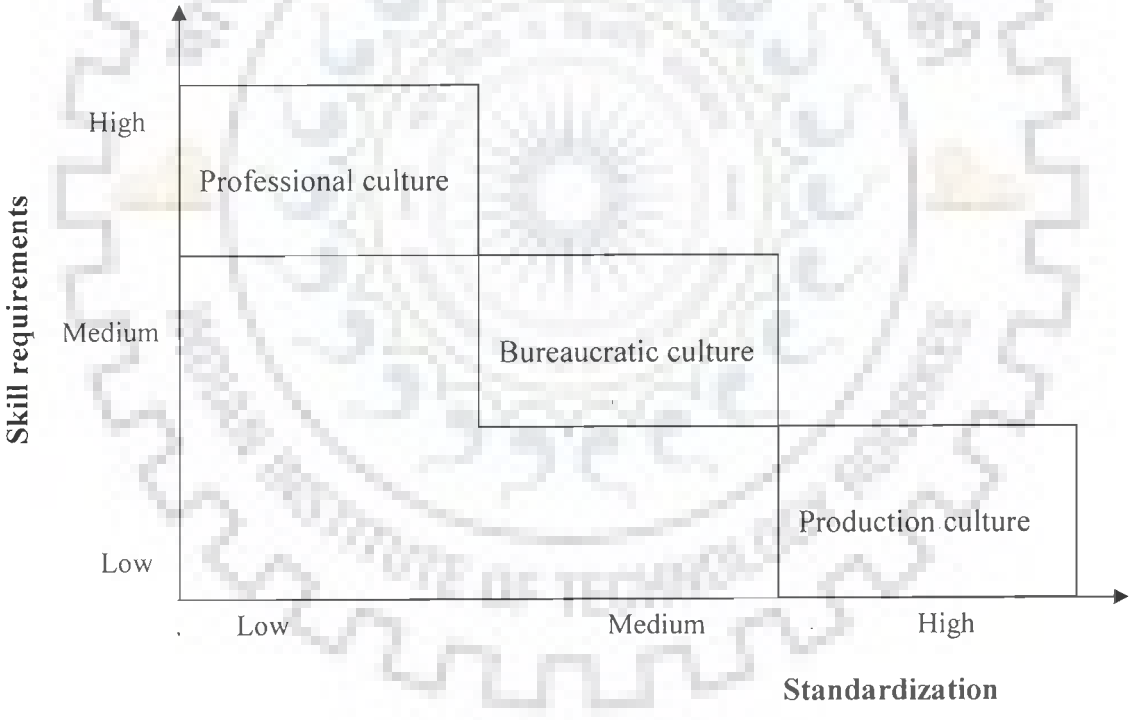

Fig 1.4 Internal-induced dimension of culture

Source: Adapted from Scholz (1987) and Brown (1995)

Innovation-specific culture: This culture fosters expectations and guidelines for employee's creativity, willingness to experiment, and risk-taking skills (Jassawalla and

Sashittal, 2002; O'Reilly *et al.*, 1991). This culture is reported in some Indian manufacturing companies, specifically, Wockhardt Limited, Standard Motors India, and Nicholas Primal Limited (Jain *et al.*, 2004; Pareek, 2007).

Supportive culture: This culture encourages employees to get involved in the decision making process with mutual respect and trust (Bititci *et al.*, 2004). The supportiveness dimension includes values of sharing information freely, being supportive, encouragement of diversity and socialization, and offering praise for good performance (Fawcett *et al.*, 2004; O'Reilly *et al.*, 1991).

Detail-oriented culture: This culture comprises of values of being analytical, paying attention to detail, and being precise (Judge and Cable, 1997). Such organizations are performing as adaptors since they are able to maintain a high level of accuracy in detailed work over a period of time to reduce problems by introducing improvements that increase efficiency and maintain maximal continuity and stability (Miron *et al.*, 2004).

1.4.3 Communication

Loveridge (1996) stated communication as "a dimension of structure in which information is transmitted throughout the organization to provide data for decision making, to motivate employees, to exercise control, and to express satisfaction or dissatisfaction with operations" (p. 9). In the organizations, employees should be given information about the organizational activities, goals, and directions, and they must be allowed to have channels to pass information to management (Rodwell *et al.*, 1998). It is commonly believed that communication is central to four management competencies such as management of attention, meaning, trust, and self. Therefore, communication has

a vital role in both organizational functioning and organizational effectiveness improvement (Bush and Frohman, 1991). The following are the purposes of effective communication generate human capital: communication is needed in the area of orientation to make people acquainted with peers, superiors, and company's structure, policies, and practices; information is needed by every employee to able to perform his/ her function effectively; and communication is needed to acquaint the subordinates on evaluating their contribution to enterprise activity.

1.5 Organizational Leadership Factors

Yukl (2006) defines leadership as "the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives" (p. 8). Leaders or managers' own efforts alone could not achieve the set goals of the organization. Hence, they achieve results with the help of employees through improving human capital over time, and this is possible by increasing the capability and commitment of their employees (Ulrich *et al.*, 1999). As a result, job of a leader on managing human capital is to clarify what employees need to know and do, and then to figure out how to make sure employees do what is needed. In contrast, job of a leader on creating human capital is to provide solution on employee's job related problems and suggest the easiest way to do the job. However, leadership skill itself is a component of human capital. This section presents the highlights of leader's responsibility on human capital development through transformational leadership and developing leadership skill through interim leadership.

1.5.1 Interim Leadership

Literatures explaining the differences between interim leadership and interim management are very scarce. Broadly, interim leadership is exhibited by an employee or manager who leads the interim management. In particular, interim leadership is described as an engagement of executive on a temporarily vacant position for a limited period of time (Birasnav and Rangnekar, 2008). There are two kinds of interim leadership ubiquitously exercised in any organization: external employee's interim leadership on occupying a management role for a short period of time not more than nine months (Spitze *et al.*, 2004); and internal employee's interim leadership on filling a vacant position for a specific period (Weingart, 2003). The mode of employment for the former approach is contracting, whereas it is internal development in the latter approach (Lepak and Snell, 1999). Therefore, human capital development oriented organization concentrate on internal employee's interim leadership. This study assumes that interim leadership is temporarily performed by a homegrown employee on behalf of immediate superior, who is temporarily or permanently absent due to resignation or off-site duties or illness or vacation.

The criteria used for interim selection in the organization quoted by literatures are: next person in the chain of command; by vote; highly productive employees who are perceived to quit; and employee's longevity (Gilmore, 1988; Everley, 1994; Alley, 2005). Before choosing interim role, the selected employee should: examine the impact of the role on career goals; list out the duties to be performed; assess approximate time period to engage in the role; analyze the method of appraising the interim's performance; and determine what extent your colleagues and superiors will support (Mundt, 2004). In this

direction, Billowitz and Silverman (1989) classified interim leadership as: empowered (highly competent and active interims as well a strong candidate for permanent); handcuffed or striving (competent interims given little authority and power to maintain status quo); peter principle (passive and less capable interim); and institutional lemming condition (inadequate interims appointed for maintaining departmental stability). After taking over the responsibilities, interim leaders build relationships with employees and senior managers and engage in solving employees-managers conflicts. Although interim leaders will typically not be called upon to provide vision for long term development, later they involve in making significant decisions that affect the long term operations of firm (Munde, 2000; Weingart, 2003). Thus, interim leader significantly contributes to achieve organizational goals, and simultaneously avails opportunities to gain executive experience, career advancement, and salary bonus (Goler, 2003).

Overall, Boylston and Peters (2004) explain the process of a firm to manage interregnum or gap in the continuity of leadership. The process starts immediately when a leader resigns or departs from the organization or unit (see Fig 1.5). As this departure creates need for the transition, firm therefore begins to search internal employees who are capable to manage the transition until a new leader is being found.

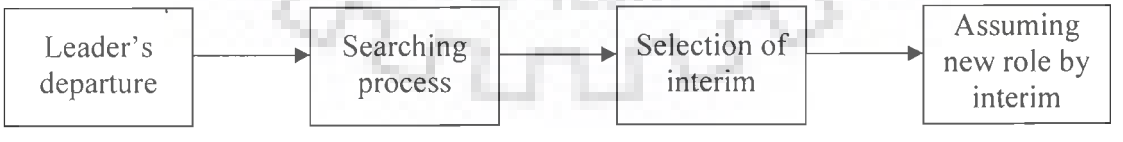

Fig 1.5 Interregnum process (Source: Adapted from Boylston and Peters, 2004).

Thereafter, organization selects an employee, who fits very well with its culture through the selection criteria. Finally, interim assumes the vacant position till organization selects

a leader for that position permanently. The following are also the ways through which a firm supports its interim leader's human capital: undergoing an additional training to manage the new role without a need for a permanent job change; regular and frequent communication with the top management, which leads for the course of action; opportunity to take greater challenges; and developing capability to focus on particular issue of the interim environment.

1.5.2 Transformational Leadership

The responsibilities of leaders are explained through transformational leadership and transactional leadership which represent increasing follower's motivational level and satisfying follower's self-interests respectively (Burns, 1978). Focusing human capital creation, Koehler and Pankowski (1997) defined transformational leadership as "a process of inspiring change and empowering followers to achieve greater heights, to improve themselves and to improve organization processes. It is an enabling process causing followers to accept responsibility and accountability for themselves and the processes to which they are assigned" (p. 16). This leadership style facilitates improving subordinates' performance and developing their potential. They greatly influence subordinates to work for others' interest rather for own interests, and create a positive climate for both team and organization (Rowe, 2007). The prime components of transformational leadership are idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1999).

Idealized influence: This component covers leader's influence over ideology, ideals, and bigger-than-life issues. So they act as role models for their subordinates, or subordinates

want to identify and emulate such leader's behavior. This component encourages leaders to exhibit high moral and ethics in their activities and set meaningful vision and mission of the future. To achieve vision and goals, leaders create a close relationship with employees, and so employees wholly respect them and create high trust or faith at them (Bass, 1999; Tjosvold *et al.*, 2003; Sharma and Bhal, 2004; Rowe, 2007).

Inspirational motivation: This component describes leader's sharing of expectations with followers, motivating subordinates to achieve goals and vision, and development of commitment among them. Thus, they create team spirit and display enthusiasm and optimism (Yukl, 2006; Bass and Riggio, 2006).

Intellectual stimulation: This component describes leader's encouragement of employees to think in new ways to solve problems and thus, they foster employees' innovativeness and creative thinking (Bass and Riggio, 2006; Rowe, 2007).

Individualized consideration: This component explains leader's effective supporting, attention, and listening at employees' needs. In particular, they coach and advice employees to accomplish self-actualization by delegating tasks. Further, they monitor followers' performance to analyze the additional need and support (Bass and Riggio, 2006; Rowe, 2007).

1.6 Human Capital Creation

Unlike physical capital, human capital is considered as the strategic intangible assets of an organization. Poor or improper methodologies involved in the development of such assets would have certain negative impact on company's competitive advantage. Hence, organizations must clearly define both human capital and human resources before

developing and formulating human capital strategy. In this connection, Garavan *et al.* (2001) describe some important attributes such as flexibility, adaptability, and employability which revolutionalize human resources into human capital. Importantly, human capital is employee's potential energy that the firm can utilize in to the accomplishment of goals or productivity purposes. The employee's knowledge and skills count for nothing if these are not incorporated into the organizational system. In specific, the process of human capital creation at the employee is initiated when an individual employee takes efforts to self-learning and interactive learning among other employees (Morone and Taylor, 2004).

According to Ulrich *et al.* (1999), organization starts developing human capital particularly in teams or groups in the organization by simultaneously increasing both employees' capabilities and commitment. In this regard, organization can choose anyone or combination of the following strategies to build employee capability in the team apart from buy and build strategies: benchmark (employees learn technical know-how of others); borrow (organization borrows suppliers, vendors, customers, and consultants' ideas); and bind (employee retention, who is contributing to organization's both financial and operational success). To build commitment apart from growth opportunities, rewards, and community, firms create environmental working conditions in the organization such as work arrangements, investing in modern technologies, offering flexitime to work, and work impact. As work identity directly relates to commitment, organization provides employees autonomy to select their own projects.

Availability of literatures analyzing human capital creation in firms is plenty and focused particularly on economic perspectives. Focusing human capital creation through

employee perspectives, this study attempts to analyze how employees perceive their human capital creation throughout their organizational life. Employee perceived human capital creation is the degree to which an employee feels human capital creation when efforts taken for mutual benefits of employee and organization. Literatures are also found supporting this notion in the field of human capital management (HCM). Bontis and Fitz-enz (2002) explained human capital creation through human capital effectiveness and human capital valuation in terms of human capital return on investment and compensation factor respectively. Employees feel their human capital creation when they deliver more return in terms of contribution on intellectual capital over the investment made at them, and they also feel improvement of their human capital by the increase in pay they get. Employees could feel their created human capital when they are considered as one of the future leaders by the organization because they have potential to vertically move into influential position (Ulrich *et al.,* 1999). These future leaders show their better performance on given responsibilities and work related activities, and therefore they are called as high-performers (Motley, 2007). Further, employees feel their human capital creation when they get opportunity to participate in high profile project or cross functional teams (Ulrich *et al.,* 1999). It is known that when the activities employees perform attach to greater opportunities for learning, employees show more commitment which is essential for human capital creation. Finally, employees also feel their human capital creation when their authority and status increases. According to Harley (1999), empowered employees feel more quickly the increasing authority, and no one could claim the insignificant relationship between skill and authority and status. Therefore, employees could perceive their human capital creation through their authority and status.

Overall, Thomas *et al.* (2003) described that competency management, career development, performance appraisal, leadership development, recruitment, workforce planning, workforce design, rewards and recognition, employee relations, human capital strategy, learning management, KM, and human capital infrastructure are the processes of human capital development or creation.

1.7 Overall Presentation of the Study

The entire research study is presented as six chapters: (1) Introduction to the research study, (2) Literature review, (3) Methodology, (4) Results, (5) Discussion, and (6) Conclusion.

The first chapter gives introduction and definition to human capital, organizational HRM factors, KM system factors, leadership factors, and human capital creation. It clearly presents the environment of the research setting. The second chapter focuses systematic literature review and gives more focus on the concept and research on human capital, organizational culture, communication, tactical KM, interim leadership, transformational leadership, recruitment strategy, training, performance appraisal, career management, and reward strategy. The third chapter concerns with the conceptual framework of the research study and hypotheses and propositions evolving from the framework. It also explains about the research design, research instruments validation, and the characteristics of the participants and their organizations. The fourth chapter describes the analytical procedures such as correlation analysis, hierarchical regression analysis, paired t-test, exploratory factor analysis, and confirmatory factor analysis used, and presents the results of the entire study including hypotheses and propositions stated in all the models.

The fifth chapter interprets and compares the proposed model results with the previous studies. It also highlights the research implications for both organization and employees. The final chapter summarizes the results of the entire research study and explains the limitations of the study and directions for further research.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

The overall importance and contemporary perspectives of human capital, HRM, KM, and leadership were described in the previous chapter. Specifically, Lepak and Snell (1999) and Perez and de Pablos (2003) explained the types of human capital and demonstrated the purposes of human capital creation and its relation to certain HRM factors and KM system factors. Followingly, this chapter examines theoretical and empirical perspectives of antecedents of perceived human capital creation from HRM factors, KM system factors, and leadership factors that guide the research study. To organize the explored review findings, this chapter is divided into four sections. Firstly, it reviews the critical findings of KM system factors' (organization culture, communication, and tactical KM) contribution on human capital creation. Secondly, employee involvement in interim leadership role and participation of leaders on their employees' skill development and knowledge creation are described. Thirdly, on reviewing the relationship between HRM factors and human capital, it provides the basis of how perception on recruitment strategy, training, performance appraisal, career management, and reward strategy of HRM factors add significant contribution on human capital creation. Finally, perspective of human capital is described and it would obviously be useful to understand the researchers' focus of human capital development.

2.2 Knowledge Management System Factors and Human Capital

This section reviews relevant and accessible literatures of KM system success factors particularly, how organizational culture promotes development of skills and knowledge of employees, organization's communication practices lead to human capital, and employees' tactical KM process and its environment.

2.2.1 Organizational Culture and Human Capital

Organizational culture describes the shared and basic assumptions that an organization learnt while coping with environment and solving problems of external adaptation and internal integration that are taught to new members as the correct way to solve problems (Park *et al.*, 2004). Lai and Lee (2007) conducted an empirical survey among 154 Taiwanese companies' senior managers to investigate the relation between organizational cultures and knowledge activities implementation in which, entrepreneurial culture (culture values flexibility, innovativeness, challenging activities, and risk-taking), tasks goal accomplished culture (production-oriented, concern with getting the job done, and no personal involvement of people), and smooth-running culture (bureaucratic and compartmentalized, organized and systematic work, and works based on controls and power) are focused. The knowledge activities include transferring, diffusing, storaging, and innovating of domain knowledge. The research pointed out that for the success of knowledge activities implementation, an entrepreneurial culture acts as an activator. The remaining cultures did not significantly affect performance of organizational knowledge activities. Entrepreneurial culture has a great impact on human capital development since this culture promotes risk-taking, innovativeness, and initiative among employees.

Knowledge sharing has potential to affect creation of individual knowledge as well organizational knowledge, and examining the prevailing knowledge sharing enabled culture in the firm hold significance on human capital development. In this regard, Al-Alawi *et al.* (2007) investigated the role of organizational culture in the success of knowledge sharing and providing possibilities to break obstacles to share knowledge, among 231 employees of public and private sectors of Kingdom of Bahrain. The techniques emphasizing knowledge sharing in the organizations were reported to employees are collaboration and teamwork, training, formal and informal discussion, utilizing knowledge sharing tools, communication networks, chatting during break time, brainstorming, workshops, seminars, conferences, focus groups, and quality circles. Though organizational culture is focused through many categories, we focus here on trust and organizational structure. The study resulted in that there is a positive relationship between trust among coworkers and knowledge sharing in the organizations. And their study also confirmed the significant correlation between organizational structure and knowledge sharing.

From the survey conducted among 349 engineers and technicians of research and development organization that manufactures advanced technologies, Miron *et al.* (2004) examined the relationship between personal characteristics (creativity, attention-to-detail, and conformity to group and rules), organizational culture (innovation, attention-to-detail, and outcome orientation), and individual performance. The hierarchical regression analysis found a significant positive relationship between the interaction of both creativity and innovation culture and performance, particularly, innovation. Furthermore, the interaction effect of both conscientiousness and outcome orientation culture had

positive impact on performance, particularly, efficiency. Creativity of employees is transformed into innovative performance by innovative culture since it supports employees to find new ways to solve problems, risk-taking, and exploring ideas when outcome is uncertain. Additionally, they found that most efficient employees are working with high conscientiousness in the outcome-oriented culture. However, their research also revealed that whenever accuracy and rules are required to perform a task, creative employee's performance was not up to the level.

Sigler and Pearson (2000) studied how organizational culture supports empowerment efforts of employees in the total quality management environment by surveying 727 front line employees working in five textile plants for two companies located in the Southeastern United States. The aspects considered for culture are doing-oriented, collectivism, and power distance. The aspects considered for employees' empowerment include meaning, impact, competence, and choice. From the regression analysis, they found that employee's perception of empowerment is positively related to the perceptions of doing orientation culture. Therefore, employees who perceive a culture as more doing-oriented report higher levels of empowerment. Second finding is, employee's perception of empowerment was positively related to perceptions of collectivism culture. Third finding is, employees who perceive higher levels of empowerment had higher performance. Further, they reported a partial support for the positive relationship between employee perception of empowerment and organizational commitment. Table 2.1 shows the findings of the research carried out about organizational culture.

Table 2.1 Findings of the organizational culture studies

Reference	Findings of the study
Chatman and Jehn (1994)	They found from eight firms that firms possessing intensive technologies and maintaining high growth would have innovation and team promoting culture.
Pool (2000)	From 305 organizations, the prevalence of constructive organizational culture reduces the role conflict and ambiguity. This result is holding significance as role conflict and ambiguity positively affect job satisfaction and organizational commitment.
Sveiby and Simons (2002)	From the sample of 8277 participants of both private and public sectors, they found that both male and female view collaborative climate as same. Educated, experienced, and aged employees in the firm regard this climate more favorable than others.
Pillania (2006)	From the research conducted among Indian private and public organizations including pharmaceuticals and petroleum marketing, it is found that organizations are lacking in establishing organizational culture for knowledge creation, sharing, and dissemination.
Corbett and Rastrick (2000)	They concluded from 40 New Zealand manufacturing firms that firms working under constructive culture report high quality performance through lowering defects in the production volume.

2.2.2 Communication and Human Capital

Communication, generally a social process, is required for employees and organization to create and share knowledge. This section explains how communication flow between employees and organization creates human capital. Importantly, technology used for

communication enhances knowledge sharing and creates communities of practices where individual employee's knowledge is refined (Reid *et al.*, 2004).

Based on Al-Alawi *et al.*'s (2007) survey among 231 employees of Kingdom of Bahrain, the majority of the respondents (80 per cent) agreed that they experience high level of face-to-face communication in the work environment, and approximately 87 per cent agreed that teamwork discussions and collaboration enhance communication. On the question of organization's provision of information systems to employees to facilitate knowledge sharing, about 78 per cent of the respondents agreed the organizational role. When participants were asked about the feeling of comfortable use of knowledge sharing tools, nearly 81 per cent agreed their comfortableness. They found a positive relationship between communication (interaction between staff) and knowledge sharing in organizations. Consequently, the results showed that as knowledge sharing increases, the existence of information systems also increases.

Lu *et al.* (2006) made a survey to analyze the relationship between information technologies, knowledge type, organizational support, and knowledge sharing with the help of 262 employees in which 33.2 per cent were from Chinese manufacturing industries. The results confirmed that information technologies utilization was related more strongly to the sharing of explicit knowledge than tacit knowledge, and however, information technologies are alone insufficient for successful KM. To promote tacit knowledge sharing, innovative strategies that integrate information technologies and face-to-face channels are needed.

Reid *et al.* (2004) investigated the success of KM initiatives in the public sector context by culture, trust, loyalty, and a supportive communication climate with the help of 27

design teams. 44 per cent of respondents stated that they never had team meetings. 56 per cent of respondents considered that barriers to effective communications exist within the department, for example, lack of group meetings and knowledge supportive culture, lack of communication from senior management, lack of time and resources, and poor lines of communication. The use of email to communicate is fairly prevalent, particularly when communicating with other groups within the department. Knowledge sharing in these organizations is mainly undertaken through the use of written reports and emails. Further, employees reported that dissemination of information and knowledge is restricted by lack of time and resources to share, insufficient in-house seminars where expertise and experience can be shared, lack of a formal project review process, and inadequate cross-discipline communications. Table 2.2 shows some more findings on the communicational research.

2.2.3 Tactical Knowledge Management and Human capital

Filius *et al.* (2000) investigated the effectiveness of KM practices at three Dutch human resource development (HRD) offices, which are specialized in training and development and organizational learning. Such KM practices fully focused on the tactical process than strategic process. Active participation in external professional network, collecting information about needs and wishes of clients, using brainstorm session, mentorship, individual performance reviews, use of existing know-how, promoting new services, and redesign of processes and methods are common in each of the organization. Nevertheless, making explicating the methods or processes that experts use is uncommon in the above offices. The KM activities which involve in expanding individual experiential horizon

(participating in innovative projects), consolidating knowledge (project evaluation), and natural communication (external and internal professional discourse) were considered effective in these offices.

Table 2.2 Findings of the communication studies

Reference	Findings of the study
Valacich *et al.* (1993)	From the research among groups, they found that groups using computer-mediated and electronic communication for interactions generate more unique and high-quality ideas than groups using verbal communication.
Rodwell *et al.* (1998)	From the survey of 329 employees of an Australian company, communication was found negatively associated with employee's self-rated performance. However, it enhanced team work, job satisfaction, and commitment of employees.
Budhwar (2003)	The findings of a research conducted among 137 Indian manufacturing firms moderately supported a hypothesis that Indian firms are less likely to adopt a participative approach to employee communication. Employees share less information due to exploitation of management and their unawareness of rights. However, importance is given to employee communication due to the presence of unions, and work councils, and staff bodies.
Smidts *et al.* (2001)	From 402 employees, they found that employee communication in the organization is positively related to organizational identification that affects employees' performance.

Singh *et al.* (2006) explored the KM practices implemented in 71 Indian manufacturing organizations. Organizational culture and budgetary constraints are the major two

obstacles reported by firms while introducing new ideas and technologies. About 80 per cent of the organizations suggested that quality and cost reduction were the two most important concerns for their competitive priorities. The significant types of knowledge that are critical for organizational success are knowledge created from feedback obtained from customers and knowledge about core competencies. The cause for major problems arising on implementing KM projects are the people, who do not disclose knowledge due to their belief that knowledge sharing may have an adverse affect on their job security. Make sharing of knowledge imperative and showing how to share knowledge are the key factors that would encourage knowledge sharing in these organizations. Lu *et al.* (2006) surveyed among 208 Chinese employees to analyze the relationship between knowledge sharing and individual factors such as greed, self-efficacy, co-worker collegiality, and organizational support. Two identified factors that may be proximal determinants of knowledge sharing are greed and self-efficacy. In the context of knowledge sharing, greed is the desire to enjoy other people's contributions without cost. Self-efficacy is the judgment of one's capability to organize and execute a course of action for the attainment of a particular goal. Co-worker collegiality refers to the quality of interpersonal relationships and rapport in the workplace. The study resulted that greed suppressed knowledge sharing, whereas self-efficacy promoted knowledge sharing. Further, co-worker collegiality was negatively related to greed and positively to self-efficacy.

McCampbell *et al.* (1999) studied the current KM practices in Teltech, Ernst & Young, Microsoft, and Hewlett Packard through case studies. Study on these cases helped authors to consolidate the steps that are involved in the implementation of KM strategy. The approach of these companies and its relation to human capital is shown in Table 2.3.

Table 2.3 KM practices from the study of McCampbell *et al.* (1999)

Organization	KM Approach	Benefits	Contribution to human capital
Teltech	The expert network Assisted database searches Integrated source map	Creating repositories of expertise Highly efficient data search Providing customer all information on a topic in a matrixed environment	Enabling employees to capture and access knowledge from professionals and customers for problem solving and creativity
Ernst & Young	Accelerated Solutions Environment The Center for Business Innovation The Center for Business Technology The Center for Business Knowledge	Creating knowledge Conversion of structured knowledge into automated tools Gathering and storing external knowledge	Stimulating employees' innovative skills and put them in knowledge accessible circle
Microsoft	Skills Planning Development	Identification of competencies for projects Identification of interims	Training opportunity through performance analysis of employees who have no desired competencies
Hewlett Packard	KM workshops Human knowledge within HP Labs	Practices of knowledge sharing through informal network Identification of expert profiles and their knowledge	Enabling employees how to share and capture knowledge

Source: Adapted from McCampbell *et al.* (1999)

Desouza and Awazu (2006) examined KM practices at 25 US based Small Medium Enterprises (SMEs). They found the following peculiarities of KM practices at SMEs:

Socialization: Unlike large organizations, SMEs' socialization process facilitates employees to be in contact with their owners or managers and co-workers always. Due to lack of establishing explicit knowledge storage (intranet facility) in their firms, the socialized knowledge is internalized by employees.

Common knowledge: In depth common knowledge about the organizational products and processes or methods steps up knowledge transfer in the organization. Oppositely, large organizations are lacking this type of simplifying the knowledge sharing and application issues.

No knowledge loss problem: Unlike large organizations, SMEs' core competencies are their owners or managers. If owners leave the firm, it should be shut down. Even new hire enters into the firm, the basic knowledge about the operations will support them to learn other things easier. Thus, SMEs do not face knowledge loss much in their industries.

Exploitation of external sources of knowledge: SMEs generate knowledge from the environment as they have limited resources or financial capital. But larger organizations think to create knowledge within.

People centered KM: There is limited use of technology in SMEs to manage overall knowledge. However, direct conversations, observations, and apprenticeship training support employees to create knowledge, which is then implemented quickly. Therefore, KM in SMEs is fully people centered than larger organizations. Some more findings of the research studies carried out in tactical KM are shown in Table 2.4.

Table 2.4 Findings from tactical KM literatures

Reference	Findings of the study
Kim and Lee (2005)	From the research among 5 public and 5 private sector corporations, they found that private sector employees have stronger perceptions of knowledge sharing abilities than public sector employees.
Srivastava *et al.* (2006)	With the help of management teams of 102 firms, they found a positive relationship between knowledge sharing within a team and team performance.
Detlor *et al.* (2006)	From the case study of a Canadian firm, they found that KM environment had positive association with both personal information behavior and organizational information behavior.

2.3 Leadership Factors and Human Capital

This section reviews relevant literatures on leadership development as human capital development and direct and indirect involvement of transformational leaders on employee's skills and knowledge development.

2.3.1 Interim leadership and Human capital

Whenever an organization takes decision about filling a temporarily vacant key job or critical position, it must primarily analyze the suitability of internal employee and external employee. The firm would clearly be in a dilemma over how to decide one among above. Many researchers refer to external employee as interim managers (Russam, 1996; Altman, 1996; Vousden, 2002). Only few referred to temporarily appointing an internal employee for interim manager position (Weingart, 2003; Mouly

and Sankaran, 1999). However, scarce literature available in this area makes current focus broader rather than narrower.

Weingart (2003) examined several experiences of interim managerial appointments and compared with recommended practices at Utah State University Libraries. Several interims entailed to take decisions that would affect the long term operations of the departments, and they were typically called upon to provide vision for the long term development of organizations on several occasions. Regular and frequent communication between the interim and the superiors facilitated a more productive term, and allows for periodic assessment. However, goals and objectives were not articulated to interims at the beginning of the appointment due to the unexpected retirements and lack of mentoring from one's predecessor. The author found that support of higher level administration was critical to the success of interim leaders.

Mouly and Sankaran (1999) studied a scientist's interim leadership in a dying Indian research and development organization. Unlike short period interim, the studied scientist acted as interim for more than 15 years. The study was carried out by direct observation and unstructured interviews with scientists and support staff to analyze the personality and style of the interim leadership. From the study, the following were observed: interim gave first preference to his scientist role than administrator role; though the scientist worked as acting director, the commitment on his role did not diminish and carried out his research activities very well under pressure; interim rejected the offer which came from the head office for closing down the organization and relocating personnel to other places; and involved in cutting costs in various unnecessary activities. This study showed that how an internal interim did manage departure-induced crisis of an organization.

2.3.2 Transformational Leadership and Human Capital

Individual employee's learning at the workplace through intuiting, interpreting, integrating, and institutionalizing facilitate the process of organizational learning (Vera and Crossan, 2004). Learning starts from the individual's subconscious by which personal experiences and thoughts about a particular product or process are twisted into new ways of looking.

In this direction, Aragon-Correa *et al.* (2007) proved that leadership style and organizational learning positively affect firm innovation from the responses of 408 Spanish firms. Their results showed that transformational leadership is highly related to organizational learning ($R^2 = 0.65$, $\gamma = 0.81$, $p < 0.01$), and innovation is strongly affected by transformational leadership ($\gamma = 0.37$, $p < 0.01$) and organizational learning ($R^2 = 0.78$). The collective capability of organizational learning had a stronger direct influence on firm innovation than the transformational leadership of the CEO. However, leadership showed a very high and significant influence on organizational learning and is indirectly affecting firm innovation. Thus, the characterization of transformational leadership is more concerned with collective decisions, collective goals, and the generation of capabilities than traditional leadership, which focuses more on top-down decisions, standardized procedures, and products manufacturing and services. Therefore, a common perspective of integrating and motivating organizational members is a prerequisite for firm innovation. A CEO's willingness to accept risks and mistakes is also probably one of the first steps for the process of innovation. Additionally, transformational leadership has shown its potential to help organization members on creating and using knowledge. Leadership style has been emphasized as essential to influence employees for firm

innovation, because leaders introduce new ideas in the organization, set specific goals, and encourage subordinates' innovation initiatives. De Jong and Hartog (2007) carried out a research study among 12 managers of small knowledge-intensive firms. It was aimed to provide an inventory of leaders' behaviors more likely to enhance employees' innovative behaviors such as idea generation and application behavior. The study found 13 different types of leaders' behaviors: intellectual stimulation, stimulating knowledge diffusion, and task assignment which generates ideas, organizing feedback, rewards, and providing resources were related to employees' application behavior; innovative role-modeling, providing vision, consulting, delegating, support for innovation, recognition, and monitoring were ascribed to both employees' idea generation and application behavior. The study suggested that leaders enhance innovative skills of employees by consulting them more often, ensuring that employees have sufficient autonomy to decide task accomplishment, and supporting and recognizing people's initiatives and innovative efforts. Creating a positive and safe atmosphere that encourages openness and risk-taking seems to encourage idea generation and application behavior.

Jensen and Luthans (2006) examined the link between the perceptions of authentic leadership and the work attitudes and happiness of employees within the context of newer and smaller business ventures of 62 (representing a total of 179 employees and 62 business owners) located in the USA. They found that the employees' perception of authentic leadership serves as the strongest single predictor of employee job satisfaction ($t = 6.45$, $p < 0.01$), organizational commitment ($t = 6.67$, $p < 0.01$), and work happiness ($t = 5.50$, $p < 0.01$). Thus, the study resulted in that employees, who perceived their leaders to be more authentic, had higher levels of organizational commitment, job

satisfaction, and work happiness. However, meta-analysis had clearly demonstrated a positive relation between employee attitudes and business-unit outcomes such as productivity, customer satisfaction, profit, and employee safety and overall job performance. Barbuto (2005) tested hypotheses about the relationships between types of leadership and motivation (see Table 2.5) by the data collected from 186 leaders and 759 followers. Leaders, who are motivated intrinsically, do work with pleasure and enjoyment that inspires their followers to emulate such behavior while working. Whenever employees perceive that the better outcome will lead to certain tangible rewards like pay and promotion or bonus, such rewards will motivate employees. Such behavior is largely possessed by transactional leaders, who seek affiliation and approval from the surrounded groups. Further, leaders, who have self-concept internal motivation, will inspire followers through individualized consideration to focus the goals of organization as well personal

Table 2.5 Relationship between types of leadership and motivation

Types of Leadership	**IP** (Task)	**IM** (Reward)	**SCI** (Achievement)	**SCE** (Affiliation)	**GI** (Alignment with goal)
Transactional Leadership	+	+	-	+	@
Contingent reward	+	+ (+)	-	+	
Management by exception	+	+ (+)	-	+	
Laissez-faire		+		+	
Charismatic behavior	+	-	+	-	@
Transformational leadership	+		+ (@)		
Inspirational motivation	+		+		
Individualized consideration	+	-	+	- (-)	
Intellectual stimulation	+		+		+

Note: $^{+}$ positive relation, $^{-}$ negative relation, $^{@}$ non-significant; Parentheses indicate relation of leadership with followers' responses; IP- Intrinsic process, IM- Instrumental motivation, SCI- Self-concept internal, SCE- Self-concept external, GI- Goal internalization.

growth. Importantly, it is absent at transactional leaders. Firm innovation could obviously be achieved by the collective performance of employees' potential. The impact of strategic leadership (combination of transformational, transactional, and visionary leadership) on innovation is analyzed by Elenkov *et al.* (2005). They classified innovation as new product-market innovation and new efficient administrative mechanism, new system for planning, and new system for training and development. For the hypotheses testing, data were collected from 223 CEOs and 872 subordinates of six countries' manufacturing industries. The constructs of strategic leadership explained 66 per cent variance on product-market innovation and 76 per cent on administrative innovation. They stated that leaders are capable to forecast environmental changes which affect company's future, to create existing vision for innovation, and to create innovative-culture. Some more findings of the research carried out on transformational leadership are shown in Table 2.6.

2.4 Knowledge Management System Factors and Transformational Leadership

Politis (2003) conducted a survey among 119 first line managers of the United Arab Emirates to investigate the relationship between managerial power, relational trust, and knowledge acquisition attributes. The five important bases of managerial power are coercive power, expert power, legitimate power, referent power, and reward power. The study resulted that leaders, who have expert power, encourage specific behavioral skills and traits (i.e. problem understanding) of knowledge workers that are essential for knowledge acquisition. The strength of leaders' personalities for enabling knowledge acquisition and knowledge sharing through developing followers are encouraging

followers' problem understanding through open-minded, probing, conceptualizing, rational thinking, and hindsight. However, the study failed to identify strong relationships between the dimensions of interpersonal trust and knowledge acquisition attributes.

Table 2.6 Findings from the research studies on transformational leadership

Reference	**Findings of the study**
Kark *et al.* (2003)	This study of 888 employees working under 76 managers found that transformational leadership is positively related to followers' personal identification with the leader, social identification with the group, dependence on the leader, self-efficacy, collective efficacy, and organization based self-esteem.
Pillai *et al.* (1999)	By using two independent samples that were comprised of 192 and 155 matched leaders and subordinates, they predicted positive direct relationship between transformational leadership and commitment, employees' performance, and trust.
Podsakoff *et al.* (1996)	From the study of 1539 employees across different industries, they found that transformational leadership is directly related to employees' job satisfaction. Particularly, individualized support predicted trust and vision articulation predicted employees' organizational commitment.
Jung *et al.* (2003)	Their survey among 32 Taiwanese companies found that transformational leadership is positively related to organizational innovation and employees' perceptions of empowerment and support for innovation.
Bart (2001)	From 559 organizations, the author found that clear and understood, easily remembered, promoting shared values, and commitment induced mission set by the transformational leaders positively associated with human intellectual capital of employees' day to day behaviors.

Srivastava *et al.* (2006) examined the relationship between knowledge sharing and team performance with the help of 102 management teams. Structural equation modeling resulted in that both knowledge sharing and team efficacy had positive relationships with team performance. Their study suggested that empowering leadership benefited their members to have increased opportunities to share knowledge in order to solve their problems and make decisions. It also indicated that knowledge sharing and team efficacy is strategically important team factors that scale up organizational performance. Bryant (2003) explored the contributions of different styles of leadership on organizational KM. Fig 2.1 shows that transformational and transactional leadership styles affect individual, group, and organizational performance through knowledge creation, sharing, and exploitation among employees. Transformational leaders' charisma behavior motivates employees to be creative and innovative. They provide challenging work assignments to employees, and so employees realize their potential. Through individual consideration, such leaders motivate them to share ideas with others. But, transactional leaders do not support creativity or creating new ideas as they tend to focus only on goals, rules, and

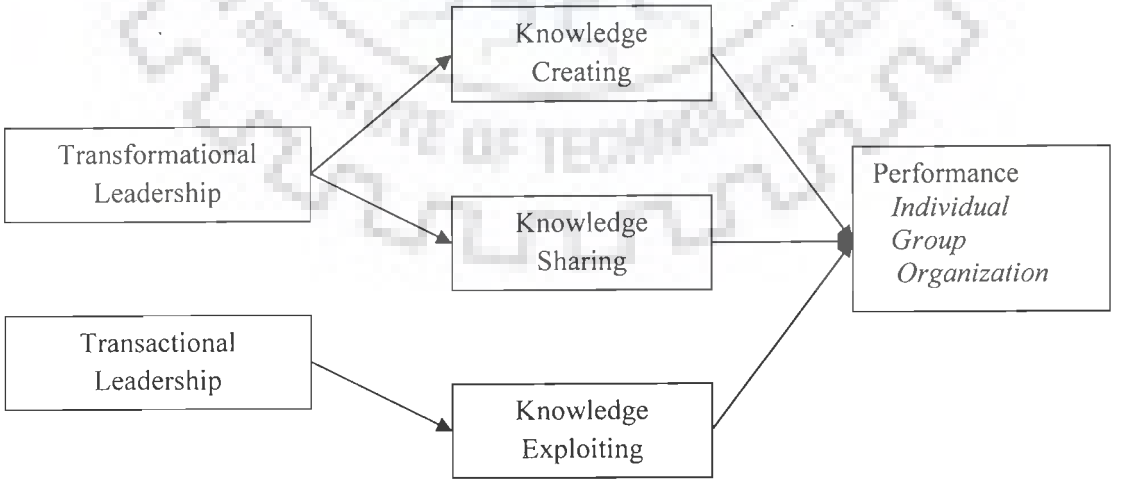

Fig 2.1 Leadership styles and performance (Source: Bryant, 2003)

policies. Thus, transformational leadership facilitates employee performance through knowledge creation at the individual level. At the group level, the individuals' ideas, values, and innovations are refined and integrated by transformational leadership, which forces employees to be innovative, capable to solve complex problems, and generate solutions. Individual consideration and motivation is required for employees to develop their ideas and knowledge. Thus, group performance is enhanced through knowledge sharing. At organizational level, strengthening interactions is not important than creating information systems and knowledge systems that requires rules and procedures to exploit. Hence, transactional leadership absolutely seems effective at this stage. Table 2.7 shows some more findings of the research carried out to analyze the relation between KM and transformational leadership.

Table 2.7 Findings from literatures on KM and transformational leadership

Reference	Findings of the study
Crawford (2005)	From 1046 participants, the author found that transformational leadership predicts and accounts for 19.5 per cent variance on KM behaviors such as information acquisition, information creation, and information application.
Politis (2001)	The author found that transformational leaders encourage employee's negotiation-oriented behavioral skills and traits for knowledge acquisition. This result is found from 227 employees of an Australian large sized high technology manufacturing firm.

2.5 Human Resource Management Factors and Human Capital

In organizational perspective, organizational HR practices are positively related to organizational economic performance, innovation performance, and productivity through

employee skills and knowledge development and employee commitment and motivation generation (Macduffie, 1995; Huselid, 1995; Laursen and Foss, 2003). In employee perspective, following Pathak *et al.* (2005), who found that the association between the organizational HRM system and employees' commitment and motivation to develop human capital depends on the number of HRM practices implemented in the firms, this section reviews the relationship between HRM factors and human capital and provides the basis of how recruitment or talent acquisition strategy, training given to employees, performance appraisal, career management, and reward strategy significantly contribute to human capital.

2.5.1 Recruitment Strategy and Human Capital

Talent management is about the recruitment and retention and development of an elite band of people. To find the talents suitable to the organizations, there is an urgent need to develop effective selection mechanism in addition to traditional recruitment strategy. To access high-potential talents and design the appropriate screening criteria for selecting the right ones for different job functions, Chien and Chen (2008) developed a data mining framework to generate useful rules for personnel selection. This framework was basically aimed that how employees' demographic characteristics, job functions, and recruitment channels predict new candidates' work behaviors such as job performance, retention, and turnover intentions. Further, it is executed through an empirical study conducted among 3825 newly hired employees from 19 job functions in a semiconductor company to support company's hiring decision for indirect labors including engineers and managers with different job functions. This study revealed certain appealing findings. For example,

in customer product handling position, employees, who had more than one year of previous work experience and were hired from external channels like internet, are more likely to quit within three months than those who were hired from internal channels. Employees, who have one or more years of work experience exhibited better performance than who had no experience. Thus, the results of this framework enabled firm to find appropriate talents at the first time to improve retention rate and better performance. As a result, this strategy enhances human capital in the organization.

Henkens *et al.* (2005) analyzed employers' behavior on recruiting workforce in a tight labor market from the research carried out among 1054 employers of The Netherlands. The analyzed recruitment behaviors are passive and active recruitments. Unsolicited applications, advertisement in newspapers, and magazines are the most common passive recruitment methods among companies. Employees' referral programs, approaching candidates at university, and joint recruitment campaigns with other companies who are in the same sector are the active methods simultaneously used by employers. From the analysis, they found that the studying companies are using recruitment strategies, particularly active and informal, recruitment via internet, and formal recruitment. It is also found that companies which face more staffing problems, strong competition, and low level of unemployment tend to recruit employees very actively. The large organizations that face more staffing problems would use all the mentioned recruitment strategies. Local government organizations are tended to use more formal recruitment strategies, whereas organizations possess highly educated employees tend to use internet based recruitment.

Choosing the mode of selecting candidates for a particular job position affects the value and uniqueness of human capital. Following the human capital value-uniqueness framework (shown in Fig 1.2), Lepak and Snell (2002) examined the relationships between human capital characteristics (value and uniqueness), employment mode (knowledge based, job based, contract based, and alliance based), and HR configurations (commitment, productivity, compliance, and collaborative based). This examination is carried out with the help of the responses collected from 84 senior executives, 102 senior HR managers, and 48 line managers. The value of knowledge based and job based employees' human capital is more than contract and alliance based mode employees as they are contributing to firm's competitive advantage. Although knowledge based employees are internally developed, and firm gains unique knowledge through alliance by collaboration, the hypothesis that the uniqueness of human capital in knowledge based and alliance based is more than job based and contract based modes is not fully supported. In knowledge based mode, human capital is more likely non-transferable from one firm to another, and so paying employees stock option plan and commitment will normally help employers to retain them. But the notion that the commitment based HR configuration in knowledge based mode is significantly greater than other configurations is not strongly supported.

Due to new competition and rising costs, developing new strategies to attract and sustain talents is a challenging task of all organizations to succeed. Continuous observing, adapting, and re-applying best practices used from others within the same industry which are so called benchmarking, make organizations to implement best strategies. Huang *et al.* (2002) made a survey in regard of benchmarking among 261 multinational companies

(MNCs) and 218 local enterprises of Singapore. In the level of competencies, skills, values, and traits desired for recruitment, MNCs tend to place high value on a comprehensive set of competencies and traits with particular emphasis on team work, honesty, creativity, intelligence, and leadership. Local enterprises place more emphasis on honesty, integrity, and diligence. In recruitment and selection strategies, MNCs focus on a myriad selection criteria in their assessment of potential candidates with emphasis on technical and job knowledge, education, previous work experience, and health. But local enterprises tend to focus solely on the technical aspects like technical, industry, and job knowledge, and previous work experience.

The integrated manufacturing such as advanced manufacturing technology (AMT), just-in time (JIT) manufacturing, and total quality management (TQM) are increasing the employees' skills required. In this direction, Snell and Dean (1992) conducted a research among 160 plant managers, 308 functional managers (operations, quality, and production), 90 HR managers, and 456 non-managerial employees to examine the relationship between integrated manufacturing and HRM practices, including staffing. They found that AMT and TQM were positively and JIT was negatively related to staffing practices for operations-related employees. For quality-related employees, JIT was positively related to staffing practices. The chances to use stringent recruitment practices to find talents are more in organizations as they have advanced manufacturing methods, which require knowledge and skilled workers. However, the impact of JIT on employees' individual discretion resulted in negative association with recruitment practices. Table 2.8 explains the brief findings of the research carried out on recruitment strategy.

Table 2.8 Findings from the literatures on recruitment strategy

Reference	Findings of the study
Ghosh and Geetika (2007)	Firms, irrespective of size, are devising recruitment strategies, particularly, whom to recruit, from where to recruit, and how to recruit differently. Firms are good at devising strategies to meet short term objectives or needs. These were found from a research carried out among 43 Indian firms.
Koch and McGrath (1996)	The conducted research among 319 executives found that the investment made for aggressively searching for talents through many sources and obtaining relevant useful information from candidates was worthy to improve employees' performance and productivity.

2.5.2 Training and Human capital

In an organization, one can observe an enormous attention towards developing competencies of human resources through the amount of time and money spent on training and development. Huang *et al.*'s (2002) research revealed that technical training remains the main focus of the local enterprises of Singapore, on the other hand, MNCs seem to focus on a wider range of social cultural training in addition to technical training. In the area of training and development strategies, 22.7 per cent of 261 MNCs conducted a SWOT analysis for forecasting and planning human capital, but the local enterprises did not. In the area of developing competencies, skills, and knowledge, 83.8 per cent of MNCs provided sponsorship or financial aid to their employees; whereas 64.7 per cent of enterprises did the same but the focus is squarely on technical skills and computer training programs. Snell and Dean (1992) attempted to examine the relationship between integrated manufacturing (AMT, JIT, and TQM) and comprehensive training. From

regression and correlation analyses, they found that AMT had positive relation with training for operations-related employees; whereas TQM had positive relation with training for both operations- and services-related employees. Since broader and advanced skilled workers are needed for integrated manufacturing, firms are engaged in frequent and appropriate training to ensure demanded.

Youndt *et al.* (1996) found the relationship between human capital enhancing HRM including comprehensive training, manufacturing strategy, and firm performance from 160 general managers and 401 functional managers (102 operations managers, 109 quality managers, 97 managers of production control, and 90 HR managers), and 97 of the above participants were again researched. The manufacturing strategy comprised of cost strategies, quality strategies, and flexibility strategies. In HRM, they considered universal and contingency approaches. Universal approach explained the direct relations between HRM and firm performance. Contingency approach explained the impact of manufacturing strategy on the relationship between HRM and firm performance. The analysis results supported the universal approach that human capital enhancing comprehensive training had positive association with customer alignment, employee productivity, and equipment efficiency due to the impact of training on employee skills development and motivation. The analyses also found that interactions effects of both manufacturing strategy and HRM affected firm performance, which supported the contingency approach of HRM. Importantly, quality strategy had some extent interaction with human capital enhancing HR system to predict customer alignment, employee productivity, and equipment efficiency. Achieving competitive advantage in the market, manufacturing companies involve in devising cost focused strategies and quality-oriented

strategies. In these environments, manufacturing firms' HR system is wholly focused on to develop employees internally and team-oriented employees to meet the quality of the products and services.

Focusing organizational perspective, Hansson (2007) studied 5824 private sector organizations to examine the determinants of training and the connection between training and profitability. They found that firms having a written training policy are more likely to provide training for their employees and invest more in training. The analyzing training needs indicated that firms that analyze their employees' training needs also train more employees (incidence) and provide more training (intensity) than firms that do not conduct such analysis. Staff turnover (mobility) does not appear to be a decisive factor in explaining the provision of training on a national or company level, although it is associated with lower profitability to some extent. However, the single most important factor associated with profitability is how much is invested in training (intensity).

Regner (2002) carried out a longitudinal research study to examine the relationship between on-the-job-training and wages among Swedish employees. In this regard, data were collected from 1379 employees from private sectors and 1257 employees from public sectors. It is found that employees who require at least three months training for their job earned significantly higher than who require at least one year. However, the effects of on-the-job-training do not grow with years while staying with current employer. The wage effects of the training are higher for private sectors employees than public sector employees. Regarding general or specific training, wage effects are more on general training in the private sectors for men than women. Due to compressed wage patterns, employees received low return from general training in public sectors. In

relation with tenure and training, the research followed the human capital theory that employees, whose job requires specific training, stay longer with current employer than employees, whose job requires general training. Some more findings of the research carried out on training are shown in Table 2.9.

Table 2.9 Findings from the studies on training

Reference	Findings of the study
Colquitt and Simmering (1998)	They found from 103 participants attended a six weeks course that conscientious learners have higher self-efficacy and a stronger desire to learn the training content.
Colquitt *et al.* (2000)	From the meta-analytic path analysis, they found that positive association between skill acquisition and job performance, between post training self-efficacy and job performance, and between training transfer and job performance.
Maurer (2001)	From the meta analysis, the author observed that employees with higher self-efficacy for development will have more positive attitudes and more frequent voluntary participation in training and development activities.

2.5.3 Performance Appraisal and Human Capital

Effective performance appraisal systems are required to create motivated and committed workforce, and however, these systems require top management support (Boice and Kleiner, 1997). Abraham *et al.* (2001) attempted to determine whether a set of managerial competencies currently being used by organizations to describe successful managers can be identified, and the extent to which these managerial competencies are actually utilized as criteria in performance appraisal programs from 277 organizations. Six critical

competencies over 23 identified through pilot study were observed from the survey responses, and which are leadership skills, customer-focus, results-oriented, problem solver, good oral/written communication skills, and team worker. The difference between percentage of agreeing a particular competency as critical and percentage of that competency used as a criterion were identified. Such differences express how close critical competencies reported by the organization used as criteria. Organizations reported 9 per cent differences in leadership skills, 13 per cent in customer-focus, 9.4 per cent in results-oriented, 16.3 per cent in problem solver, 23.5 per cent in good oral/written communication skills, and 17.7 per cent in team worker. They concluded that many organizations are not appraising their employees on the competencies deemed important to the organization, and thus, these results questioned the effectiveness of the performance appraisal systems.

Ukko *et al.* (2007) focused on the impact of performance measurement on management and leadership, and how the management's and employees' perceptions differ from each other. The conducted study was based on 24 interviews from eight Finnish organizations using balanced scorecard. And one administration-related employee and two operations-related employees of each organization were interviewed. Companies were found of having targets for development in production and employees' skills and capabilities along with performance measurement system, and these companies, too, have been able to allocate resources to the right places. It could be said that by gathering these appropriate information from measurement system, confident and faster decision-making supported organizations to improve the quality of activities and processes. As companies involved in the establishment of analysis groups and development groups, the employees could not

realize the new routines as clearly as the management. Therefore, the impacts are felt much more strongly from the point of the management than that of the employees. It is found that even though performance measurement system is used successfully, employees perceive that such system does not enhance leadership style. It was commonly observed among these companies that using performance measurement system increased the interactivity between the management and the employees, and thus, higher organizational performance and commitment were achieved.

Maurer *et al.* (2002) examined the predictors of managers' attitudes towards performance appraisal, particularly 360-degree feedback and their degree of involvement in the job development from the feedback with the help of 150 managers. The selected predictors for this study were feedback ratings from individual employees, perceived characteristics of the employees' work contexts, and feedback ratings from supervisors, peers, and subordinates. They found that subordinate rating and peer rating were directly related to employee's attitude toward the 360-degree feedback process due to managers' more dependence on subordinates and peers to accomplish work goals. They also found that manager's self-efficacy for development was related to attitude towards 360-degree feedback. Since self-efficacy predicts intention and choice to pursue a task, and affects persistence, thoughts, and feelings during a task. Some more findings of the researches carried out on performance appraisal are shown in Table 2.10.

2.5.4 Reward Strategy and Human Capital

Kerrin and Oliver (2002) described the use of problem solving mechanisms such as suggestion scheme and quality control within a UK automotive component company and

examined the operationalized reward and recognition systems. Suggestion scheme is entirely based on individual activity, whereas quality control is based on team based activity. Considering the nature of the rewards, workers tend to suggest big ideas to bring

Table 2.10 Findings from the literatures on performance appraisal

Reference	Findings of the study
Snell and Dean (1992)	From the study conducted among 160 plant managers, 308 functional managers, 90 HR managers, and 456 non managerial employees, they found that AMT and TQM had positive relation with developmental appraisal as operations-related employees have more discretion to perform their job, whereas JIT was negatively related to developmental appraisal as quality-related employees' discretion is restricted.
Youndt *et al.* (1996)	They conducted research among 160 general managers and 401 functional managers. The results of the analysis showed that human capital enhancing developmental appraisal had positive association with customer alignment, employee productivity, and equipment efficiency. The reason is that appraisal was focused on development, results, and employees' behavior.
Renn and Fedor (2001)	From 150 employees of a large automotive parts company, they found that feedback seeking indirectly related to work performance through improvement in goals establishment from performance feedback.

large monetary rewards rather than less significant ideas. However, individual based reward systems would not operate well in the climate of a team to solve problems and make improvements. To encourage such activities, quality circles or improvement

workshops are largely conducted to share offered ideas openly and discuss without the threat of individuals gaining from them financially. From the study of this company, large monetary reward is allocated to individual, who offered good suggestions to improve the production than the team which implemented that suggestion to operationalize. Therefore, the use of multiple reward practices was not effective and the traditional individual reward system actively performed against team based problem solving, and led to the situation where ideas were traded as commodities within the factory.

Kominis and Emmanuel (2005) conducted research among 225 UK middle managers to analyze the relationship between intrinsic and extrinsic rewards, performance, and managerial motivation. From the correlation analysis, they found that middle-level managers, who perceive rewards as valuable, are experienced a higher level of motivation than who do not. Since the attractive reward stimulate an employee's behavior to act in certain ways to obtain the objectives. The same analysis resulted in that middle-level managers, who perceive rewards as valuable, exhibited a higher level of performance than who do not. Many researchers proved the positive relationship between motivation and job performance. They also found through paired t-test that middle-level managers perceived intrinsic rewards as more valuable than extrinsic rewards. In general, higher order needs, for example, self actualization are fulfilled through intrinsic rewards, whereas lower order needs require extrinsic rewards. Importantly extrinsic rewards have some influence to diminish an individual's intrinsic motivation. Therefore, managers perceived intrinsic and extrinsic rewards differently. Melero (2004) conducted a study among 7894 British workers, which showed that women are reported to earn around 27

per cent lower wages than men. Women obtained significantly less promotions, on average, than men (6.4 per cent of female workers achieve an internal promotion each year while up to 8 per cent of males obtain it). Such glass ceiling observed for internal promotions is not found in quitting for better jobs, where gender differences were not significant (8.6 per cent of female workers and 8.9 per cent of males quit their firms for a better job each year). The study resulted that promotions appear more related to measures of effort and commitment with the firm in the case of male workers (in terms of working hours) and to human capital accumulation (in terms of job related training) in the case of females. Some more findings of the research carried out on reward strategy are shown in Table 2.11.

2.5.5 Career Management and Human Capital

Erdogmus (2004) examined the relationship between career orientations (managerial competence anchor, technical/functional competence anchor, autonomy/independence anchor, life style profile, individuals anchored in security/stability, service/dedication anchor, individuals in the entrepreneurial creativity anchor, and individuals in the pure challenge anchor), demographic variables (age, gender, education, and tenure), and career path preference. The study conducted among 138 Turkish private sector professional employees found that career anchors do not differ according to gender or age. Satisfying and retaining professionals in their present organizations are the major concerns as they had high scores on entrepreneurial creativity anchor. It can be claimed that professionals, who have a technical/functional anchor, tend to stay in the current organization and be promoted in the area of expertise and work in projects.

Table 2.11 Findings from the literatures on reward strategy

Reference	Findings of the study
Bonner *et al.* (2000)	From the laboratory studies, they found that incentives improve performance in only about one half of the experiments. Because when tasks become more cognitively complex, the average subject's skill level decreases. Thus, the chances that incentives improve performance are diminishing.
Wittmer (1991)	They found from private and public sector employees that individuals employed in the public sector place more importance on work which provides a feeling of accomplishment than those employed in the private sector. So individuals employed in the public sector place less importance on chances for promotion than private sector employees.
Rydval and Ortmann (2004)	From the laboratory studies, they described how financial incentives and cognitive abilities affect task performance. Their studies showed that cognitive abilities of the subjects seem at least twice as important as financial incentives for their task performance.

Noe (1996) surveyed 120 USA technical professional employees and their managers to find the relations between career management, developmental behavior (attending courses, reading journals, or initiating new projects), and job performance. The author observed that career management particularly career exploration, has a positive impact on developmental behavior. This was because of, the extent to which employees had sought career related information from peers, managers, and other sources was related to employees' motivation to participate in developmental behavior. Secondly, the distance from the career goal had a significant positive influence on developmental behavior. One

possible explanation is that employees in positions farther away from their career goal engage in developmental behavior for developing competencies and confirming the attractiveness of their career goal.

Campion *et al.* (1994) surveyed 255 employees of a large pharmaceutical industry to find the relation between job rotation and career antecedents, career outcomes, and career benefits. The authors found that frequency of job rotation is positively related to promotion rate and salary growth. The reason behind this relation was employees may view rotation as a way of gaining experiences that will be needed for promotion, or the costs associated with rotation may lead employees to view it as an investment by the organization in their development. Secondly, they found that the rate of job rotation will be positively related to perceptions that rotation improves administrative, technical, and business knowledge and skills.

Nabi (2000) conducted a survey among 288 administrative and technical staff of British universities for finding predictors of career-enhancing strategies, which is described by expertise development, self-nomination, and networking. Organizational experiences such as organizational advanced opportunity and job security, motivational attributes such as advanced motivation and work centrality were used as the predictors of career-enhancing strategies. Organizational advancement measures the employees' future chances of advancement in the organization. The author found that organizational advancements were significantly related to the above three career-enhancing strategies. Importantly, job security was not related to any other career-enhancing strategies. Advanced motivation was significantly related to expertise development and self-

nomination. Employees, who have less educated and more working hours per week, were mostly using self-nomination.

Wayne *et al.* (1999) examined the relationship between human capital and career success in 245 supervisor-subordinate dyads. Subordinate's education, job and organizational tenure, and training are considered as human capital variables. Career success is measured from salary progression, assessment of promotability, and career satisfaction. The analysis resulted of a significant negative relationship between organizational tenure and career outcome variables. Further, significantly positive beta value was found between training and career satisfaction. Education and job tenure had no relationship with career outcome variables. Plateaued employees may be the cause for the negative relationship between organizational tenure and career outcome, because average organizational tenure was high. In addition, some more findings of the research carried out on career management are also shown in Table 2.12, and Table 2.13 shows the existence of the relationships between HRM factors and transformational leadership.

2.6 Human Capital and Human Capital Creation

Lin and Huang (2005) identified that employee's age, education, rank, and tenure represent human capital investment as these improve employee's performance and chances for promotion and developmental opportunities. Money invested on human is simply estimated by yield rather than by its cost. Incremental capability produced by such investment becomes a part of employees and importantly, employers can not own it. Increasing earnings of the employees in the market place is the yield of the human investment.

Table 2.12 Findings from the literatures on career management

Reference	Findings of the study
Budhwar and Baruch (2003)	They found from 108 Indian manufacturing organizations that career management practices are grouped into formal planning, formal active management, developmental, career stages, and assessment. They also found the positive relation between age of the organization and formal active management and developmental factors.
Van der Heijden (2001)	From the response of 150 employees of small and medium sized organizations, they found that without considering technological changes and changes in work strategies, number of jobs performed will not predict expertise development.
Sicherman and Galor (1990)	From the econometric model, they found that employees who were not promoted are more likely to quit even though they had high probability of promotion. Further, they showed that part of the returns to education was in the form of higher probabilities of occupational upgrading.
Sheridan *et al.* (1997)	From the responses of 338 managers, they examined the effects of education, training, and gender on probability of being promoted. It was found that education is positively related to promotion rates, particularly, bachelor's degree with business or engineering. Further, gender had no association with the probability of being promoted.

In this direction, Schutlz (1961) concentrated the following significant activities in the form of investment to improve human capabilities: health facilities and services; on-the-job training organized by firms; formally organized education at the elementary, secondary, and higher levels; and study programs for adults that are not organized by

firms. However, top management immensely focuses on HRM, KM, and leadership fields to improve knowledge and skills of employees. Since top management support and guidance increase feelings of belongingness and importance and improved performance. Consequently, human capital knowledge value added is improved (Kannan and Akhilesh, 2002; Perez and de Pablos, 2003).

Table 2.13 Findings from the literatures on HRM factors and transformational leadership

Reference	Findings of the study
Zhu *et al.* (2005)	Their study conducted among 170 Singaporean firms concluded that human capital enhancing HRM mediates the relationship between transformational leadership and organizational performance.
Liu *et al.* (2003)	They proposed that transformational leadership would effectively work among alliance mode employees. Further, they stated that empowering leadership would work more effectively among high value and unique human capital.
Goodwin *et al.* (2001)	They found from 154 employees that implicit psychological contract of contingent reward associates with transformational leadership behavior. Another study among 209 employees, they concluded that this relationship lead to subordinate's performance.

Following the notion of knowledge is a component of human capital, KM system factors create a new knowledge at an employee. Following the notion that the leadership is an antecedent of human capital development, transformational leadership creates employee's innovativeness, creative skills, and knowledge. Apart from KM and leadership, firm-specific human capital is generated by internal development employment

mode, which creates commitment among employees (Lepak and Snell, 1999). In addition, career development and mentoring programs facilitate employees to build idiosyncratic knowledge that is more valuable to current firm than competitors (Lepak and Snell, 1999). Firms concentrate much in pay systems such as skill based pay and team based pay to encourage human capital development (Delany and Huselid, 1996). In addition, development-oriented performance appraisal may be used to make certain that employees received continuous and useful feedback (Snell and Dean, 1994).

Coetzer (2006) analyzed human capital development process among 464 employees of 31 small manufacturing firms in New Zealand. Combining interviews from 10 firms with the samples, the author found that colleagues are the sources of human capital development of an employee than managers. This was due to, employees acquire knowledge and skills by work related informal learning from their workmates, models, and direct experiences than on the job training. However, managers foster employees' learning through delegating developmental tasks, assignments, and mentoring. Learning leads to human capital development as it improves employability. A conceptual framework between level of intention and learning effects was derived based on the above findings. The belief, employees are responsible for their own development, would be the one among the reasons for unintentionally constraining employees learning, and that is named as unrealized potential. Small firms' characteristics, low specialization (handling high variety of tasks) and low formalization (employees' participation in recruitment) are unintentionally fostering employees' human capital. Intended-fostering of learning from managers such as on the job training, coaching, and sponsored programs for socialization promotes human capital in firms.

Thomas *et al.* (2003) developed a framework called or model named as Human Capital Development Framework, which uses four distinct measurement tiers to assess organizational human capital practices. These tiers are business results, key performance drivers, human capital capabilities, and human capital processes. The first and second tiers measure organizational performance and intermediate organizational outcomes respectively. The third tier measures human capital capabilities comprise of the immediate and visible employee-related qualities (talent management, human capital efficiency, and employees' proficiency, performance, engagement, adaptability, and leadership), which are perquisites for achieving business outcomes. The final tier deals with human capital processes comprise of practices (competency management, career development, performance appraisal, leadership development, recruitment, workforce planning, workforce design, rewards and recognition, employee relations, human capital strategy, learning management, KM, and human capital infrastructure) which lead to effective human capital capabilities. The model showed the relationship of how human capital development processes create human capital capabilities which cause intermediate organizational outcomes and organizational performance.

Bontis and Fitz-enz (2002) developed a causal map to integrate human capital effectiveness (human capital return on investment, revenue factor, and income factor), human capital valuation (employee's compensation), human capital depletion (employee's turnover rates), and human capital investment (expenditures made on employees through training and development). To execute this model, the authors collected quantitative and qualitative data from 76 senior executives of 25 companies providing financial services. Quantitative data are focused on turnover rate, compensation

paid, return on investment, and training expenditures per employee. Through qualitative analysis, authors identified management leadership, business performance, and retention of key people, which are the major concerns of HCM. After combining both quantitative and qualitative results, they found that human capital depletion is negatively related with human capital effectiveness, which means that lower turnover rates lead to organizational knowledge creation and less deterioration of experiential learning. Further, they identified that human capital investment is positively associated with human capital effectiveness and valuation. Importantly, human capital was positively correlated with both training and employee satisfaction. Finally, the negative relationship between business performance and human capital depletion showed that organization's effort on lowering turnover rates influences the employees' contributions on financial performance. Some more findings of the research carried out on human capital are shown in Table 2.14.

This research study focuses on human capital creation or employee's knowledge, skills, capabilities, commitment, know-how, and ideas and health development or improvement within an employee perceived level. Particularly, self-perception is the combination of bundle of self-cognitions about an individual employee's traits, competencies, and values. Significantly, organization and colleagues also support them to understand their level and strength of perceptions through task feedback and social feedback respectively. The above dimensions clearly express what extent individual employee possesses an attribute relative to self range from low to high, and how strongly he/she holds it range from weak to strong (Leonard *et al.*, 1995). Scholars are continuously undergoing research to find the impact of acognitive processes and cognitive processes on the link

Table 2.14 Findings from the literatures on human capital

Reference	Findings of the study
Coleman (1988)	The author's findings showed that social capital in the form of expectations and obligations, information channels, and norms of social are supporting human capital creation.
Ulrich *et al.* (1999)	They found that simultaneously increasing employee's capability and commitment create human capital in a firm.
Leonard-Barton (1995)	The author described certain ways to create core capabilities such as shared problem solving, importing knowledge, implementing and integrating new technical processes and tools, and experimentation.
Stewart (1999)	He viewed human capital as an asset of the organization, and explained community of practice as an antecedent to human capital creation.
Kannan and Akhilesh (2002)	From 36 Indian knowledge professionals, they identified that employee self-perception on quitting consequences, organizational culture, and KM climate and support systems contribute to human capital value add.
Becker (1993)	The return from the investment on education will lead to employee's higher wages, more effective production, or improved health. This investment produces human capital since separation of knowledge from the individual is impossible.
Berntson *et al.* (2006)	From 4952 Swedish employees, they found that employee's human capital in the form of education, competence development, and job tenure, had positive relationship with perceived employability.

between self-concept and behavior. It is generally believed that employee's self-perceptions viewed as knowledge structures in the form of traits, competencies, and

values that monitor and influence employee's current experience, thoughts, and actions. However, some knowledge structures even provide data, and that are also naturally cognitive one. These acognitive or expressive knowledge structures facilitate employee's behavioral patterns that appear stable in all situations (Leonard, *et al.*, 1995). Therefore, an individual employee's identity specifies the notions of the willingness of an employee and guides and regulates an employee experience by affecting his/her thoughts, feelings, behaviors, and outcomes. As a result, employees' self-perception is greatly considered for measuring their human capital creation.

2.7 Overview

A systematic literature review has been done on keeping in mind the concerned topics related to the main premises of the study of human capital creation practices and employee perceived human capital creation. This review thoroughly and intensely covered organizational culture, communication, tactical KM, interim leadership, transformational leadership, recruitment strategy, training, performance appraisal, reward strategy, and career management on human capital. However, at what extent these KM system factors, leadership factors, and HRM factors affect an employee perceived human capital creation is not widely studied, especially in Indian scenario. Particularly, notions of interim leadership rarely exist in the databases of Indian literatures in manufacturing field. Therefore, there is a need for an integrated model to link the above said factors with perceived human capital creation in Indian manufacturing industries. To carry out empirical analysis, measures for KM system factors, leadership factors, HRM factors, and perceived human capital creation, are identified from the literatures reviewed.

Importantly, most of the developed measures were experimented in developed countries, particularly the USA, the Netherlands, the Denmark, and the Australia. Therefore, it is expected that organizational culture might have certain impact on the above measures while administering with Indian manufacturing employees. For example, Mendonca and Kanungo (1996) particularly described Indian work culture as high uncertainty avoidance and high power distance. High uncertainty avoidance discourages employees' innovativeness, which is more likely to negatively affect human capital creation, and high power distance has a positive relationship with explicit knowledge transfer (Dayasindhu, 2002), which is more likely to positively affect human capital creation. Therefore, the identified measures for KM system factors, leadership factors, HRM factors, and perceived human capital creation are modified to suit with Indian manufacturing employees with the help of academicians and managers involved in HRM, KM, and HCM field. Additionally, there is a lacuna in the literatures on explaining the role of KM system and HRM factors in the relationship between transformational leadership and human capital creation. In this direction, this research study attempts to bridge these research gaps with the help of the modified measures.

Chapter 3

METHODOLOGY

3.1 Introduction

The previous chapters of this study described the importance of firms' human capital in the multi-faceted environment and the significance of KM system factors, leadership factors, and HRM factors to develop human capital. In specific, chapter 2 put forward the need of an integrated model for human capital creation to achieve competitive advantage. In order to identify the variables to be studied, the systematic literature survey has greatly supported the study. This boundary-constrained survey identified the current practices and factors of KM system, leadership, and HRM, which are prevalent or implemented in the Indian organizations. Followingly, this chapter describes the objectives of the current study and the method of accomplishing these objectives.

3.2 Objectives of the Study

The following are the objectives of the study:

1. To study the current practices intended to create human capital in Indian manufacturing industries and the antecedents of employee perceived human capital creation.
2. To develop an integrated model for relating the antecedents such as recruitment strategy, training, performance appraisal, career management, reward strategy, tactical KM, communication, organizational culture, transformational leadership, and

interim leadership, with employee perceived human capital creation and empirically examine the developed model.

3. To examine the differences of organizational HRM factors, KM system factors, leadership factors, and employee perceived human capital creation between private and public firms.
4. To identify the underlying patterns or factors behind organizational HRM measures, KM system measures, leadership measures, and perceived human capital creation measures. Additionally, to examine the factors' relations with employee gender and human capital variables (age, education, rank, and tenure).

In addition with the above objectives, this study also focuses the following objectives:

5. To examine the role of KM system factors (tactical KM, communication, and organizational culture) on the relationship between transformational leadership and perceived human capital creation, with a particular focus on testing the mediation and moderation models.
6. To examine the role of HRM factors (recruitment strategy, training, performance appraisal, career management, and reward strategy) on the relationship between transformational leadership and perceived human capital creation, with a particular focus on testing the mediation and moderation models.
7. To test the goodness-of-fit of the above proposed models and give some recommendations to manufacturing industries in regard of creating human capital.

This chapter describes the methodological design of the study shown in Fig 3.1 to accomplish the above objectives.

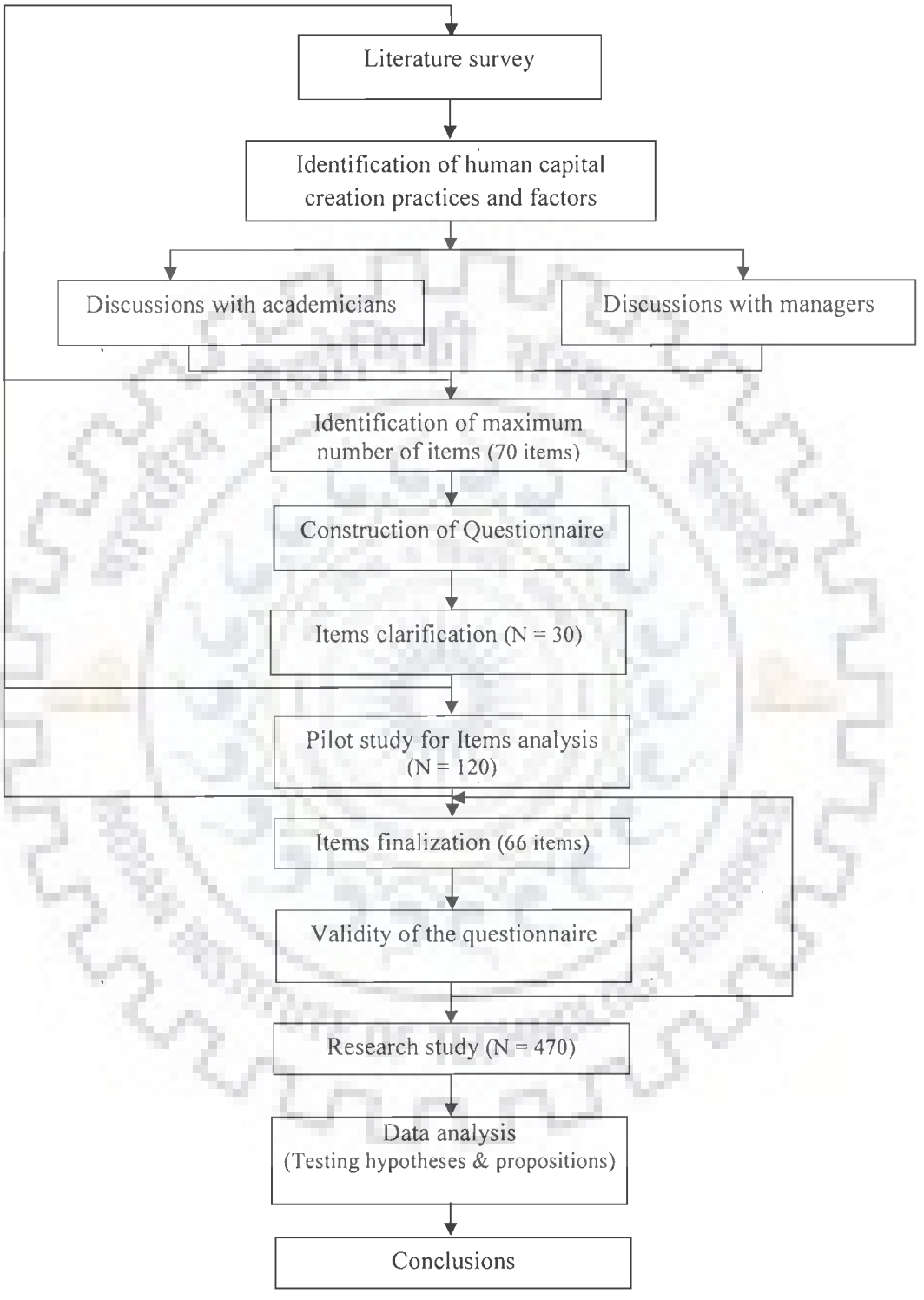

Fig 3.1 Flowchart for research methodology

3.2.1 Accomplishing Objective 1

The detailed literature survey and discussions held with researchers and academicians, who are involved in HRM, KM, leadership, and HCM fields, give support to accomplish objective 1. Through which, KM system factors, leadership factors, and HRM factors such as recruitment strategy, training, performance appraisal, career management, reward strategy, tactical KM, communication, organizational culture, transformational leadership, and interim leadership are identified as the antecedents of perceived human capital creation.

3.2.2 Accomplishing Objective 2

The systematic literature review enables to propose an integrated model of employee perceived human capital creation (see Fig 3.2). Formulation of hypotheses, which examine the relation between each antecedent and perceived human capital creation helps to achieve objective 2. The following ten hypotheses address to find the antecedents of perceived human capital creation:

Hypothesis 1: Organizational culture is positively associated with perceived human capital creation.

Hypothesis 2: Communication in the organization is positively associated with perceived human capital creation.

Hypothesis 3: Tactical KM process engaged by employees is positively related to perceived human capital creation.

Hypothesis 4: Employee's interim leadership is positively related to perceived human capital creation.

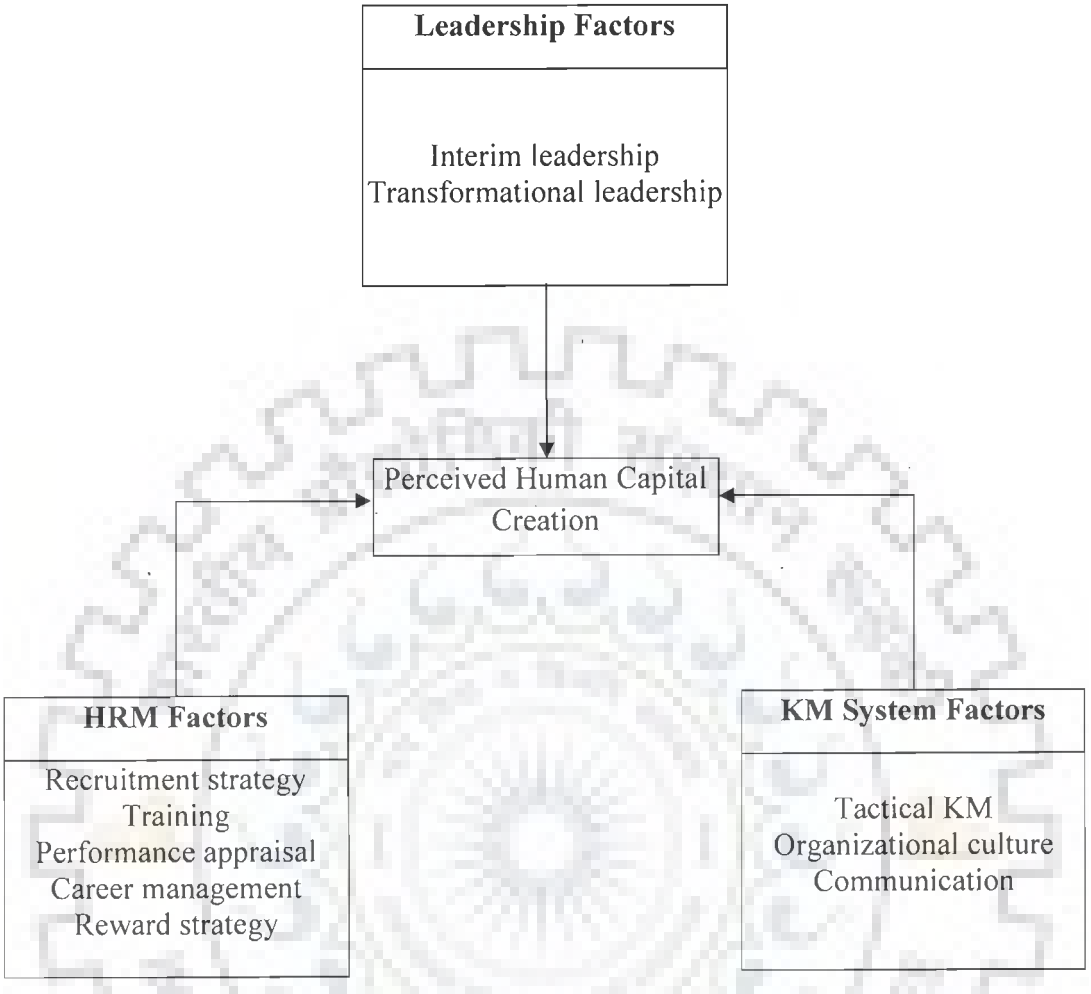

Fig 3.2 Conceptual model of perceived human capital creation

Hypothesis 5: Transformational leaders' behaviors positively influence employee perceived human capital creation in the organization.

Hypothesis 6: Perceptions on organization's recruitment strategy is positively associated with perceived human capital creation.

Hypothesis 7: The training provided to employees is positively associated with perceived human capital creation.

Hypothesis 8: Appraising employee's performance positively influences perceived human capital creation.

Hypothesis 9: Reward strategy is directly related to perceived human capital creation in the organization.

Hypothesis 10: Career management is positively associated with perceived human capital creation.

3.2.3 Accomplishing Objective 3

Generally, private and public firms formulate different strategies to achieve competitive advantage through human capital development. In this connection, ownership of a firm holds a significant role, because private firms could be able to decide rapidly about the investment for creating human capital than public firms. The following hypotheses address the analysis of differences between private and public manufacturing firms on the studying variables in view of employees:

Hypothesis 11: There is no difference between private and public sector manufacturing firms on implementing recruitment strategies in view to build human capital.

Hypothesis 12: There is no difference between private and public sector manufacturing firms on training provided to employees to improve human capital.

Hypothesis 13: There is no difference between private and public sector manufacturing firms on appraising performance to create human capital pool.

Hypothesis 14: There is no difference between private and public sector manufacturing firms on implementing reward strategies to build human capital pool.

Hypothesis 15: There is no difference between private and public sector manufacturing firms on career management in view of human capital creation.

Hypothesis 16: There is no difference between private and public sector manufacturing employees' interim leadership in view of building human capital.

Hypothesis 17: There is no difference between private and public sector manufacturing firms' transformational leadership style to build human capital pool.

Hypothesis 18: There is no difference between private and public sector manufacturing employees' tactical KM process.

Hypothesis 19: There is no difference between private and public sector manufacturing firms' human capital development-supportive organizational culture.

Hypothesis 20: There is no difference between private and public sector manufacturing firms' human capital oriented communication.

Hypothesis 21: There is no difference between private and public sector manufacturing employees' perceived human capital creation.

3.2.4 Accomplishing Objective 4

In line with Budhwar and Baruch (2003), propositions are stated to identify the factor structure of HRM measures, KM system measures, and Leadership measures, and to identify the associations between identified factors and employees' gender and human capital variables. In this situation, stating propositions would be appropriated rather than hypotheses, since there is a difficulty to define number of underlying factors in each measure and quantifying the numbers of association between factors and employees' characteristics.

To identify the underlying factors in the HRM measures and examine their association with the characteristics of participants, the following two propositions are stated:

Proposition 1: According to the functions and similarities, the studying HRM measures may be clustered into various distinct factors.

Proposition 2: It is expected that the identified factors of HRM measures would have certain association with employee gender and human capital variables.

To identify the underlying factors in the KM system measures and examine their association with the characteristics of participants, the following two propositions are stated:

Proposition 3: According to the functions and similarities, the studying KM system measures may be clustered into various distinct factors.

Proposition 3 is to be examined through classifying KM system measures into knowledge process capability (tactical KM) and knowledge infrastructure capability (organizational culture and communication).

Proposition 4: It is expected that the identified factors of KM system measures would have certain association with employee gender and human capital variables.

To identify the underlying factors in the Leadership measures and examine their association with the characteristics of participants, the following two propositions are stated:

Proposition 5: According to the functions and similarities, the studying leadership measures may be clustered into various distinct factors.

Proposition 6: It is expected that the identified factors of leadership would have certain association with employee gender and human capital variables.

To examine the association between perceived human capital creation and the characteristics of participants, the following proposition is stated:

Proposition 7: The unidimensional employee perceived human capital creation would have certain association with employee gender and human capital variables.

3.2.5 Accomplishing Objective 5

Objective 5 could be achieved by analyzing the role of KM system factors on the relationship between transformational leadership and perceived human capital creation with the focus on testing mediating and moderating roles. In this direction, the following hypotheses address the role of KM system factors:

Hypothesis 22: Organizational KM system factors comprising of tactical KM, communication, and organizational culture mediate the relationship between transformational leadership and perceived human capital creation such that the relationship would be positive and stronger.

Hypothesis 23: Organizational KM system factors comprising of tactical KM, communication, and organizational culture moderate the relationship between transformational leadership and perceived human capital creation such that the relationship would be positive and stronger.

Based on the basis of above hypotheses, conceptual models are developed and shown in Fig 3.3 and Fig 3.4.

3.2.6 Accomplishing Objective 6

Objective 6 could be achieved by analyzing the role of HRM factors on the relationship between transformational leadership and perceived human capital creation with the focus

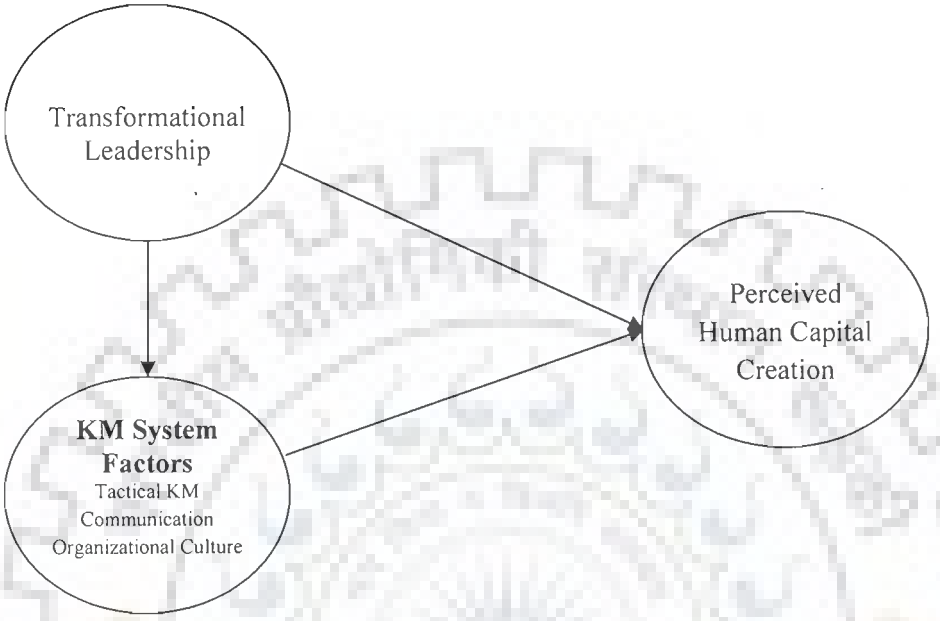

Fig 3.3 Mediator role of KM system factors

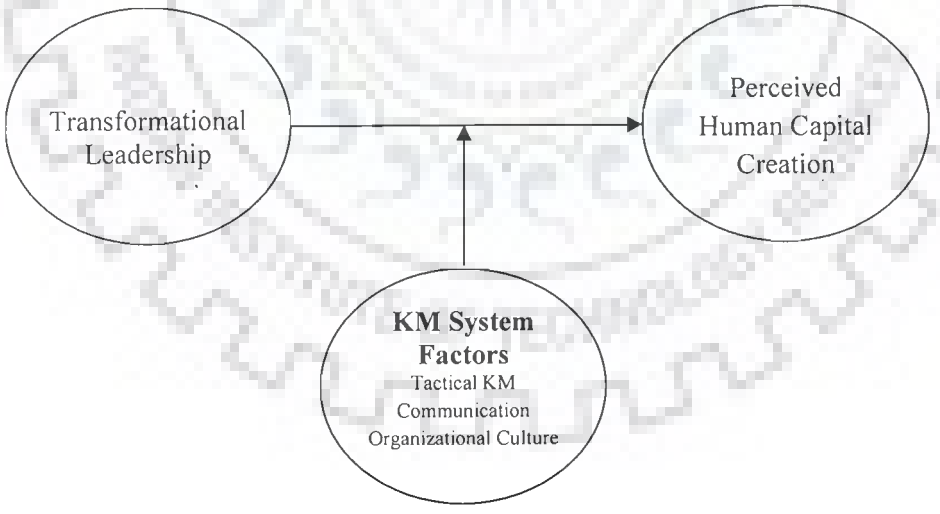

Fig 3.4 Moderator role of KM system factors

on testing mediating and moderating roles. In this direction, the following hypotheses address the role of HRM factors:

Hypothesis 24: HRM factors such as recruitment strategy, training, performance appraisal, career management, and reward strategy mediate the relationship between transformational leadership and perceived human capital creation such that the relationship would be positive and stronger.

Hypothesis 25: HRM factors such as recruitment strategy, training, performance appraisal, career management, and reward strategy moderate the relationship between transformational leadership and perceived human capital creation such that the relationship would be positive and stronger.

Based on the basis of above hypotheses, conceptual models are developed and shown in Fig 3.5 and Fig 3.6.

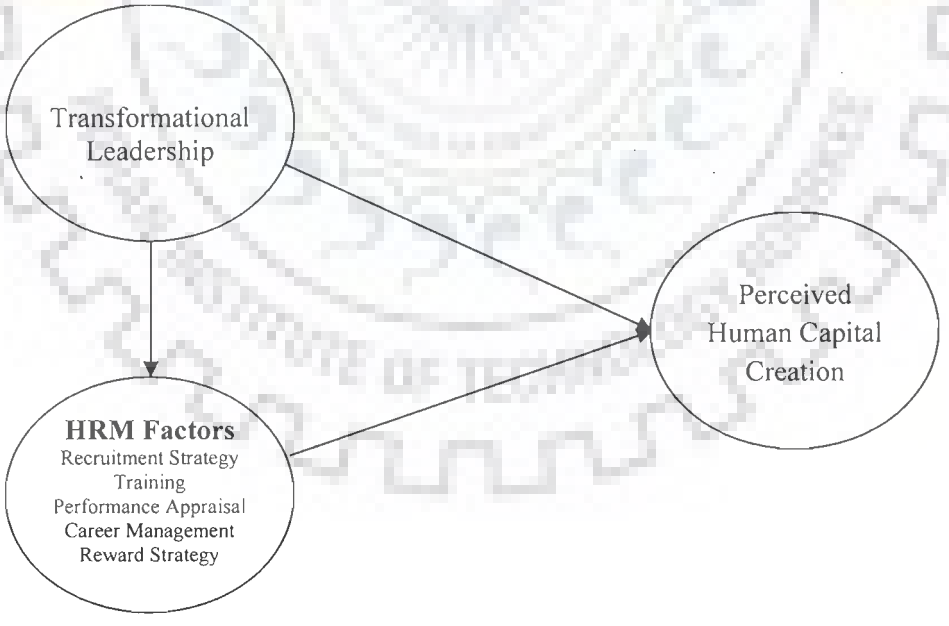

Fig 3.5 Mediator role of HRM factors

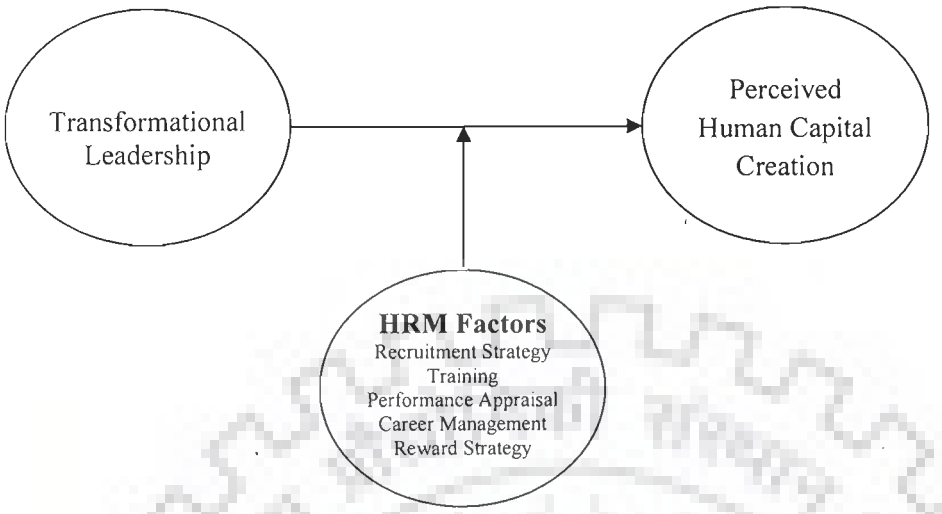

Fig 3.6 Moderator role of HRM factors

3.2.7 Accomplishing Objective 7

After analyzing the significance of each relationship in the above models, confirmatory factor analysis (CFA) will be carried out to test the goodness-of-fit of each significant model. This procedure is to be carried out to accomplish objective 7.

3.3 Refining of Initial Survey Items

Importance is given to suggestion-seeking process carried out among academicians and managers as it proves clarity of wording and relatedness of the items in the constructs. The questionnaires were sent to them through email, post, and sometimes handed over to them directly. Their suggestions helped to improve the quality of the questionnaire in the form of reducing the items to 70. Thus, eleven constructs with a 5 point Likert scale were finalized.

3.4 Preliminary Study

After preparing the questionnaire, the preliminary study was conducted by interviewing 30 managers and engineers of large, medium, and small manufacturing firms situated in Roorkee town. These firms were involved in manufacturing of electronics measurements, automobile parts, and pharmaceutical products. The aims of this study were to analyze the logical sequence of the items in the constructs, to keep the entire questionnaire uncluttered, to include relevant variables, and to prove wording clarity. These were achieved from the responses of these participants and their suggestions.

3.5 Pilot Study

The questionnaire was again altered based on the responses of the preliminary study. Then, there was a need to conduct a feasibility study for being prepared into main research study. Cargan (2007) describes this study as pilot study, which provides information about whether survey can be administered and could provide accurate information. Therefore, pilot study was carried out among 120 middle and top level management employees of large, medium, and small manufacturing firms that involve in production of electric power, electronics measurements, automobile and its parts, and pharmaceutical products. As middle and top level management employees of manufacturing companies are the focused population for the main study, the pilot study drew sample from this population. The responses confirmed that the administered questionnaire has included all the relevant constructs that are possessing good content validity as well as good reliability. In addition, it ensured the clarity of items. The pilot

study is mainly conducted to carry out item deletion process to finalize the number of items in each construct. The following criteria were used to delete inappropriate items:

1. Item mean lying below 2.0 or above 4.0 on a 5 point scale (Stumpf *et al.*, 1983);
2. Item carrying standard deviation below 0.5 (Stumpf *et al.*, 1983);
3. Item deletion increasing internal consistency coefficient (cronbach α) to at least 0.01 (Germeijs and Verschueren, 2006);
4. Item carrying missing values of more than 5 per cent (Petersen *et al.*, 2004); and
5. Corrected item scale correlation lying below 0.2 (Streiner and Norman, 2003).

The above criteria helped to find out four inappropriate items from the questionnaire. These items were then removed. As a result, total number of items of the questionnaire was reduced to 66. The following constructs are then finalized: recruitment strategy (6 items); training (6 items); performance appraisal (6 items); career management (5 items); reward strategy (5 items); interim leadership (6 items); transformational leadership (8 items); tactical KM (6 items); organizational culture (7 items); communication (6 items); and perceived human capital creation (5 items).

3.6 Unidimensionality of the Constructs

The validity and reliability of the constructs of the questionnaire could be assessed by analyzing unidimensionality of each construct. Principal component analysis facilitates to analyze unidimensionality, which demonstrates that all items of a single construct measure the same thing. In the principal component analysis, eigenvalue 'greater than one' rule is applied to test unidimensionality in which number of eigenvalues greater than one are equal to number of factors (Netemeyer and Bearden, 2003). The rationale is each

construct must have only one eigenvalue of its value more than one, which enables all variables to have as much variance on the same construct. The principal component analysis of this study proved that these constructs are unidimesional as each construct has only one eigenvalue of its value more than one. The eigenvalue, percentage of variance explained by all variables on each construct, and their factor loadings are shown in Table 3.1 to Table 3.4.

Table 3.1 Unidimensionality of the HRM factors

S.No	Construct	Items	Eigenvalue	% of Variance	Factor loading
1	Recruitment strategy	Recruitment strategies...	2.27	37.78	0.42
2		Creation of new job			0.60
3		How well developed.....			0.73
4		Generally, money			0.64
5		Selecting a best			0.75
6		Time taken by			0.47
7	Training	Organization sponsors...	2.48	41.26	0.65
8		Availability of.....			0.66
9		I am very keen to attend..			0.47
10		To gain knowledge.....			0.62
11		Appropriateness of.....			0.75
12		Time spent.....			0.67
13	Performance appraisal	I consider appraisal...	2.57	42.87	0.68
14		On average in a ...			0.61
15		To what extent			0.63
16		Organization's performance...			0.73
17		Sources of collecting.....			0.61
18		The aspects used.....			0.67

Table 3.1 Unidimensionality of the HRM factors (continued)

S.No	Construct	Items	Eigenvalue	% of Variance	Factor loading
19	Career management	How many different…..	2.02	40.37	0.68
20		To what extent…..			0.61
21		To what extent you…..			0.46
22		How confident …..			0.78
23		How often you….			0.61
24	Reward strategy	To what extent the…..	2.69	53.77	0.78
25		Impact of reward…			0.76
26		How much importance...			0.67
27		Offering best…..			0.79
28		How often does…..			0.66

Table 3.2 Unidimensionality of the leadership factors

S.No	Construct	Items	Eigenvalue	% of Variance	Factor loading
29	Interim leadership	To what extent your…..	2.33	38.81	0.60
30		I do/did manage...			0.63
31		Criterion to identify…..			0.73
32		You are/were given…..			0.67
33		How much importance do/did...			0.60
34		Though this role…..			0.49
35	Transformational leadership	My leader clearly…..	3.61	45.17	0.58
36		I feel I am…..			0.70
37		My Leader's guidance…..			0.72
38		How often you…..			0.69
39		I feel my leader…..			0.73
40		The way my leader…..			0.69
41		The way your leader…..			0.64
42		How frequent your…..			0.61

Table 3.3 Unidimensionality of the KM system factors

S.No	Construct	Items	Eigenvalue	% of Variance	Factor loading
43	Tactical KM	We discuss the…..	2.46	40.95	0.59
44		I daily utilize…..			0.69
45		How often your superiors…			0.70
46		How often are experts...			0.56
47		It is usual in …..			0.64
48		I feel I have…..			0.65
49	Organizational culture	My organization always...	2.93	41.88	0.49
50		To what extent your...			0.66
51		How much priority…..			0.66
52		I see lot of …			0.61
53		To what extent your…..			0.71
54		Organization provides…			0.67
55		The support given to…			0.72
56	Communication	Safety instructions…..	2.61	43.44	0.59
57		Organization disseminates…			0.73
58		Organization also receives….			0.70
59		Internet facilities…			0.65
60		Intranet helps….			0.70
61		Management formally seeks…..			0.56

Table 3.4 Unidimensionality of the perceived human capital creation construct

S.No	Construct	Items	Eigenvalue	% of Variance	Factor loading
62	Perceived human capital creation	The return I give. …	1.93	38.65	0.57
63		Chances of considering….			0.56
64		My authority and status…..			0.61
65		Participation in a team…..			0.75
66		Comparing last year….			0.61

3.7 Reliability of the Constructs

Hair *et al.* (2005) define reliability as "an assessment of the degree of consistency between multiple measurements of a variable" (p. 117). Thus, it refers to the systematic variance of a construct. Test-retest, internal consistency, split half, and interrater are some of the methods of reliability used by researchers. Among these methods, this study uses the concept of internal consistency reliability to analyze the reliability of each construct. Cronbach alpha (α) is one of a measure of internal consistency used by many authors to indicate scale's reliability. The notion behind is that all items of a construct measure the same and indicate the achievement of strong intercorrelation (Cronbach, 1951). Many researchers set different lower acceptable limits for cronbach α, but these are rules of thumb (Nunnally, 1978). Hair *et al.* (2005) and Indrayan and Sarmukaddam (2001) set 0.60 as the acceptable limit for scales. Ko and Stewart (2002) asserted that item total correlation of at least 0.30 and cronbach α of minimum 0.60 are the psychometric properties of a reliable scale. Table 3.5 and 3.6 show the cronbach alpha value of entire measures and each construct as well its average item-total correlation.

Table 3.5 Reliability of the entire measures and descriptive statistics

Standardized scale alpha for the entire measures = 0.95		
Hotellings T square significant at 0.000		
	Mean	**Variance**
Item means	3.54	0.04
Item variances	1.08	0.03
Corrected item-total correlation	0.48	0.01

Table 3.6 Internal consistency coefficient of the constructs

Constructs	Average Item-total correlation	Cronbach alpha (α)
Overall KM System measures	*0.50*	*0.88*
Tactical KM	0.44	0.71
Organizational culture	0.48	0.77
Communication	0.47	0.73
Overall Leadership measures	*0.48*	*0.84*
Interim leadership	0.41	0.68
Transformational leadership	0.55	0.82
Overall HRM measures	*0.45*	*0.89*
Recruitment strategy	0.39	0.70
Training	0.44	0.71
Performance appraisal	0.47	0.73
Career management	0.38	0.70
Reward strategy	0.56	0.78
Perceived human capital creation	0.36	0.70

3.8 Validity of the Constructs

Validity of a questionnaire or test is very much important for research study as if reliability. Kline (1986) quoted validity as "a test is valid if it measures what it claims to measure" (p. 4). It is difficult to analyze validity of a construct, since the constructs like recruitment strategy and training are abstraction. In this direction, Groth-Marnat (1997) explained about the three broad methods of validity such as content-related validity (face and content validity), construct-related validity (convergent and discriminant validity), and criterion-related validity (predictive and concurrent validity).

3.8.1 Content-related validity

Both face and content validity assess the representativeness and relevance of instruments of a construct, which is to be measured. Content validity is established by the judgments

of experts; whereas face validity is established by test users (Groth-Marnat, 1997). Following this notion, discussions were held with managers and researchers who involved in HCM, leadership, HRM and KM activities through direct communication and email communication to seek the representativeness and relevance of the questionnaire items. Thereafter, targeted participants were met at a manufacturing firm to seek the opinions about the relevance of items. Thus, both face and content validity of the questionnaire are established.

3.8.2 Construct-related validity

Convergent validity is established by finding high correlation between two similar operationalizations of a construct, and discriminant validity is established by finding low or negative correlation between two dissimilar operationalizations of a construct (Groth-Marnat, 1997). In this direction, Toth *et al.* (2005) established convergent validity by finding moderate correlation ($r \geq 0.40$) between an item and its own scale or construct, and assumed scaling error if high correlation value found between such item and other construct. The same procedure is followed to show that the constructed questionnaire has very good convergent validity. Table 3.7 shows the results of the convergent validity, and values represent Pearson correlation coefficient between an item and its own construct. In which, for example, item number 6 of recruitment strategy has significant correlation ($r = 0.53$, $p < 0.01$) with its own construct (recruitment strategy) and item number 26 of reward strategy explains significant correlation ($r = 0.67$, $p < 0.01$) with its construct (reward strategy). Thus, it is proved that the constructed questionnaire possesses convergent validity. Table 3.8 summarizes the results of discriminant validity, which is

found by correlating an item which is not included in any scales and the total score of any construct. Toth *et al.* (2005) established $r < 0.50$ as a criterion for correlation between an excluded item and its own construct. The findings of this study show that no high correlation between an excluded item and its scale is observed. Thereby, developed questionnaire also possesses discriminant validity.

3.8.3 Criterion-related validity

Criterion-related validity is obtained by comparing constructed scale with some other theoretically relevant scale. Correlation coefficient facilitates the comparison to achieve criterion validity. Among the types of criterion validity, this study analyzed only the predictive validity. The notion behind this validity is how well studying scales predict some other relevant measure. Therefore, after collecting the responses from the currently studying scales, external scales responses should be collected. Correlation between these internal and external scales reveals at what extent current scales predict other measures (Groth-Marnat, 1997). However, the criteria or theoretically relevant and available scales should be standardized and should support to achieve the objectives of the study. In this direction, Lepak and Snell's (2002) human capital value and human capital uniqueness questionnaires were identified as the criteria and each questionnaire comprises of 12 and 10 items respectively. As the developed questionnaire is related to employee's human capital creation, it is expected that studying scales' responses from internally developed employees would have positive relationship with Lepak and Snell's (2002) human capital value and uniqueness scales. To predict this relationship, 50 mechanical engineers and managers, who participated in the pilot study, were approached again formally at their

Table 3.7 Results of convergent validity

No	Items	REC	TRA	PER	CAR	REW	INT	TRL	TAC	CUL	COM	HCC
6	Time taken by …..	*0.53*	0.29	0.26	0.25	0.22	0.20	0.28	0.24	0.26	0.22	0.19
9	I am very keen…..	0.32	*0.51*	0.28	0.30	0.24	0.26	0.31	0.24	0.26	0.28	0.27
14	On average in a …	0.29	0.26	*0.63*	0.30	0.25	0.21	0.30	0.34	0.27	0.34	0.32
21	To what extent you…..	0.15	0.12	0.22	*0.52*	0.16	0.28	0.20	0.22	0.23	0.22	0.26
26	How much importance...	0.29	0.22	0.29	0.35	*0.67*	0.25	0.23	0.27	0.38	0.36	0.35
33	How much importance do/did...	0.17	0.22	0.22	0.21	0.16	*0.60*	0.33	0.28	0.33	0.24	0.22
35	My leader clearly…..	0.29	0.28	0.36	0.33	0.16	0.33	*0.60*	0.31	0.39	0.35	0.31
47	It is usual in …..	0.20	0.30	0.31	0.26	0.22	0.27	0.34	*0.62*	0.36	0.35	0.26
51	How much priority…..	0.29	0.22	0.38	0.33	0.28	0.34	0.39	0.39	*0.66*	0.35	0.25
61	Management formally seeks…..	0.30	0.18	0.32	0.41	0.35	0.35	0.34	0.37	0.39	*0.59*	0.35
63	Chances of considering….	0.33	0.38	0.30	0.34	0.19	0.39	0.34	0.29	0.25	0.30	*0.57*

Notes: *All values are significant at $p < 0.01$;
** REC- Recruitment strategy; TRA- Training; PER- Performance appraisal; CAR- Career management; REW- Reward strategy; INT- Interim leadership; TRL- Transformational leadership; TAC- Tactical KM; CUL- Organizational culture; COM-Communication; HCC- Perceived human capital creation.

Table 3.8 Results of discriminant validity

No	Items	REC	TRA	PER	CAR	REW	INT	TRL	TAC	CUL	COM	HCC
6	Time taken by …..	*0.28*	0.29	0.26	0.25	0.22	0.20	0.28	0.24	0.26	0.22	0.19
9	I am very keen…..	0.32	*0.30*	0.28	0.30	0.24	0.26	0.31	0.24	0.26	0.28	0.27
14	On average in a …	0.29	0.26	*0.42*	0.30	0.25	0.21	0.30	0.34	0.27	0.34	0.32
21	To what extent you…..	0.15	0.12	0.22	*0.26*	0.16	0.28	0.20	0.22	0.23	0.22	0.26
26	How much importance...	0.29	0.22	0.29	0.35	*0.49*	0.25	0.23	0.27	0.38	0.36	0.35
33	How much importance do/did...	0.17	0.22	0.22	0.21	0.16	*0.40*	0.33	0.28	0.33	0.24	0.22
35	My leader clearly…..	0.29	0.28	0.36	0.33	0.16	0.33	*0.46*	0.31	0.39	0.35	0.31
43	We discuss the…..	0.25	0.24	0.38	0.38	0.21	0.22	0.45	*0.38*	0.34	0.34	0.36
49	My organization always...	0.30	0.25	0.19	0.26	0.17	0.25	0.30	0.26	*0.35*	0.30	0.25
61	Management formally seeks…..	0.30	0.18	0.32	0.41	0.35	0.35	0.34	0.37	0.39	*0.37*	0.35
63	Chances of considering….	0.33	0.38	0.30	0.34	0.19	0.39	0.34	0.29	0.25	0.30	*0.31*

Notes: *All values are significant at $p < 0.01$;

** REC- Recruitment strategy; TRA- Training; PER- Performance appraisal; CAR- Career management; REW- Reward strategy; INT- Interim leadership; TRL- Transformational leadership; TAC- Tactical KM; CUL- Organizational culture; COM-Communication; HCC- Perceived human capital creation.

firms to collect responses on human capital value and uniqueness questionnaires. Among them, 25 male managers and engineers of a large boiler production company situated at Haridwar, who have interim experience, were participated. Their age were ranged from 29 to 56 years and tenure ranged from 7 to 33 years. Their responses are presented in the form of correlation coefficients between all the constructs in Table 3.9. All the constructs have significant correlation coefficients of more than 0.50 with human capital value and uniqueness scales. Thus, it is predicted that firms involving in creating human capital develop high value and more unique human capital. The above explained procedures prove that the content-related validity, construct-related validity, and criterion-related validity of the studying measures are adequate.

3.9 Main Research Study

This section describes the selection of participants, who are working in manufacturing firms, for the study and demographic characteristics of both participants and their manufacturing organizations.

3.9.1 Data Collection

Both random and non random sampling (convenience, and judgment or purposeful) procedures are used to collect data from employees. The top and middle level management employees are chosen in this study, since they have more opportunity to develop human capital. In Convenience sampling, Roorkee town is chosen as it is more convenient to meet employees at their firms officially and to collect their responses.

Table 3.9 Results of predictive validity

No	Constructs	1	2	3	4	5	6	7	8
1	*HRM Factors*	1.00							
2	Recruitment strategy	0.77*	1.00						
3	Training	0.85*	0.49**	1.00					
4	Performance appraisal	0.88*	0.53*	0.75*	1.00				
5	Career management	0.93*	0.80*	0.73*	0.76*	1.00			
6	Reward strategy	0.69*	0.28	0.57*	0.50**	0.53*	1.00		
7	*Leadership Factors*	0.81*	0.51*	0.87*	0.77*	0.72*	0.49**	1.00	
8	Interim leadership	0.72*	0.47**	0.80*	0.58*	0.66*	0.51**	0.92*	1.00
9	Transformational leadership	0.79*	0.49**	0.82*	0.84*	0.69*	0.42**	0.95*	0.76*
10	*KM System Factors*	0.93*	0.78*	0.81*	0.82*	0.91*	0.49**	0.82*	0.73*
11	Tactical KM	0.89*	0.73*	0.77*	0.79*	0.86*	0.46**	0.81*	0.75*
12	Organizational culture	0.85*	0.70*	0.71*	0.73*	0.86*	0.52**	0.72*	0.63*
13	Communication	0.88*	0.76*	0.80*	0.79*	0.83*	0.40	0.78*	0.67*
14	Perceived human capital creation	0.87*	0.64*	0.76*	0.70*	0.84*	0.70*	0.67*	0.61*
15	Human capital value	0.83*	0.59*	0.88*	0.67*	0.81*	0.51**	0.83*	0.79*
16	Human capital uniqueness	0.86*	0.64*	0.73*	0.78*	0.84*	0.52*	0.76*	0.66*

Note: * $p < 0.01$; ** $p < 0.05$.

Table 3.9 Results of predictive validity (continued)

No	Constructs	9	10	11	12	13	14	15	16
1	*HRM Factors*								
2	Recruitment strategy								
3	Training								
4	Performance appraisal								
5	Career management								
6	Reward strategy								
7	*Leadership Factors*								
8	Interim leadership								
9	Transformational leadership	1.00							
10	*KM System Factors*	0.80*	1.00						
11	Tactical KM	0.77*	0.93*	1.00					
12	Organizational culture	0.71*	0.92*	0.76*	1.00				
13	Communication	0.78*	0.96*	0.85*	0.86*	1.00			
14	Perceived human capital creation	0.65*	0.79*	0.75*	0.74*	0.73*	1.00		
15	Human capital value	0.78*	0.85*	0.81*	0.76*	0.84*	0.79*	1.00	
16	Human capital uniqueness	0.77*	0.83*	0.81*	0.73*	0.79*	0.77*	0.83*	1.00

Note: * $p < 0.01$; ** $p < 0.05$.

In judgment sampling, Coimbatore city is chosen to collect data because of my familiarity and experience about manufacturing companies that are to be included in the study, and also confident that this sample is truly representative of the population. In addition, responses were collected from employees in the conferences, workshops, and seminars. Importantly, social network website, Orkut.com is also used to administer data collection processes. In which, Indian manufacturing companies' communities were randomly chosen, and the concerned employees were requested to participate in this study by leaving a message of the purpose of the study and web link to download the questionnaire at their scrap books. This type of drop and collect method is also used to collect responses from employees. It is important to note that the confidentiality of all participants' responses is maintained throughout the study. To ensure confidentiality, reported data are compiled into summaries. These sampling procedures enable to collect responses from as much as 12 Indian states.

3.9.2 Participants

The top and middle level management employees of Indian manufacturing companies are targeted in this research study as they are closely involved in achieving their firms' mission, vision, and objectives. This study particularly focused employees, who have high value and unique human capital. Therefore, employee's job position of strategic planning, functional managers, design engineers, mechanical engineers, professional employees, middle management employees, and research and development employees are considered in line with Lepak and Snell (2002). Responses are collected from 500 Indian employees. Their participation is confirmed only by returning the filled-out

questionnaire and no reward was given to them for participation. It is mentioned in the introduction of the questionnaire about answering all the items and demographic characteristics, and importantly, participants are requested to not filling interim leadership scale if they have no interim leadership experience. As this research study deals with interim leadership, a questionnaire is not considered when founding unanswered interim scale. Due to this, 30 questionnaires are not selected for the study, and consequently, 470 responses of employees of mean age 35.80 years are duly considered. These 470 employees' demographic characteristics such as age, gender, education, rank, and tenure are collected (see Table 3.10), and were classified according to private and public sector for comparison purposes. Some of the participants were left some items and details unanswered, since they were not personally insisted to fill all items. These unanswered details are completely provided in Table 3.10. The participated employee's age, gender, education, rank, and tenure are considered in this study and other demographic factors are considered irrelevant and hence, are not taken into account. From Table 3.10, it is clearly understood that 205 employees from public sectors and 265 employees from private sectors were participated. Further, 60 per cent of participated employees have had more opportunities to improve their skills and knowledge both inside and outside of the organization, because they aged more than 30. As education is a prime determinant of human capital development, the current educational status of participants is the base on which further development could be initiated. Supporting this notion, this study reports that 71.5 per cent of participated employees completed under graduation degree; whereas 23.6 per cent completed post graduation degree. The employees' tenure in the present organization is also reported in which 213 participants had less than 15

Table 3.10 Demographic characteristics of participants

Variables	Public sector		Private sector	
	Number	*%*	*Number*	*%*
Age, years				
< 30	74	36.10	115	43.40
30-40	23	11.22	88	33.21
> 40	93	45.37	54	20.38
Non-Respondents	15	7.32	8	3.02
Gender				
Male	186	90.73	241	90.94
Female	7	3.41	21	7.92
Non-Respondents	12	5.85	3	1.13
Education				
Under Graduate	159	77.56	177	66.79
Post Graduate	33	16.10	77	29.06
PhD	1	0.49	0	0.00
Non-Respondents	12	5.85	11	4.15
Rank				
Managerial	14	6.83	94	35.47
Non-managerial	147	71.71	162	61.13
Non-Respondents	44	21.46	9	3.40
Tenure, years				
< 15	94	45.85	213	80.38
15-25	21	10.24	27	10.19
> 25	35	17.07	7	2.64
Non-Respondents	55	26.83	18	6.79
Total number of participants	205	100.00	265	100.00

years in private sector, whereas it was 94 in public sector. In contrast, 35 participants had more than 25 years of tenure in public sector, but it was only 7 in private. For reducing the complication in the analyses, employee's gender (1 = male, 2 = female), education (1 = under graduate, 2 = post graduate), and rank (0 = non-managerial rank, 1 = managerial rank) are numerically considered.

3.9.3 Organizations

The participated employees are working in the manufacturing industries of electric power generation (36.38 per cent), machine assembly (12.13 per cent), electronics measurements (10.21 per cent), automobile parts production (10.21 per cent), boiler production (6.81 per cent), pharmaceutical products production (6.17 per cent), casting (6.17 per cent), cement manufacturing (2.77 per cent), glass production (2.55 per cent), automated process controlling device manufacturing (2.55 per cent), sugar production (0.85 per cent), two wheeler manufacturing (0.43 per cent), four wheeler manufacturing (0.43 per cent), fertilizer production (0.43 per cent), tractors manufacturing (0.43 per cent), leather processing (0.43 per cent), home appliances manufacturing (0.43 per cent), watch manufacturing (0.21 per cent), paper production (0.21 per cent), and chemical manufacturing (0.21 per cent). Overall, 67 Indian manufacturing firms are included in the study.

Chapter 4

RESULTS

4.1 Introduction

This chapter presents the details of the analyses carried out to examine the relationships of the variables represented in the theoretical models. The first section of this chapter examines the zero order correlation coefficients between all pairs of variables represented in all models. In the second section, hierarchical regression analysis (HRA) finds the antecedents of perceived human capital creation after controlling for employee's demographic characteristics (age, gender, education, rank, and tenure). The third section analyses the supreme impact of determinants of perceived human capital creation through simple regression analysis and HRA after controlling for employee's demographic characteristics. In the fourth section, the existence of the difference is analyzed among the HRM, KM system, and leadership factors and perceived human capital creation between private and public firm employees. The fifth section explains the internal factor structure of HRM measures, KM system measures, and leadership measures through exploratory factor analysis. Further, the role of KM system factors and HRM factors on the relationship between transformational leadership and perceived human capital created is examined in sixth and seventh section respectively. Finally, confirmatory factor analysis is performed to all the models to examine the goodness-of-fit with data. The statistical packages SPSS 15 and LISREL 8.7 are used to carry out all the above mentioned analyses. Table 4.1, 4.2, 4.3, and 4.4 represent the responses of Indian manufacturing employees on HRM, KM system, leadership, and perceived human capital

creation measures respectively. The order of the response counts is of scale rating from 1 to 5.

Table 4.1 Descriptive statistics of HRM measures

S.No	Items	Response counts					Mean	SD	n
		1	2	3	4	5			
1	Recruitment strategies…	16	48	103	209	93	3.58	0.97	469
2	Creation of new job …..	26	85	122	188	43	3.67	0.93	464
3	How well developed…..	25	57	106	194	76	3.71	0.81	458
4	Generally, money …..	38	99	95	169	58	3.58	0.86	459
5	Selecting a best …..	24	72	108	181	84	3.71	0.84	469
6	Time taken by …..	18	87	108	174	80	3.51	0.99	467
7	Organization sponsors…..	18	65	75	241	71	3.84	0.80	470
8	Availability of…..	21	70	100	194	81	3.81	0.86	466
9	I am very keen…..	8	44	93	219	104	4.13	0.94	468
10	To gain knowledge…..	37	75	104	184	69	3.54	1.14	469
11	Appropriateness of…..	24	72	99	198	73	4.02	0.89	466
12	Time spent…..	23	79	83	215	66	3.64	1.17	466
13	I consider appraisal…	17	58	91	227	77	3.71	1.14	470
14	On average in a …	22	88	87	209	62	3.88	0.89	468
15	To what extent …..	9	39	85	245	89	3.84	0.82	467
16	Organization's performance..	23	67	92	236	48	3.60	0.84	466
17	Sources of collecting…..	20	51	101	200	94	3.51	0.92	466
18	The aspects used…..	21	79	104	196	67	3.58	0.87	467
19	How many different…..	30	95	107	186	49	3.44	0.99	467
20	To what extent…..	22	59	105	194	88	3.84	0.85	468
21	To what extent you…..	17	54	82	226	85	3.51	1.10	464
22	How confident …..	31	70	91	206	70	3.80	0.97	468
23	How often you….	21	48	74	224	91	3.65	0.97	458
24	To what extent the…..	31	71	85	212	69	3.87	0.89	468
25	Impact of reward…	40	77	112	175	60	3.78	0.99	464
26	How much importance...	27	65	124	192	55	3.62	0.98	463
27	Offering best…..	79	105	96	117	69	3.49	1.27	466
28	How often does…..	17	53	74	199	124	3.82	1.01	467

Note: SD – Standard Deviation

Table 4.2 Descriptive statistics of leadership measures

S.No	Items	Response counts					Mean	SD	n
		1	2	3	4	5			
29	To what extent your…..	12	78	101	207	65	3.58	0.94	463
30	I do/did manage...	7	43	110	247	57	3.69	0.94	464
31	Criterion to identify…..	18	67	129	208	41	3.70	0.90	463
32	You are/were given…..	26	113	113	163	48	3.49	1.08	463
33	How much importance do/did...	7	45	71	241	101	3.78	1.04	465
34	Though this role…..	20	57	87	216	85	3.58	1.12	465
35	My leader clearly…..	13	50	58	253	95	3.82	1.03	469
36	I feel I am…..	13	46	110	200	100	4.06	0.87	469
37	My Leader's guidance…..	11	27	81	265	84	3.93	0.69	468
38	How often you…..	14	67	97	193	96	4.08	0.77	467
39	I feel my leader…..	16	58	92	222	81	3.87	0.89	469
40	The way my leader…..	14	42	98	242	74	3.82	0.86	470
41	The way your leader…..	12	49	79	223	104	3.59	1.03	467
42	How frequent your…..	10	52	70	243	93	3.87	1.04	468

Note: SD – Standard Deviation

Table 4.3 Descriptive statistics of KM system measures

S.No	Items	Response counts					Mean	SD	n
		1	2	3	4	5			
43	We discuss the…..	14	53	72	230	101	3.67	1.11	470
44	I daily utilize…..	16	77	99	215	62	3.49	0.94	469
45	How often your superiors...	20	73	84	240	49	3.64	0.80	466
46	How often are experts...	27	89	103	204	45	3.58	0.94	468
47	It is usual in …..	9	58	106	232	63	3.76	0.86	468
48	I feel I have…..	11	50	89	221	97	3.82	0.78	468
49	My organization always...	18	35	68	240	103	3.90	0.70	464
50	To what extent your...	20	80	104	196	68	3.82	0.98	468
51	How much priority…..	13	71	81	233	68	3.71	0.84	466
52	I see lot of …	14	59	84	242	68	3.89	0.86	467

Table 4.3 Descriptive statistics of KM system measures (continued)

S.No	KM practices	Response counts					Mean	SD	n
		1	2	3	4	5			
53	To what extent your...	17	53	94	235	68	3.78	1.00	467
54	Organization provides..	16	70	125	200	56	3.80	0.76	467
55	The support given to…	9	62	91	223	82	3.84	0.77	467
56	Safety instructions…..	21	54	60	239	95	3.91	0.87	469
57	Organization disseminates….	14	70	125	206	49	3.51	0.97	464
58	Organization also receives….	15	61	112	219	62	3.81	0.98	469
59	Internet facilities…	25	70	70	214	91	3.58	1.12	470
60	Intranet helps….	12	60	72	243	81	3.70	0.97	468
61	Management formally seeks…	18	68	104	200	73	3.71	1.01	463

Note: SD – Standard Deviation

Table 4.4 Descriptive statistics of perceived human capital creation measures

S.No	Perceived HCC	Response counts					Mean	SD	n
		1	2	3	4	5			
62	The return I give. …	21	64	93	218	73	3.64	1.13	469
63	Chances of considering….	27	76	91	222	49	3.53	1.04	465
64	My authority and status…..	23	34	98	217	95	3.71	0.97	467
65	Participation in a team…	47	88	95	186	52	3.58	0.97	468
66	Comparing last year..	82	156	91	106	31	3.35	1.17	466

Note: SD – Standard Deviation

4.2 Antecedents of Perceived Human Capital Creation

KM system success factors such as organizational culture, communication, and tactical KM, leadership factors such as transformational leadership and interim leadership, and

HRM factors such as recruitment strategy, training, performance appraisal, reward strategy, and career management are identified as antecedents of perceived human capital creation through systematic literature review. Correlation analysis and HRA are performed to prove these factors are the antecedents as these analyses find the strength and extent to which these factors are related with perceived human capital creation through which, hypotheses from 1 to 10 could be tested.

4.2.1 Control Variables

Employee's demographic characteristics are considered as control variables in this study. The reasons for controlling these variables are their association with human capital creation. For example, organizations allocate more resources to develop younger employees' human capital than older (Pennings *et al.*, 1998). Johnson *et al.* (1997) quoted some significant behavioral differences that create human capital of men such as competitive, creative, and risk-taking from women. In general, Indian female employees particularly in manufacturing sectors have less promotional chances and low salary increments, which may have certain impact on perceived human capital creation. Becker (1962) described education as one of the components of human capital. Judge and Bretz (1994) described that higher rank and tenured employees have more opportunities to learn from organizational environment and job throughout the tenure and competencies development through experiences, and thus, rank and tenure support human capital creation.

4.2.2 Correlation analysis

In the correlation analysis, Pearson product moment correlation coefficient is used to express the extent to which two variables are related. In align with the research study, such analysis supports to find to what extent constructs of organizational culture, communication, tactical KM, transformational leadership, interim leadership, recruitment strategy, training, performance appraisal, reward strategy, and career management are related to perceived human capital creation. The results of correlation analysis are shown in Table 4.5. It shows that among the demographic variables of employees, perceived human capital creation is positively correlated with their age, education, rank, and tenure. Importantly, all the studying antecedents show a significant positive relationship with perceived human capital creation ($r > 0.50$).

4.2.3 Hierarchical Regression Analysis

Due to the difficulty of eliminating the impact of control variables on dependent variable in multiple regression analysis, HRA is performed to examine the antecedents of this study. HRA assesses the relative importance of independent variables (antecedents) by increase in R^2 (Coefficient of determination). This is possible when entering one independent variable into the equation, which already has other independent variables. The resulting R^2 of the entered independent variable explains the amount of unique variance accounted for on dependent variable (perceived human capital creation) beyond what other variables accounted for on the dependent variable (Ho, 2006). The advantage of this analysis is that researchers can control the sequence of independent variables to be entered.

Table 4.5 Descriptive statistics and correlation coefficients

No	Variables	1	2	3	4	5	6	7	8	9
	Mean	35.80	-	-	-	8.37	3.58	3.60	3.58	3.56
	Standard deviation	11.73	-	-	-	10.24	0.57	0.64	0.67	0.64
1	Age	1.00								
2	Gender	-0.07	1.00							
3	Education	0.09†	0.06	1.00						
4	Rank	0.18*	0.00	0.25*	1.00					
5	Tenure	0.79*	0.02	0.00	0.06	1.00				
6	*KM System Factors*	0.20*	0.11†	0.07	0.10†	0.15*	1.00			
7	Organizational culture	0.17*	0.09	0.02	0.06	0.09	0.89*	1.00		
8	Communication	0.21*	0.13*	0.10†	0.14*	0.16*	0.88*	0.67*	1.00	
9	Tactical KM	0.16*	0.07	0.07	0.08	0.14*	0.86*	0.64*	0.65*	1.00
10	*Leadership Factors*	0.24*	0.07	0.06	0.11†	0.15*	0.78*	0.70*	0.69*	0.67*
11	Interim leadership	0.17*	0.06	0.02	0.10	0.09	0.61*	0.55*	0.54*	0.52*
12	Transformational leadership	0.24*	0.06	0.08	0.10†	0.16*	0.75*	0.67*	0.66*	0.65*
13	*HRM Factors*	0.19*	0.12†	0.09†	0.18*	0.11†	0.80*	0.69*	0.73*	0.69*
14	Recruitment strategy	0.09†	0.10†	0.08	0.11†	0.05	0.57*	0.51*	0.52*	0.48*
15	Training	0.03	0.15*	0.06	0.11†	-0.01	0.56*	0.47*	0.51*	0.50*
16	Performance appraisal	0.23*	0.09	0.09	0.14*	0.13†	0.68*	0.59*	0.59*	0.62*
17	Reward strategy	0.20*	0.02	0.08	0.21*	0.15*	0.63*	0.55*	0.60*	0.51*
18	Career management	0.18*	0.10†	0.07	0.12†	0.10	0.69*	0.59*	0.64*	0.59*
19	Perceived human capital creation	0.18*	0.09	0.12*	0.20*	0.14*	0.67*	0.53*	0.64*	0.59*

Note: *$p < 0.01$; †$p < 0.05$.

Table 4.5 Descriptive statistics and correlation coefficients (continued)

No	Variables	10	11	12	13	14	15	16	17	18	19
	Mean	3.64	3.54	3.72	3.49	3.44	3.54	3.56	3.38	3.53	3.31
	Standard deviation	0.56	0.61	0.66	0.55	0.66	0.68	0.67	0.84	0.67	0.68
1	Age										
2	Gender										
3	Education										
4	Rank										
5	Tenure										
6	*KM System Factors*										
7	Organizational culture										
8	Communication										
9	Tactical KM										
10	*Leadership Factors*	1.00									
11	Interim leadership	0.84*	1.00								
12	Transformational leadership	0.92*	0.56*	1.00							
13	*HRM Factors*	0.73*	0.57*	0.70*	1.00						
14	Recruitment strategy	0.56*	0.45*	0.53*	0.79*	1.00					
15	Training	0.54*	0.43*	0.52*	0.76*	0.55*	1.00				
16	Performance appraisal	0.62*	0.47*	0.60*	0.78*	0.50*	0.47*	1.00			
17	Reward strategy	0.52*	0.40*	0.51*	0.77*	0.50*	0.44*	0.47*	1.00		
18	Career management	0.63*	0.50*	0.59*	0.81*	0.55*	0.51*	0.59*	0.58*	1.00	
19	Perceived human capital creation	0.64*	0.54*	0.59*	0.76*	0.55*	0.58*	0.58*	0.60*	0.66*	1.00

Note: *$p < 0.01$; †$p < 0.05$.

However, Cohen *et al.* (2003) pointed out the following underlying principles to enter independent variables into the equation: causal priority; research relevance; and structural properties of factors. Performing HRA needs a step by step procedure to enter independent variables into the regression equation or in the HRA blocks of SPSS 15. To eliminate the variance explained by control variables, these variables should be entered in the first block. KM system success factors such as organizational culture, communication, and tactical KM are entered in the second block. Leadership factors such as interim leadership and transformational leadership are entered in the third block. Finally, HRM factors such as recruitment strategy, training, performance appraisal, reward strategy, and career management are entered in the fourth block. Significant increment in R^2 and standardized beta value (β) will support the each hypothesis. The generalized linear regression equation between control variables and perceived human capital creation, for instance, is shown as

$$Y_1 = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where,

a	=Constant
Y_1	= Perceived human capital creation
X_1	= Age
X_2	= Gender
X_3	= Education
X_4	= Rank
X_5	= Tenure
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	= Coefficients of beta values, and
e	=Error term

4.2.3.1 Control Variables and Perceived Human Capital Creation

The HRA results of impact of control variables on perceived human capital creation are shown in Table 4.6 under Model 1. These variables explain statistically significant ($p < 0.01$) proportion of variance in the perceived human capital creation ($R^2 = 0.08$). In specific, gender has positively associated with perceived human capital creation ($\beta_{12} = 0.09$, $p < 0.1$). Similarly, rank also positively associates with perceived human capital creation ($\beta_{14} = 0.18$, $p < 0.01$).

4.2.3.2 Knowledge Management System Factors and Perceived Human Capital Creation

This section describes the kind of associations between KM system factors and perceived human capital creation to test the hypotheses from 1 to 3. Model 2 of Table 4.6 specifies the contribution of these factors on perceived human capital creation after controlling for employee's characteristics. The standardized beta coefficient ($\beta_{26} = 0.10$, $p < 0.1$) and correlation coefficient ($r = 0.53$, $p < 0.01$) of organizational culture show significant positive relationship with perceived human capital creation. These findings provide support for hypothesis 1. Communication possess significant and positive relationship with perceived human capital creation ($\beta_{27} = 0.38$, $p < 0.01$; $r = 0.64$, $p < 0.01$). Consequently, positive association between communication and perceived human capital creation leads to accept hypothesis 2. Finally, tactical KM shows significant regression ($\beta_{28} = 0.28$, $p < 0.01$) and significant positive correlation ($r = 0.59$, $p < 0.01$) with perceived human capital creation. As these results show the prevalence of positive relationship between tactical KM and perceived HCC, they recommend accepting

hypothesis 3. Overall, these KM system factors significantly explain 41 per cent variance ($\Delta F = 97.41$, $p < 0.01$) on perceived human capital creation.

Table 4.6 HRA results of finding antecedents

Antecedents	Model			
	1	2	3	4
Control Variables				
Age	0.10	-0.04	-0.07	-0.08
Gender	0.09†	0.02	-0.03	-0.01
Education	0.07	0.03	0.04	0.04
Rank	0.18*	0.13*	0.12*	0.07†
Tenure	0.03	0.05	0.05	0.09†
KM System Factors				
Organizational culture		0.10†	-0.03	- 0.10**
Communication		0.38*	0.29*	0.14*
Tactical KM		0.28*	0.18*	0.06
Leadership Factors				
Interim leadership			0.21*	0.15*
Transformational leadership			0.19*	0.06
HRM Factors				
Recruitment strategy				0.09**
Training				0.17*
Performance appraisal				0.12**
Reward strategy				0.14*
Career management				0.18*
F	5.94*	43.16*	41.76*	40.88*
ΔF		97.41*	19.03*	18.70*
R^2	0.08	0.49	0.52	0.62
ΔR^2		0.41	0.05	0.10

Note: Coefficients are standardized beta values;
*p < 0.01; **p < 0.05; †p < 0.1.

4.2.3.3 Leadership Factors and Perceived Human Capital Creation

The results of association between leadership factors and perceived human capital creation are shown in Table 4.6 under Model 3. The beta value ($\beta_{39} = 0.21$, $p < 0.01$) and correlation value ($r = 0.54$, $p < 0.01$) of interim leadership show a positive association with perceived human capital creation. Therefore, hypothesis 4 is accepted. Further, the relation, transformational leadership and perceived human capital creation, is also strongly supported by both correlation analysis and HRA ($r = 0.59$, $p < 0.01$; $\beta_{310} = 0.19$, $p < 0.01$). These findings provide a strong support to hypothesis 5, which predicts that transformational leadership is positively related to employee perceived human capital creation. Overall, leadership factors explain significant per cent of variance on perceived human capital creation ($\Delta R^2 = 0.05$, $p < 0.01$).

4.2.3.4 Human Resource Management Factors and Perceived Human Capital Creation

The results to find the associations between HRM factors and perceived human capital creation are shown in Table 4.6 under Model 4. The standardized beta value of recruitment strategy ($\beta_{411} = 0.09$, $p < 0.05$) identifies the positive relation with perceived human capital creation, and this relation, in addition, carries significant correlation coefficient ($r = 0.55$, $p < 0.01$). Thus, these findings provide support for hypothesis 6, which states that perceived human capital creation increases when they perceive that organization does use rigorous recruitment strategy. As expected, training has positive association with perceived human capital creation ($r = 0.58$, $p < 0.01$; $\beta_{412} = 0.17$, $p < 0.01$). Therefore, hypothesis 7 is strongly supported. Further, hypothesis 8 is also accepted as the relation of performance appraisal on perceived human capital creation

carries significant regression ($\beta_{413} = 0.12$, $p < 0.05$) as well positive correlation (see Table 4.5). In addition, hypothesis 9 stating the positive relation between reward strategy and perceived human capital creation is viable in manufacturing industries. The reason is that this relation possesses strong positive beta value ($\beta_{414} = 0.14$, $p < 0.01$) and significant positive correlation coefficient. Finally, the relation, career management and perceived human capital creation, is also strongly supported by both correlation analysis and HRA ($r = 0.66$, $p < 0.01$; $\beta_{415} = 0.18$, $p < 0.01$). Therefore, hypothesis 10 is also accepted. Overall, these factors explain 10 per cent significant variance on perceived human capital creation ($\Delta F = 18.70$, $p < 0.01$). To find the strongest antecedent of perceived human capital creation, both simple regression analysis and HRA are performed, and results are shown in Table 4.7. Simple regression analysis is carried out to find the impact of each demographic variable on perceived human capital creation. HRA is performed to find change in R^2 to identify the strongest antecedent. Among the antecedents, career management explains highly significant variance on perceived human capital creation ($\Delta R^2 = 0.36$; $F = 47.18$, $p < 0.01$).

4.3 Differences between Private and Public Firms on Studying Variables

This section analyzes the differences between private and public sector employees' perception on HRM factors, KM system factors, leadership factors, and human capital creation. To perform this analysis, the participants of the study are divided into private and public sector employees. The paired t-test analysis is conducted to understand the existence of a significant difference between these sectors. The results of this test are shown in Table 4.8.

Table 4.7 Regression analysis and HRA results on perceived human capital creation

Variables	Standardized β	R^2	ΔR^2	F	p
Control Variables	-	*0.08*	-	*5.94*	*< 0.01*
Age	0.18	0.03	-	15.42	< 0.01
Gender	0.09	0.01	-	3.76	< 0.05
Education	0.12	0.02	-	6.82	< 0.01
Rank	0.20	0.04	-	17.16	< 0.01
Tenure	0.14	0.02	-	7.79	< 0.01
KM System Factors	*0.65*	*0.47*	*0.40*	*54.33*	*< 0.01*
Organizational culture	0.52	0.32	0.25	29.24	< 0.01
Communication	0.62	0.42	0.35	44.74	< 0.01
Tactical KM	0.56	0.38	0.31	37.94	< 0.01
Leadership Factors	*0.64*	*0.49*	*0.38*	*51.62*	*< 0.01*
Interim leadership	0.54	0.36	0.28	34.00	< 0.01
Transformational leadership	0.58	0.39	0.31	38.69	< 0.01
HRM Factors	*0.75*	*0.59*	*0.52*	*88.18*	*< 0.01*
Recruitment strategy	0.53	0.35	0.28	32.77	< 0.01
Training	0.56	0.38	0.30	36.78	< 0.01
Performance appraisal	0.59	0.40	0.32	40.00	< 0.01
Reward strategy	0.56	0.36	0.29	34.35	< 0.01
Career management	0.62	0.44	0.36	47.18	< 0.01

Of testing hypothesis 11, which states that no difference between private and public sector firms' recruitment strategy, paired t-test reveals a significant difference across the two sectors ($t = 5.64$, $p < 0.01$). Therefore, this finding hardly supports hypothesis 11. On providing training to develop human capital, paired t-test shows the existence of difference between private and public firms ($t = 7.48$, $p < 0.01$). Hence, the hypothesis 12 is not supported. The similar result is occurred when testing hypothesis 13 that states no difference between private and public sector firms on conducting performance appraisal

Table 4.8 Paired t-test results

Variables	Private sector	Public sector	t	p
	Mean (SD)	Mean (SD)		
HRM factors				
Recruitment strategy	3.59 (0.56)	3.25 (0.72)	5.64	< 0.01
Training	3.74 (0.57)	3.28 (0.72)	7.48	< 0.01
Performance appraisal	3.66 (0.61)	3.44 (0.72)	3.44	< 0.01
Reward strategy	3.60 (0.67)	3.10 (0.94)	6.48	< 0.01
Career management	3.62 (0.65)	3.42 (0.68)	3.30	< 0.01
Leadership factors				
Interim leadership	3.59 (0.60)	3.46 (0.62)	2.28	< 0.05
Transformational leadership	3.82 (0.64)	3.60 (0.66)	3.56	< 0.01
KM system factors				
Tactical KM	3.67 (0.60)	3.43 (0.66)	4.12	< 0.01
Organizational culture	3.68 (0.62)	3.49 (0.65)	3.10	< 0.01
Communication	3.72 (0.63)	3.41 (0.69)	5.13	< 0.01
Perceived Human Capital Created	3.48 (0.65)	3.09(0.66)	6.38	< 0.01

Note: Equal variances not assumed; SD-Standard Deviation

to improve human capital. Since the paired t-test conducted to test hypothesis 13 is not supported ($t = 3.44$, $p < 0.01$). There is a noticed difference in the execution of the reward strategy across these sectors to motivate employees to posses skills ($t = 6.48$, $p < 0.01$), and the career management involved in by both firms and employees to create human capital is also varied across the two sectors ($t = 3.30$, $p < 0.01$). Therefore, these results fail to accept hypotheses 14 and 15.

Of testing hypothesis 16, which states that no difference between private and public sector employees' interim leadership, paired t-test reveals a significant difference across the two sectors ($t = 2.28$, $p < 0.05$). Therefore, this finding does not support hypothesis

16. On comparing transformational leadership supporting human capital development of these sectors, paired t-test shows the existence of a difference between leadership behaviors in both private and public firms ($t = 3.56$, $p < 0.01$). The hypothesis 17 hence is not supported.

Testing hypothesis 18 that states no difference between private and public sector employees' usual tactical KM process, the result of paired t-test reports a significant difference across the two sectors, particularly private firm employees experience more on tactical KM ($t = 4.12$, $p < 0.01$). This finding rejects hypothesis 18. On comparing organizational culture to promote human capital across private and public firms, paired t-test shows the existence of difference between these firms ($t = 3.10$, $p < 0.01$). The hypothesis 19 hence is not supported and it is observed that culture in private organizations is more effective to support and promote human capital. The similar result ($t = 5.13$, $p < 0.01$) is found when testing hypothesis 20, which states no difference in communication practices between private and public sector firms. Since private and public firm employees differ each other on the above factors, it is believed that these sectors' employees will perceive human capital creation differently. Expectedly, difference is found between private and public firm employees on perceived human capital creation ($t = 6.38$, $p < 0.01$). Therefore, hypothesis 21 is not accepted.

4.4 Analyzing the Factor Structure

For exploring and analyzing the underlying structure of the interrelationships among the large number of variables, the procedure of factor analysis is applied to collected responses. This analysis identifies the structure of dimensions or factors and determines the degree of the explanation of each variable on the corresponding factor (Hair *et al.*,

2005). This study performs exploratory factor analysis for finding the structure of each measure due to its interdependence approach in which all the studying variables are considered simultaneously and each variable is related to all other variables. Principal component analysis is particularly chosen as it accounts for the total variance and derives factors that have small degree of unique variance in which, eigenvalue of at least one is set as a criterion to extract factors from the variables. However, principal component analysis generally allocates large amount of variance on the first derived factor than other following factors. Therefore, it is important to perform orthogonal rotation to redistribute the variance from earlier factors to other factors to get a simple and meaningful factor structure. Equimax is mainly considered for rotation to interpret the factors as it forms linear combinations of observed variables to interpret the factors.

To perform factor analysis, Hair *et al.* (2005) proposed the required minimum sample size of more than 100 or at least five times as many observations as there are variables to be analyzed. Further, the authors recommended the minimum acceptable limit of factor loading, the correlation between variable and factor, of each variable in a factor as ± 0.30. Importantly, they suggested accepting a factor, which must have at least 0.60 of cronbach alpha. Following Budhwar and Baruch (2003), the extracted factors are tabulated.

4.4.1 The Factor Structure of Human Resource Management Measures

Table 4.9 presents the results of factor loadings from the factor analysis carried out on the employees' responses on the HRM measures. According to the findings, HRM measures can be divided into six prime factors depicting specific groupings and each binds with

Table 4.9 The factor structure of HRM measures

Q.No	Factor and Items		Factor loadings					
			1	2	3	4	5	6
1. Reward Strategy								
24	To what extent the…..		**0.53**					
25	Impact of reward…		**0.61**					
26	How much importance..		**0.58**					
27	Offering best…..		**0.65**					
28	How often does…..		**0.44**					
	Eigenvalue	7.47						
	Variance explained	26.70%						
	Cronbach alpha (α)	0.78						
2. Career-oriented training								
7	Organization sponsors...			**0.63**				
11	Appropriateness of…..			**0.51**				
12	Time spent…..			**0.48**				
19	How many different…..			**0.37**				
	Eigenvalue	1.62						
	Variance explained	5.80%						
	Cronbach alpha (α)	0.70						
3. Performance appraisal								
13	I consider appraisal…				**0.42**			
14	On average in a …				**0.50**			
15	To what extent …..				**0.39**			
16	Organization's performance…				**0.58**			
18	The aspects used…..				**0.39**			
	Eigenvalue	1.54						
	Variance explained	5.50%						
	Cronbach alpha (α)	0.71						
4. Recruitment strategy								
2	Creation of new job …..					**0.39**		
3	How well developed…..					**0.58**		
4	Generally, money …..					**0.42**		
5	Selecting a best …..					**0.51**		
	Eigenvalue	1.18						
	Variance explained	4.23%						
	Cronbach alpha (α)	0.68						

Table 4.9 The factor structure of HRM measures (continued)

Q.No	Factor and Items		Factor loadings					
			1	2	3	4	5	6
5. Career management								
1	Recruitment strategies..						**0.32**	
20	To what extent…..						**0.41**	
21	To what extent you…..						**0.36**	
23	How often you….						**0.40**	
22	How confident …..						**0.35**	
	Eigenvalue	1.08						
	Variance explained	3.86%						
	Cronbach alpha (α)	0.60						
6. Performance-oriented training								
6	Time taken by …..							**0.36**
8	Availability of…..							**0.49**
9	I am very keen……							**0.35**
10	To gain knowledge…..							**0.32**
17	Sources of collecting...							**0.37**
	Eigenvalue	1.06						
	Variance explained	3.78%						
	Cronbach alpha (α)	0.60						

some relations, which together account for over 50 per cent of the total variation in the used HRM measures. These factors are:

Factor 1: This factor includes the variables of reward for motivating team participation, reward impact on employee's competency, reward for risk-taking, best employee award, and top management appreciation for hard work. This factor is named as *reward strategy* since all these variables are related to reward.

Factor 2: This factor includes the variables such as sponsoring for workshops, appropriate training, time spent for training, and attending career-oriented workshops. Therefore, this factor is named as *career-oriented training*.

Factor 3: The items, appraisal for overcoming weaknesses, frequency of appraisal, useful performance-related discussions, unbiasness in performance appraisal, and aspects of appraisal are clustered to form this factor. Thus, this factor refers to as *performance appraisal.*

Factor 4: This factor comprises of variables, creation of new job, attract talents, money spent for selecting talent, and selecting a best candidate. Since all these items are related to recruitment, this factor is referred to as *recruitment strategy.*

Factor 5: This factor comprises of items, retention of best talent, importance for career exploration, undergoing job rotation, reaching career goal, and self-nomination. As organizations and employees focus career together, this factor is called as *career management.*

Factor 6: The items, time taken to select talents, availability of training facilities, employee's keenness to attend training, opportunity for gaining qualification, and sources of collecting feedback are clustered to form a factor *performance-oriented training.*

The cronbach alpha, the eigenvalue, and variance explained on each factor are also shown in Table 4.9. The alpha value of each factor is more than 0.60, which shows the reliability of each factor. Therefore, these findings broadly supports proposition 1.

Table 4.10 shows the regression between the HRM factors and employee's demographic characteristics. The findings show the existence of certain relationship between these factors and their characteristics. The factor, reward strategy is positively associated with employee's age and rank, and career-oriented training has positive association with employee's rank. Performance appraisal factor is positively related to age, gender, and

rank of employees. However, recruitment strategy carries no association with employee's characteristics. Finally, career management and performance-oriented training are positively related to age but negatively related to tenure. Thus, these findings moderately support proposition 2.

Table 4.10 Regression between HRM factors and demographic characteristics

Variables	RW	COT	PA	RS	CM	POT
Age	0.21**	0.04	0.23*	0.08	0.25*	0.25*
Gender	0.02	0.07	0.09†	0.07	0.10	0.12
Education	0.04	0.07	0.06	0.00	0.05	0.01
Rank	0.17*	0.12**	0.15*	0.10	0.07	0.02
Tenure	-0.04	0.01	-0.09	-0.05	-0.18**	-0.17†

Note: * $p < 0.01$; ** $p < 0.05$; † $p < 0.1$;
RW- Reward strategy, COT- Career-oriented training PA- Performance appraisal, RS- Recruitment strategy, CM- Career management, POT- Performance-oriented training.

4.4.2 The Factor Structure of Knowledge Management System Measures

Table 4.11 and Table 4.12 present the results of factor loadings from the factor analysis carried out on the employees' responses on the KM system measures. This analysis recommends only on factor from knowledge process capability, and the concerned factor accounts for over 40 per cent of the total variation in the used measures. The factor found in the knowledge process capability is:

Factor 1: The items, discussing new developments, utilizing knowledge resources, sharing work experiences written manual, adapting other team's knowledge, and no hurdles for work discussions are clustered into this factor. Thus, this factor refers to as *tactical KM.*

Table 4.11 The factor structure of knowledge process capability measures

Q.No	Factor and Items	Factor loadings
		1
1. Tactical KM		
43	We discuss the…..	**0.58**
44	I daily utilize…..	**0.69**
45	How often your superiors...	**0.70**
46	How often are experts...	**0.56**
47	It is usual in …..	**0.64**
48	I feel I have…..	**0.65**
	Eigenvalue	2.46
	Variance explained	40.95%
	Cronbach alpha (α)	0.71

Factor analysis recommends three factors from knowledge infrastructure capability, and the concerned factors account for over 53 per cent of the total variation in the used measures. The factors found in the knowledge infrastructure capability are:

Factor 1: This factor includes the variables, interactions with experts, considering an employee for important decision, acquiring new knowledge, internet and intranet facilities, and seeking employees' opinions. This factor is named as *problem solving approach.*

Factor 2: This factor includes the variables such as precisely performing task, equal opportunity for development, informing safety instructions, disseminating information about management activities, and collecting feed back about management activities. Thus, this factor is named as *communication-oriented culture*.

Factor 3: This factor comprises of variables such as taking decisions freely, carrying out challenging work activities, and innovative changes. Thus, this factor is referred to as *innovation-supportive culture*.

Table 4.12 The factor structure of knowledge infrastructure capability measures

Q.No	Factor and Items		Factor loadings		
			1	2	3
1. Problem solving approach					
53	To what extent your…..		**0.49**		
55	The support given to…		**0.59**		
59	Internet facilities…		**0.55**		
60	Intranet helps.…		**0.78**		
61	Management formally seeks..		**0.59**		
	Eigenvalue	4.65			
	Variance explained	35.80%			
	Cronbach alpha (α)	0.76			
2. Communication-oriented culture					
49	My organization always...			**0.60**	
54	Organization provides…			**0.45**	
56	Safety instructions…..			**0.74**	
57	Organization disseminates..			**0.62**	
58	Organization also receives..			**0.67**	
	Eigenvalue	1.16			
	Variance explained	8.92%			
	Cronbach alpha (α)	0.71			
3. Innovation-supportive culture					
50	To what extent your...				**0.67**
51	How much priority…..				**0.78**
52	I see lot of …				**0.60**
	Eigenvalue	1.08			
	Variance explained	8.34%			
	Cronbach alpha (α)	0.63			

The cronbach alpha, eigenvalue, and variance explained on each factor are shown in Table 4.11 and 4.12. The alpha value for each factor is more than 0.6, which shows the reliability of each factor. Therefore, these findings broadly support proposition 3.

Table 4.13 shows the regression between the KM system success factors and employee's demographic characteristics. The factor, problem solving approach is positively

associated with employee age and education. Communication-oriented culture has been positively related to gender. Tactical KM has no significant relations with employee's characteristics, and innovation-supportive culture is positively associated with employee age, but negative to tenure. Therefore, these findings moderately provide support for proposition 4.

Table 4.13 Regression between KM system factors and demographic characteristics

Variables	TKM	PSA	COC	ISC
Age	0.07	0.28*	0.13	0.43*
Gender	0.03	0.08	0.15*	0.07
Education	0.05	0.09†	0.03	-0.02
Rank	0.06	0.06	0.07	-0.01
Tenure	0.06	-0.08	-0.05	-0.23*

Note: * $p < 0.01$; ** $p < 0.05$; † $p < 0.1$.
TKM- Tactical KM, PSA- Problem solving approach, COC- Communication-oriented culture, ISC- Innovation-supportive culture.

4.4.3 The Factor Structure of Leadership Measures

Table 4.14 presents the results of factor loadings from the factor analysis carried out on the responses collected on leadership measures. According to this analysis, leadership measures can be divided into two factors, which together account for over 43 per cent of the total variation in the leadership measures. These factors are:

Factor 1: This factor includes the variables, informing the work to be done, motivating by leader's solution, trust creation, frequently approaching leader to derive solutions, setting a challenging goal, correctly executing power and authority, new way to solve job-oriented problem, and communicating the goals. These variables represent the behaviors of transformational leaders, and so this factor is named as *transformational leadership*.

Factor 2: The items, proposing ideas, smoothly managing the department, criterion to identify the interim, full power and authority to exercise, importance given to interim role, and non blaming leader's absence are clustered into this factor. Thus, this factor refers to *interim leadership* since these items are being clearly associated with interims.

Table 4.14 The factor structure of leadership measures

Q.No	Factor and Items		Factor loadings	
			1	2
1. Transformational leadership				
35	My leader clearly…..		**0.52**	
36	I feel I am…..		**0.69**	
37	My Leader's guidance…..		**0.66**	
38	How often you…..		**0.68**	
39	I feel my leader…..		**0.73**	
40	The way my leader…..		**0.60**	
41	The way your leader…..		**0.68**	
42	How frequent do…..		**0.46**	
	Eigenvalue	4.73		
	Variance explained	33.80%		
	Cronbach alpha (α)	0.82		
2. Interim leadership				
29	To what extent your…..			**0.58**
30	I do/did manage...			**0.63**
31	Criterion to identify…..			**0.65**
32	You are/were given…..			**0.69**
33	How much importance do/did...			**0.58**
34	Though this role…..			**0.38**
	Eigenvalue	1.27		
	Variance explained	9.09%		
	Cronbach alpha (α)	0.68		

The cronbach alpha, the eigenvalue, and variance explained on each factor are shown in Table 4.14. The alpha value for each factor is more than 0.6, and therefore, these findings strongly support proposition 5. Table 4.15 shows the regression between the leadership

factors and employee's characteristics. The findings show the existence of certain relationship between these factors and demographic characteristics. The factor, transformational leadership is positively associated with employee's age. Interim leadership factor is positively related to employee's age and rank. Therefore, these findings partially provide support for proposition 6.

Table 4.15 Regression between leadership factors and demographic characteristics

Variables	TL	IL
Age	0.23*	0.23*
Gender	0.05	0.07
Education	0.06	-0.02
Rank	0.05	0.10**
Tenure	-0.02	-0.12

Note: * $p < 0.01$; ** $p < 0.05$;
TL- Transformational leadership, IL- Interim leadership.

4.4.4 Association between Perceived Human Capital Creation and Employee's Characteristics

Table 4.16 presents the results of factor loadings from the factor analysis carried out on the employees' responses on perceived human capital creation. This factor *perceived human capital creation* includes the variables such as return on investment, being in the race for future leader, high authority and status, participating in high profile project, and higher earning. These variables account for over 38 per cent of the total variation. The Cronbach alpha, the eigenvalue, and variance explained on this factor are also shown in Table 4.16. Table 4.17 shows the regression between the perceived human capital creation factor and demographic characteristics of employees.

Table 4.16 The factor structure of perceived human capital creation measures

Q.No	Factor and Items	Factor loadings
		1
1. Perceived human capital creation		
62	The return I give. …	**0.57**
63	Chances of considering….	**0.56**
64	My authority and status…..	**0.61**
65	Participation in a team…..	**0.75**
66	Comparing last year….	**0.61**
	Eigenvalue	1.93
	Variance explained	38.65%
	Cronbach alpha (α)	0.70

This factor is positively associated with employee's gender and rank. Thus, these findings partially provide support for proposition 7.

Table 4.17 Regression results on perceived human capital creation factor

Variables	Perceived Human Capital Creation
Age	0.10
Gender	0.09†
Education	0.07
Rank	0.18*
Tenure	0.04

Note: * $p < 0.01$; † $p < 0.1$.

4.5 The Role of Knowledge management System Factors on the Relationship between Transformational Leadership and Perceived Human Capital Creation

This section analyses the role of KM system success factors (organizational culture, communication, and tactical KM) on the relationship between transformational leadership and perceived human capital creation. Since it is important to answer a question of how transformational leadership and KM system success factors together affect employee

perceived human capital creation. Therefore, exploring the two roles of KM system factors namely mediator and moderator could answer to the above question as well to the hypotheses 22 and 23.

4.5.1 The Mediator Role of Knowledge Management System Factors

To test hypothesis 22, the analysis of mediator role of KM system factors is followed the procedure of Baron and Kenny (1986). A variable is said to be mediated when it explains the relationship between the other variables. Precisely, mediation implies a causal hypothetical relationship in which an independent variable causes a mediator that causes a dependent variable (Baron and Kenny, 1986). Importantly, the effect of control variables should be eliminated at first. Performing mediation analysis, the first step is to show that the independent variable (transformational leadership) affects the mediators (organizational culture, communication, and tactical KM). The second step is to show that the independent variable affects the dependent variable (perceived human capital creation). The final step is to show that the mediators affect the dependent variable when the independent variable is included in the equation. If KM system factors mediate the relationship, a significant relationship between transformational leadership and perceived human capital creation should disappear or be reduced when KM system factors are added into the model.

Controlling for employee's characteristics, transformational leadership is significantly predicted organizational culture ($\beta = 0.63$, $p < 0.01$), communication ($\beta = 0.60$, $p < 0.01$), and tactical KM ($\beta = 0.64$, $p < 0.01$). The results of the remaining steps are shown in Table 4.18 under Model 2 and 3. It is observed that transformational leadership does

significantly predict the perceived human capital creation ($\beta_{26} = 0.58$, $p < 0.01$). When including the mediator variables (organizational culture, communication, and tactical KM) into the equation, the effect of transformational leadership on perceived human capital creation is reduced but is still significant.

Table 4.18 HRA results to predict the role of KM system factors

Variables	Model			
	1	2	3	4
Control Variables				
Age	0.10	-0.04	-0.06	-0.05
Gender	0.09†	0.06	0.03	0.03
Education	0.07	0.04	0.03	0.03
Rank	0.18*	0.15*	0.13*	0.13*
Tenure	0.03	0.05	0.04	0.04
Transformational leadership (TL)		0.58*	0.23*	0.35**
KM System Factors				
Organizational culture (OC)			0.03	0.26
Communication (CO)			0.32*	0.36
Tactical KM (TKM)			0.21*	0.06
Interaction Effects				
TL* OC				-0.43
TL* CO				-0.07
TL* TKM				0.28
F	5.94*	38.69*	42.26*	31.69*
ΔF		187.40*	30.61*	0.50
R^2	0.08	0.39	0.51	0.51
ΔR^2		0.31	0.12	0.00

Note: Coefficients are standardized beta values;
* $p < 0.01$; ** $p < 0.05$; † $p < 0.1$.

The effect of communication on perceived human capital creation ($\beta_{38} = 0.32$, $p < 0.01$) is more than that of the effect of transformational leadership on perceived human capital creation ($\beta_{36} = 0.23$, $p < 0.01$). However, the value of organizational culture is insignificant, and the standardized beta value of tactical KM ($\beta_{39} = 0.21$, $p < 0.01$) is weaker than transformational leadership ($\beta_{36} = 0.23$, $p < 0.01$). These findings reveal that communication plays a mediator role between transformational leadership and perceived human capital creation, and thus, provide a partial support for hypothesis 22.

4.5.2 The Moderator Role of Knowledge Management System Factors

A variable is said to be moderated when it affects the direction and or strength of the relation between an independent variable and a dependent variable (Baron and Kenny, 1986). In order to test the hypothesis regarding the moderating or interacting effect of KM system success factors on the relationship between transformational leadership and perceived human capital creation, a two-step HRA is used (Cohen *et al.*, 2003) after controlling for employee's characteristics. In the first step, dependent variable (perceived human capital creation) is regressed by both the independent variable (transformational leadership) and moderating variables (organizational culture, communication, and tactical KM). In the second step, interaction terms, obtained by the multiplication of the scores of the independent variable and moderator variables are added to the regression model. The moderating effect is supported when the regression coefficients associated with the interaction terms are significant. The findings of the effect of these interactions are shown in Table 4.18 under Model 4. There is no significant interaction terms found on perceived human capital creation. Therefore, hypothesis 23 is failed to be accepted.

4.6 The Role of Human Resource Management Factors on the Relationship between Transformational Leadership and Perceived Human Capital Creation

This section analyses the role of HRM factors (recruitment strategy, training, performance appraisal, reward strategy, and career management) on the relationship between transformational leadership and perceived human capital creation. Because it is important to provide answer to a question of how transformational leadership and HRM factors jointly affect employee perceived human capital creation. Therefore, exploring the two roles of HRM factors namely mediator and moderator would answer to the above question as well to the hypotheses 24 and 25.

4.6.1 The Mediator Role of Human Resource Management Factors

This section follows the same procedure described in section 4.5.1. Controlling for employee's characteristics, transformational leadership is significantly predicted recruitment strategy ($\beta = 0.49$, $p < 0.01$), training ($\beta = 0.52$, $p < 0.01$), performance appraisal ($\beta = 0.59$, $p < 0.01$), reward strategy ($\beta = 0.47$, $p < 0.01$), and career management ($\beta = 0.57$, $p < 0.01$). Table 4.19 shows the HRA results of predicting the role of HRM factors. From this, it is observed that transformational leadership significantly predicts perceived human capital creation ($\beta_{26} = 0.58$, $p < 0.01$). When including the mediator variables (recruitment strategy, training, performance appraisal, reward strategy, and career management) into the equation, the effect of transformational leadership on perceived human capital creation is reduced and however, is still significant ($\beta_{36} = 0.13$, $p < 0.01$). The mediators, training ($\beta_{38} = 0.19$, $p < 0.01$), performance appraisal ($\beta_{39} = 0.16$, $p < 0.01$), reward strategy ($\beta_{310} = 0.18$, $p < 0.01$), and career

management (β_{311} = 0.21, p < 0.01) cause for the diminishing effect of transformational leadership on perceived human capital creation. Importantly, the standardized beta value

Table 4.19 HRA results to predict the role of HRM factors

Variables	Model			
	1	2	3	4
Control Variables				
Age	0.10	-0.04	-0.09	-0.08
Gender	0.09†	0.06	0.01	0.01
Education	0.07	0.04	0.03	0.04
Rank	0.18*	0.15*	0.08**	0.08**
Tenure	0.03	0.05	0.11**	0.10†
Transformational leadership (TL)		0.58*	0.13*	-0.01
HRM Factors				
Recruitment strategy (RS)			0.10**	-0.23
Training (TR)			0.19*	-0.29
Performance appraisal (PA)			0.16*	0.37
Reward strategy (RW)			0.18*	0.35†
Career management (CM)			0.21*	0.61*
Interaction Effects				
TL*RS				0.61
TL*TR				0.81**
TL*PA				-0.34
TL*RW				-0.28
TL*CM				-0.68
F	5.94*	38.69*	50.19*	36.34*
ΔF		187.40*	39.54*	2.92**
R^2	0.08	0.39	0.61	0.62
ΔR^2		0.31	0.22	0.02

Note: Coefficients are standardized beta values;
* p < 0.01; ** p < 0.05; † p < 0.1.

of recruitment strategy ($\beta_{37} = 0.10$, $p < 0.05$) is weaker than transformational leadership ($\beta_{36} = 0.13$, $p < 0.01$). Thus, these findings provide moderate support for hypothesis 24.

4.6.2 The Moderator Role of Human Resource Management Factors

This section follows the same procedure mentioned in section 4.5.2. Table 4.19 shows the results of the interaction effects of transformational leadership and HRM factors under Model 4. It is observed that there is a significant interaction between transformational leadership and training ($\beta_{413} = 0.81$, $p < 0.05$) which affects perceived human capital creation. Other interaction terms do not posses significant beta value over perceived human capital creation. Therefore, hypothesis 25 is slightly supported as no strong evidence to prove majority of variables' interaction effect on perceived human capital creation.

4.7 Testing the Goodness-of-fit of the Perceived Human Capital Creation Models

This section examines the fit of perceived human capital creation models namely (1) antecedents of perceived human capital creation, (2) Mediating role of KM system factors in between transformational leadership and perceived human capital creation, and (3) Mediating role of HRM factors in between transformational leadership and perceived human capital creation as causal models of Indian manufacturing employees' perceived human capital creation. In order to solve the conceptual issues of perceived human capital creation in this research study, this section proposes that perceived human capital creation models are stable and each have goodness-of-fit with collected data.

In order to deal with causal relationships, confirmatory factor analysis plays an important role in this study. This carries a confirmatory role as researchers completely control over

specifying indicators for each construct. Further, it estimates goodness-of-fit for the proposed theoretical models (Hair *et al.*, 2005). The first step of confirmatory factor analysis is the specification of structural model and measurement model. Structural model concerts path diagram into various structural equations to explain endogeneous variables. Measurement model defines the relationship between measured variables or items and the theoretical constructs or latent variables (eg. recruitment strategy). This analysis is performed by LISREL 8.7 statistical software and variance-covariance matrix is used as input data. Importantly, the studying sample is more than sufficient to carry out this analysis (Hair *et al.*, 2005). After specifying the structural and measurement models and selecting the input data type, structural model estimation is performed with weighted least squares in which multivariate normal is assumed for the observed variables. Then, examination is done to identify the degree to which the specified model is fit with sample data. The following are the measures used to estimate goodness-of-fit of the model:

Chi-square statistic (ψ^2): This test examines whether the proposed model explains sufficiently the relationships of the measured variables (Gelfand *et al.*, 1995). The ratio of chi-square to degrees of freedom signifies the considerable difference between observed and estimated matrices. For the better fit of the proposed model, it is therefore important to get the chi-square value as close to as degrees of freedom.

Akaike Information Criterion (AIC): This measure penalizes for complexity of model by adjusting model chi-square. It is defined by

$$AIC = \psi^2 + (2*\text{Number of estimated parameters})$$

The value of AIC is always non negative and lower values indicate a better fitting model (Van Direndonck, 2005).

Non-Normed Fit Index (NNFI): It is a comparative fit index, values equal or more than 0.95 indicates relatively a good fit (Van Direndonck, 2005).

Comparative Fit index (CFI): It compares the proposed model fit with an uncorrelated latent variables' null model. In specific, Bentler (1990) quoted that CFI indicates the extent to which the model fits better than a baseline independence model. At least 0.95 of CFI value indicates relatively a good fit (Van Direndonck, 2005).

Normed Fit Index (NFI): It reflects the proportion by which the hypothesized model improves fit comparing with the null model. Hair *et al.* (2005) suggests that a model shows a good fit when it has NFI value of 0.90 or more.

Root Mean Square Residual (RMSR): It is the square root of the mean of the squared residuals- an average of the residuals between observed and estimated input matrices (Hair *et al.*, 2005). Less than 0.08 of RMSR is considered as relatively a good fit (Van Direndonck, 2005).

Root Mean Square Error of Approximation (RMSEA): It is a dispersal of non-centrality across degrees of freedom and sample size. RMSEA ranging from 0.05 to 0.08 represents a good fit (Hair *et al.*, 2005).

To prove the developed models are the best models, competing model development strategy that involves in choosing best fitting model from the alternative models is performed. Through which, various alternative or nested models are generated in line with Hair *et al.* (2005). These competing models are to be analyzed with the measures for goodness-of-fit criteria. The resulting low chi-square possessing model is recommended as best model. Table 4.20, 4.21, and 4.22 show the results of the confirmatory factor analyses of the proposed three models and their competing models.

Table 4.20 Confirmatory factor analysis results on the antecedents of perceived human capital creation model

No	MODEL	ψ^2	df	$\Delta \psi^2$	AIC	NNFI	CFI	NFI	RMSR	RMSEA
1	Theoretical antecedents of perceived human capital creation model	4926.53	2024	-	5300.53	0.96	0.96	0.93	0.055	0.055
2	9 factor model (Recruitment strategy and Training are combined)	4990.91	2034	64.38	5344.91	0.96	0.96	0.93	0.056	0.056
3	8 factor model (Recruitment strategy, Training, and Performance appraisal are combined)	5255.71	2043	329.18	5591.71	0.96	0.96	0.93	0.057	0.058
4	7 factor model (Recruitment strategy, Training, Performance appraisal, and Career management are combined)	5317.72	2051	391.19	5637.72	0.96	0.96	0.93	0.057	0.058
5	6 factor model (Recruitment strategy, Training, Performance appraisal, Career management, and Reward strategy are combined)	5614.72	2058	688.19	5920.72	0.95	0.96	0.92	0.058	0.061

Note: ψ^2- Normal theory weighted least squares chi-square, df- Degrees of freedom, AIC- Akaike information criterion, NNFI- Non-normed fit index, CFI- Comparative fit index, NFI- Normed fit index, RMSR- Root mean square residual, RMSEA- Root mean square error of approximation.

Table 4.21 Confirmatory factor analysis results on the model of mediating role of KM system factors

No	MODEL	ψ^2	df	$\Delta\psi^2$	AIC	NNFI	CFI	NFI	RMSR	RMSEA
1	Mediating role of KM system factors model	1570.09	457	-	1712.09	0.94	0.95	0.93	0.059	0.072
2	Without the relationship between Transformational leadership and Perceived HCC	1573.70	458	3.61	1713.70	0.95	0.95	0.93	0.059	0.072
3	Without the relationship between Tactical KM and Perceived HCC	1578.10	458	8.01	1718.10	0.94	0.95	0.93	0.059	0.072
4	Without the relationship between Organizational culture and Perceived HCC	1571.13	458	1.04	1712.13	0.95	0.95	0.93	0.059	0.072
5	Without the relationship between Communication and Perceived HCC	1617.50	458	47.04	1757.50	0.94	0.95	0.93	0.059	0.073

Note: ψ^2- Normal theory weighted least squares chi-square, df- Degrees of freedom, AIC- Akaike information criterion, NNFI- Non-normed fit index, CFI- Comparative fit index, NFI- Normed fit index, RMSR- Root mean square residual, RMSEA- Root mean square error of approximation, HCC- Human capital creation.

Table 4.22 Confirmatory factor analysis results on the model of mediating role of HRM factors

No	MODEL	ψ^2	df	$\Delta\psi^2$	AIC	NNFI	CFI	NFI	RMSR	RMSEA
1	Mediating role of HRM factors model	1908.97	768	-	2094.97	0.96	0.96	0.93	0.056	0.056
2	Without the relationship between Transformational leadership and Perceived HCC	1928.57	769	19.60	2112.57	0.96	0.96	0.93	0.056	0.057
3	Without the relationship between Training and Perceived HCC	1927.47	769	18.50	2111.39	0.96	0.96	0.93	0.056	0.057
4	Without the relationship between Performance appraisal and Perceived HCC	1923.58	769	14.61	2107.58	0.96	0.96	0.93	0.056	0.057
5	Without the relationship between Reward strategy and Perceived HCC	1938.67	769	29.70	2122.67	0.96	0.96	0.93	0.056	0.057
6	Without the relationship between Career management and Perceived HCC	1932.05	769	23.08	2116.05	0.96	0.96	0.93	0.056	0.057

Note: ψ^2- Normal theory weighted least squares chi-square, df- Degrees of freedom, AIC- Akaike information criterion, NNFI- Non-normed fit index, CFI- Comparative fit index, NFI- Normed fit index, RMSR- Root mean square residual, RMSEA- Root mean square error of approximation, HCC- Human capital creation.

Chapter 5

DISCUSSIONS

5.1 Introduction

This chapter discusses the causes for the relationship found in the previous chapter. Importantly, this research totally represents a theory driven examination of how KM system success factors, leadership factors, and HRM factors associated with employee perceived human capital creation. In addition, it also discusses how transformational leadership combining with KM system success factors and HRM factors predicts perceived human capital creation.

5.2 Antecedents of Perceived Human Capital Creation

This study found that organizational culture, communication, tactical KM, interim leadership, transformational leadership, recruitment strategy, training, performance appraisal, reward strategy, and career management are the antecedents of employee perceived human capital creation. Researchers showed that innovation-supportive culture fosters employees' creativity, willingness to experiment, and risk-taking skills (O'Reilly *et al.*, 1991; Jassawalla and Sashittal, 2002). These skills are specifically considered as the components of human capital. Therefore, it is obvious that employees perceive more about human capital creation when they work under this kind of culture. Employees are provided with more autonomy under employee-supportive culture, which encourages employees to get involved in the decision making process. Thus, firms encourage 'freedom to innovate' concept among employees. Manufacturing companies place more

importance to innovativeness to sustain their competitive advantage, and they give much attention to a top management employee's decision. As a result, this kind of firm's receptivity increases employees' perceptions to improve their skills and self-efficacy for development, and it particularly changes firm behavior towards developmental programs (Maurer *et al.*, 2002; Bono and Colbert, 2005). In the direction of discussing knowledge creation, knowledge-supportive culture established in firms, for example, Tata Steel, which encourages employees' gathering to discuss job related problems and current developments and deliver knowledge-based solutions. Thus, collaborative knowledge culture provides an opportunity to improve managers' technical and conceptual knowledge (Yao *et al.*, 2007). Thereby, innovativeness, creativity, and knowledge creation improve employees' performance and earning, and consequently, they perceive human capital creation.

Literatures are frequently quoting the positive relationship between communication and knowledge sharing (Lu *et al.*, 2006; Al-Alawi *et al.*, 2007). However, the types of communication, for instance, formal or informal and face to face or electronic communication are critical for employee human capital development. For example, Valacich *et al.* (1993) identified that groups, which use computer-mediated and electronic communication for interactions generate more unique and high-quality ideas. However, bottom-up communication or information flow from employees to top management through staff meetings or quality circles encourages idea generation and or suggestion schemes (Kaye and Anderson, 1999). In this situation, it is essential to consider that communication modes or communication-enabling technologies are acting as a knowledge providing tool for organization. Another form of formal employee

communication, distributing a brochure or magazine publicizing teams' successful high profile projects to employees, improve their knowledge about the technical details of the company's processes and services (Reid *et al.*, 2004; Skandia, 1998). Consequently, synchronous and asynchronous communication modes largely prevalent in Indian organizations (Cho *et al.*, 2008), and such communication modes improve employees' commitment towards organization and job and employees' perceptions that top management encourages to propose innovative ideas as well. Employee's performance improves when they are knowledgeables and have high organizational commitment (Chen and Francesco, 2003). In this direction, communication is highly associated with perceived human capital creation.

For any level of employees, knowledge is considered as the primary source of human capital, and is critical to their long term sustainability in the organization and success in both personal and work life. Considering this, the day to day involvement in the tactical KM process is also vital for their human capital improvement. Therefore, they are likely to develop their human capital when they actively involve in KM. For instance, knowledge sharing, one of the processes of tactical KM, encourages network formation to access knowledge from different communities of expertise (Swan *et al.*, 1999). Since network-engaged employees are mostly top level managers and engineers, the perception that they are in the central of the network would more likely to increase. Subsequently, their problem solving ability and individual developmental potential are increased in greater extent (Lin and Huang, 2005). As a result, employee's status, salary progression, and opportunity to participate in the valuable project are stepped up. In addition, employees, who involved in tactical KM, create a new knowledge themselves, and as said

earlier, that knowledge increases their performance. Thus, tactical KM absolutely causes employees to perceive their human capital creation.

To face greater challenges and contribute in organizational performance, interim leadership gives employees opportunities to take over a leadership role without changing their current jobs. Employees, as interims, develop their human capital through initiating actions to manage stability and uncertainty, knowledge sharing with peers, performing in the dynamic work environment that needs changes, participating in a decision making process, and personal and professional growth (Gilmore, 1988; Euster and Solomon, 1994; Ellis *et al.*, 2005). However, when the interim period goes smoothly and no major problem arises, interim employee devotes time for managerial duties. Such leadership provides opportunities to informal managerial development even it may be formal sometimes and professional development (Mouly and Sankaran, 1999). Successful contribution to organizational performance elevates employees in their organization by pay and authority and status. Thus, interim leadership is identified as one of the antecedents of employee perceived human capital creation.

Transformational leaders generally share risks with followers, motivate them by providing meaningful and challenging work, display enthusiasm and optimism, stimulate followers' effort to be innovative and creative through questioning assumptions and reframing problems, and pay attention to each individual's need for achievement and growth. Among these characteristics, such leaders' individual consideration influences the learning capacity of employees. Literatures proved the positive association of transformational leadership on innovation, learning, and employee's innovative behaviors (Aragon-Correa *et al.*, 2005; Vera and Crossan, 2004; De Jong and Hartog, 2007). These

leaders encourage individual employee's intuitive insights and experiences shaped through group conversations and emerged as shared understanding. Strong support is also found that leader-member exchange theory positively related to employee salary progression and formal authority (Wayne *et al.*, 1999). In line with Edmondson (1996), who proposed that leadership is an antecedent of human capital development, this research also recommends that transformational leadership is one of the antecedents of employee perceived human capital creation.

The impact of firms' rigorous recruitment efforts to select right people for the position could be seen in the productivity as the contribution of employees. The chances to incorporate various recruitment measures such as informal recruitment and web based recruitment to acquire workforces would dramatically increase when firms experience perceived difficulties to identify suitable employees. Further, firms take efforts to get right people through both intensive and extensive search between and among candidates and recruiting sources. When firms decide to go through internet based recruitment, they identify and hire quality employees who are capable to well perform the assigned tasks than expected (Lievens *et al.*, 2002). The investments firms put in the HR planning and hiring practices that identify skills and knowledge of workforce are positively associated with labor productivity (Koch and McGrath, 1996). Once employees' contribution on productivity increases, they get opportunity to increase their authority and status, and these employees as knowledge workers may feel that they contribute more in organizational performance than they invested at them. In other hand, when firm's efforts on recruitment increases to hire high performers, current employees' performance is more

likely to be improved to compete them. Thus, recruitment strategy is associated with perceived human capital creation through improving employees' performance.

Many researchers found positive relationship between training and human capital development since it improves employee's skills, knowledge, and abilities (Becker, 1962; Noe, 1986; Snell and Bohlander, 2007). Further, there are greater chances of occurrence of learning taking place when an individual employee feels to attend training in the condition of likely to gain equity in pay or rewards. Such learning then would be transferred to the job (Noe, 1986). As qualification and knowledge is acquired through education, which is viewed as one of the components of human capital, education related training increases general knowledge of employees and their ability to learn job and environment. Therefore, training increases employee's job performance (Snell and Bohlander, 2007), and training has positive impact on employee authority and status and salary progression (Tharenou *et al.*, 1994). In this direction, this study also found that training is one of the antecedents of employee perceived human capital creation.

Performance appraisal is to appraise individual employee's strengths and weaknesses, and so helps employees to improving weak or unsatisfactory performance further. Additionally, performance measurement information brings developmental discussions between management and employees. However, employees have lack of interest in the further development when both superior and employees intermittently see and speak each other (Stoker and Van der Heijden, 2001; Ukko *et al.*, 2007). Specifically, researchers (Latham and Wexley, 1981; Snell and Dean, 1992) concentrate on development-oriented performance appraisal to human capital creation as it shifts employees focus from daily routine work activities to innovativeness in view of contributing to competitive

advantage. Thus, performance appraisal improves employee's job performance, and develops high performers. As a result, they have more opportunities to get involved in high profile project or team, and to provide high return on investment. Due to these reasons, performance appraisal is one of the antecedents of perceived human capital creation.

Bird (1994) considered careers as repositories of knowledge as it focus on individual and organizational learning particularly the cumulating of individual knowledge through work experiences. Distance from career goal, an aspect of career management, positively influences employee's developmental behavior. Since, a particular employee, who is away from his/her career goal, voluntarily involves in improving developmental behavior (Noe, 1996). Job rotation, a career management practice across global manufacturing firms, is positively associated with continuous improvement on problem-solving skills that enhance employee human capital (Marler, 1998). And it is also positively related to perceptions that it improves administrative, technical, and business knowledge and skills, increased networks of contacts, experiencing variety of tasks and skills, and personal development benefits (Campion *et al.*, 1994). Importantly, dual ladder approach, a career management practice, increase employee's authority and salary progression. Therefore, it enhances employees as flexperts to make them capable to acquiring more than one area of expertise. Due to these reasons, career management is positively related to perceived human capital creation.

Reward strategy is also considered as one of the antecedents of perceived human capital creation. The reasons are: it creates a set of incentives by which employees are encouraged to develop progressively their skills at their own paces and in line with the

needs of the business; and it motivates an individual employee to encourage in development and learning through inducing risk-taking and new initiatives. Importantly, competence based pay compensates employees for the different skills they possess, encourages employees to increase their job related knowledge and skills, and improves staffing flexibility (Snell and Bohlander, 2007). Corporate enthusiasm, a component of reward strategy, is seen in GE, in which top managers wrote personal notes to employees for appreciating their behavior by taking personal time to know their employees and acknowledge their accomplishments (Fawcett *et al.*, 2004). Importantly, employees are transactionally and relationally rewarded for providing innovative suggestions to solve complex engineering problems and as a result, their learning capacity and innovative behaviors are enhanced (Kerrin and Oliver, 2002; Armstrong, 2007). Employees perceive their human capital creation greatly when an employee moves to higher positions and participates in highly valued project in the organization. The prime focus of career management revolve with these aspects, career management highly explains perceived human capital creation in employee's organizational life.

5.3 Differences between Private and Public Sector Firms on Studying Factors

Results showed the existence of differences between private and public firms on HRM factors in view to build human capital. The reasons are analyzed through recruitment strategy, training, performance appraisal, reward strategy, and career management. In regard of recruitment strategy, private firms easily amend new job positions as and when no job positions prevalent to a talent, who is identified as high performers, whereas Indian public firms are not in a position to offer new positions due to a complex political

system. The chances are highly prevalent to adapt strategy such as active, informal, and internet recruitment in case of private sectors, whereas these are low in public sectors. Therefore, private sector firms attract more employees or candidates than public sector firms. Employees working in the private manufacturing firms have reported more willingness to attend training program than public sector employees. The reason may be that employees having the mind of sustaining competitiveness among them and securing the current job. This situation does not exist in case of public sector employees. Public sector firms are completely bound in rules and regulations and investments on training facilities, whereas private sector firms take decision on conducting training for employees quickly. Therefore, it is found that there is a difference on training between private and public sector firms.

In case of performance appraisal, public sector firms follow guidelines to conduct appraisal. In contrast, private sector employee's performance is always monitored by immediate supervisor and superiors and there is flexibility in guidelines to conduct performance appraisal. Therefore, frequency of conducting appraisal process would be more in private firms than public firms. Thus, there are certain differences between private and public sector firms on conducting performance appraisal. Obviously, the strategy devised to reward and recognize employees in private sectors is absolutely differing from the public sector. For example, competence based reward, which is very difficult to happen in Indian public sector firms that are working under the fixed pay structure. Therefore, this study recommends Mathur *et al.*'s (1996) finding that reward strategies framed by private sector firms are entirely distinguished and flexible from public sector firms. In career management, research has already proved that job rotation

is widely used in manufacturing sectors particularly, not in public sectors (Friedrich *et al.*, 1998). Further, there are more opportunities available for private firm employees to explore their career than public firm employees. Therefore, private sector employees give more importance to reach career goals. Thus, both private and public sector firms follow different approach to career management.

In public sector firms, most of the time interims devote their time to manage the unit or organization, whereas in private sector firms, they take decisions, which have certain impact on strategy implementation. The power and authority may be limited in public sector firms but most of the time these are unlimited in private sector firms. The number of criteria used to select interims is also varied between public and private sector firms. Due to these reasons, employee's interim leadership is differently viewed in both private and public sector firms. There are number of researches conducted on leadership in Indian organizations (Mathur *et al.*, 1996; Kakar *et al.*, 2002). However, comparing transformational leaders' behavior between Indian private and public sector is rarely found. Transformational leaders in market focused private firms convey employees their work experiences, particularly how they handled critical challenges, which required risk-taking activities and innovative activities. Whenever employees face job oriented problems, these are conveyed to them easily. Therefore, leaders find or suggest new ways to solve those problems by which they involve in employees' intellectual stimulation. In public sectors, most of the employees are bound with union rules and regulations, and most of the changes occur due to political system (Bass, 1985). In these situations, the factor firm ownership, is unavoidable. Thus, difference is found between private and public firms' transformational leaders' behaviors and styles. Oppositely, Lowe *et al.*

(1996) found that public firms have transformational leaders than private organizations in the United States.

Employees in the private firms are daily forcedly or voluntarily involving in tactical KM because private firms formulate KM strategy in align with their overall business strategy. Due to perfect involvement in the implementation of KM by the private Indian firms for example, Reliance Industries, Maruti Udyog, TVS Motors, Asian Paints, Maruti Industries Ltd, and Sona Koyo Steering Systems Ltd, they encourage their employees being engaged in tactical KM (Singh *et al.*, 2006; Dwivedi *et al.*, 2005). But most of the Indian public firms have no separate KM department and even if they have, they consider it as an additional responsibility. So public sector employees are lacking in formal and informal social networks and less experiencing with KM practices. In addition, there is a difference between both private and public sectors on the investment on the applications of IT and knowledge sharing systems (Kim and Lee, 2005). Thus, employees' tactical KM processes are different between private and public Indian manufacturing firms. Organizational culture in Indian private firms is more employee-friendly which means it allows employees to take decisions freely. Further, it provides significant autonomy to employees to engage in strategy formulation and implementation and decision making (Mathur *et al.*, 1996). They also place innovation as main focus of their mission. Therefore, they prepare their employees by stimulating creativity. In contrast, public firms are enmeshed with rules and so has limitation. Due to these reasons, both the firms are significantly differing each other on their organizational culture. As private firms are more effective in KM implementation, the top managers' contribution through communication technologies such as internet and intranet for creating databases for

employees' knowledge improvement is also vital. They effectively share their ideas to employees through intranet and seek employees' suggestions for their activities. Due to these reasons, communication practices are different between both private and public firms. Private firm employees are doing their best to perform their assignments due to securing jobs. Once they perform well, they realize their human capital creation through increased authority and power and increased salary. Due to the absence of these in public firms, private firm employees perceive more in human capital creation than public firm employees.

5.4 Underlying Factors in the Studying Measures and Their Association with Employee's Characteristics

5.4.1 The Factor Structure of Human Resource Management Measures

From the factor analysis conducted on employees' responses, the patterns or factors of the HRM measures are identified, and these factors namely reward strategy, career-oriented training, performance appraisal, recruitment strategy, career management, and performance-oriented training were formed by clustering of the individual similar practices. Thus, Indian manufacturing firms operate HRM system to create human capital among employees through the above factors. Findings showed that these factors have some effect on employees' demographic characteristics such as age, gender, education, rank, and tenure. Surprisingly, we identified a positive relationship between age and career management, which is quite reverse with previous findings (Campion *et al.*, 1994; Noe, 1996; Cleveland and Shore, 1992). Presently, all firms invest on manufacturing systems, technologies, and employees to withstand the competitive forces, and however,

they require certain kind of optimization on these investments. In view of securing job and being performers as like younger employees, above moderated aged employees are forced to participate in performance-oriented training, and through which they take responsibility to manage their career. However, they attain satisfaction from the skills they have, and more endeavor to create, innovate, and risk-taking (Kooij *et al.*, 2008), and consequently, they view reward strategy positively. This has not happened in the relations of performance appraisal and employees' age. Because based on dissimilarity model, the age difference between employees group and supervisor will always result in supervisor rendering higher performance evaluations for the employees (Villanova and Bernardin, 1989). In similarity model, similar age between supervisor and employees attracts each other through interpersonal relationship and positive effect, and in turn, lead to provide higher performance evaluations for employees (Ferris *et al.*, 1991).

In general, low tenured employees value their career greatly and have willingness to attend training programs to improve their performance in comparison with highly tenured employees. So they utilize the present opportunities like participating in career oriented workshops, job rotation, and self-nomination for job mobility within a firm (Campion *et al.*, 1994). Due to these reasons, negative relationship between tenure and career management and performance-oriented training were found in line with the past researches (Campion *et al.*, 1994; Noe, 1996; Friedrich *et al.*, 1998). Nevertheless, higher rank employees are having experience of understanding the organizational system and firm-specific job, having authority and power to innovate, and creating a formal or informal social network comprised of colleagues and customers. Network maintenance facilitates them during performance appraisal by rendering high performance ratings.

Therefore, overall experiences of higher rank employees within the organizational system are highly associated with the promotion or career outcome. Hence, higher rank employees are often participating in career-oriented training (Markham *et al.*, 1987), and perceive reward strategy strongly as risk-taking is related to reward. The gender variable is positively related to performance appraisal. In general, for being promoted, women who work at top level of the organization require to show high performance rating especially than men (Lyness and Heilman, 2006). In this direction, women positively view performance appraisal when it performs well. Finally, it is observed that absence of a particular characteristic in the equation could cause significant changes in the degree of impact of other characteristics on the factors (Birasnav and Rangnekar, 2009).

5.4.2 The Factor Structure of Knowledge Management System Measures

The results showed that Indian manufacturing firms' KM system and its success depends on tactical KM, problem solving approach, communication-oriented culture, and innovation-supportive culture. It also showed these factors have had certain association with employees' characteristics. For example, problem solving approach is positively associated with employee's age and education. To solve a problem, effective knowledge sharing requires collaboration among employees, and in this direction, older employees are more favorable with collaborative environment (Sveiby and Simons, 2002). On the other hand, problem-solving procedures need a conceptual framework in which individual's cognitive ability and fluid ability are invested, but these diminish when age increases (Horn and Cattell, 1967). However, the experience of employees mitigates the effect of these abilities on reducing performance to solve problems (Salthouse, 1984).

This causes the positive relationship between problem-solving approach and age. Highly educated employees are more knowledgeables, showing excellent performance, easily influencing their own environment, and perceived to know the advantage of knowledge sharing (Sveiby and Simons, 2002; Lin and Huang, 2005). Therefore, it is obvious that highly educated employees are involving in problem solving with their colleagues as they possess problem-solving skills (Cooper *et al.*, 1994). This study reported that there is a relationship between gender and communication-oriented culture. Resource theory of influence states that female employees would communicate less frequently with others as they have less control over resources in the organization (MacLeod *et al.*, 1992). They hence more rely on formal communication from top management. If organization institutionalizes the formal communication as work culture, female employees will more likely to perceive that the prevalence of communication-oriented culture in their organization. In manufacturing industries, generally moderate and elder managers have been influenced to challenge the status quo comparing with younger managers. Such initiative and risk taking managers may always perceive that their organization is more supportive for innovation. However, high tenured managers are often associated with performance conformity and strategic persistence, and so they become more risk-averse and will try to limit the strategic changes (Finkelstein and Hambrick, 1990; Zahra, 2005). Due to these, they less likely favor to innovation-supportive culture.

5.4.3 The Factor Structure of Leadership Measures

The factor analysis conducted on leadership measures resulted in two factors namely transformational leadership and interim leadership. Perception on transformational

leadership is positively related to subordinate's age. The commitment towards organization increases with employee age. In this regard, as transformational leaders involve in the activities of commitment creation to develop human capital, older employees significantly feel that their leaders are characterized with transformational behavior. Interim leadership is positively related to employee's age and rank. Aged and higher rank employees are well-versed with the entire organizational system, learnt from their work, and having firm-specific experiences (Lin and Huang, 2005). So they have ability to smoothly carry out transition. Therefore, they get more opportunities to perform interim role.

5.4.4 The Association between Perceived Human Capital Creation and Employee's Characteristics

Factor analysis found that perceived human capital creation is an unidemensional measure, and regression analysis found that this factor has positive association with employee's gender (towards female) and rank. For instance, higher rank employees are predominantly empowered with authority and status and their earnings are generally high comparing to other employees, because they participate in mission and vision development and strategy formulation. Female employees, who work in top level of the organization, require to show high performance especially than men for being promoted or getting authority (Lyness and Heilman, 2006). Therefore, to be successfully become future leaders, they are more likely to undergo performance-oriented training that increases the chances to gain success in career management. Thus, they perceive human capital creation comparatively higher than male employees.

5.5 The Role of Knowledge Management System Factors on the Relationship between Transformational Leadership and Perceived Human Capital Creation

From the findings, it is shown that KM system factors play a partial mediator role in the relationship between transformational leadership and perceived human capital creation. Particularly, communication plays a mediator role in between that relationship. As stated earlier, mediation implies a causal hypothetical relationship in which an independent variable causes a mediator that causes a dependent variable. That means, transformational leadership causes communication that causes employee perceived human capital creation, and also transformational leadership has direct relation with perceived human capital creation (see Fig 3.3).

Following Bass and Riggio (2006), transformational leaders are considered as mentors, who pay a kind attention to each individual employee's needs for achievement and growth. This kind of individualized consideration is usually practiced in the organization when new learning opportunities are created along with a supportive climate or culture. However, culture could not be taken as a significant factor in this situation as this study did not show any significant relation between organizational culture and transformational leadership on explaining perceived human capital creation. During KM implementation in the manufacturing firms, organizational culture is acting as a barrier (Singh *et al.*, 2006). Further, in most of the manufacturing firms except large private firms, there is no separate department or cell for KM. All employees responsible for KM pursue these activities as an additional activity. Therefore, the commitment on the KM activities is not up to the level in these firms. This reason causes insignificant role of tactical KM between transformational leadership and perceived human capital creation. Therefore,

transformational leaders are engaging in promoting human capital among employees through communication.

First, it is important to understand communication practices in Indian manufacturing firms. Budhwar (2003) found that 65 per cent of these firms greatly share strategic information and financial information to their management employees; whereas these practices are not seen among 71 per cent of low level employees. As Indian firms are featured by top down communication, it is prevalent that communication happens from immediate superiors. His findings also show that firms communicate their activities mainly through unions, weekly or monthly employee meeting, established quality circles, and suggestion or feedback boxes. Apart from these, increased communication practices are also prevalent in Indian firms through staff bodies and direct contact through verbal and written. From these ways, transformational leaders consider direct face to face communication is a tool to develop higher level of employee's potential. Through which, they personalize the interactions with their employees and aware their concerns. According to Dahle (1954), greater impact is obtained when leaders make face to face communications with employees. Then, they consolidate technical details of the process or methods and projects undergoing on the firms, and distribute to all employees, especially to white-collar employees to improve the technical and general knowledge. Thus, they increase employees' commitment and trust. Trust increases the chances to share knowledge between them. In line with Ulrich *et al.* (1999), commitment increases an individual employee's human capital. Further, it increases perceived human capital creation through improving employees' performance. Therefore, transformational leaders

effectively communicate their employees through formally and informally to develop their follower's capability and commitment.

5.6 The Role of Human Resource Management Factors on the Relationship between Transformational Leadership and Perceived Human Capital Creation

From the findings, it is shown that HRM factors play a partial mediator role and moderator role on the relationship between transformational leadership and perceived human capital creation. Particularly, performance appraisal, career management, and reward strategy play a mediator role, and training performs both mediator and moderator roles between transformational leadership and perceived human capital creation. This study showed that recruitment strategy does not affect transformational leaders' contribution on perceived human capital creation. In Indian manufacturing firms, leaders understand their role on the hierarchical mechanism of the organization, and so they limit their activities on recruitment. In other words, they understand that their work does start from training instead recruitment to improve employees' perception on human capital creation.

There are more chances to explain the mediation role of training on the relationship between transformational leadership and perceived human capital creation through organizational learning and innovation aspects. In this regard, it should be noted that transformational leaders are more focused on development of employees or followers, and are stimulating their intelligence to contribute on firm's innovation (Barczak and Wilemon, 1992; Aragon-Correa *et al.*, 2007). This is achieved from following a path that motivate and inspire their employees by providing meaningful and challenging work

through creating a vision. Therefore, transformational leaders perceive that they have the role of coordination rather than command and control (Barczak and Wilemon, 1992). Thus, carrying out challenging or risk-taking activities, developing required knowledge, skills, and competencies of employees are in the hands of these leaders. Due to leaders' individualized consideration, they have more chances to understand an individual employee's competencies in the organization. They then recommend employees the ways to acquire the required knowledge and skills, for example, from educational institutes, conferences, or training programs. When employees find that performing work or project is more exciting and challenging or require risk-taking, their willingness to participate in the required training may increase. Training augments return on investment from employees, their wage or salary, and even increases opportunities to participate in high level projects. Due to these reasons, employees' highly perceive their human capital creation in their firms. Surprisingly, employee perceived human capital creation was significantly affected by transformational leadership and training interaction. This demonstrates that transformational leadership by itself is not enough to perceive employees their human capital creation. Therefore, there is a need to undergo training for the execution of challenging task proposed by leaders, and that enables an employee to perceive human capital creation.

For demonstrating the moderating effect of training, researchers are recommending to plot regression of the perceived human capital creation on the transformational leadership at three values of the training (Cohen *et al.*, 2003). The three values of the training are at mean, one standard deviation above the mean, and one standard deviation below the mean. These effects are shown in Fig 5.1 which indicates a strong, positive relationship

between transformational leadership and perceived human capital creation when employees have been provided high training and having more willingness to participate in training. However, positive relationship is observed between transformational leadership and perceived human capital creation when they are provided low training or low willingness to participate in training. Thus, this relationship provides additional support to prove significant interactive effects of transformational leadership and training on employee perceived human capital creation.

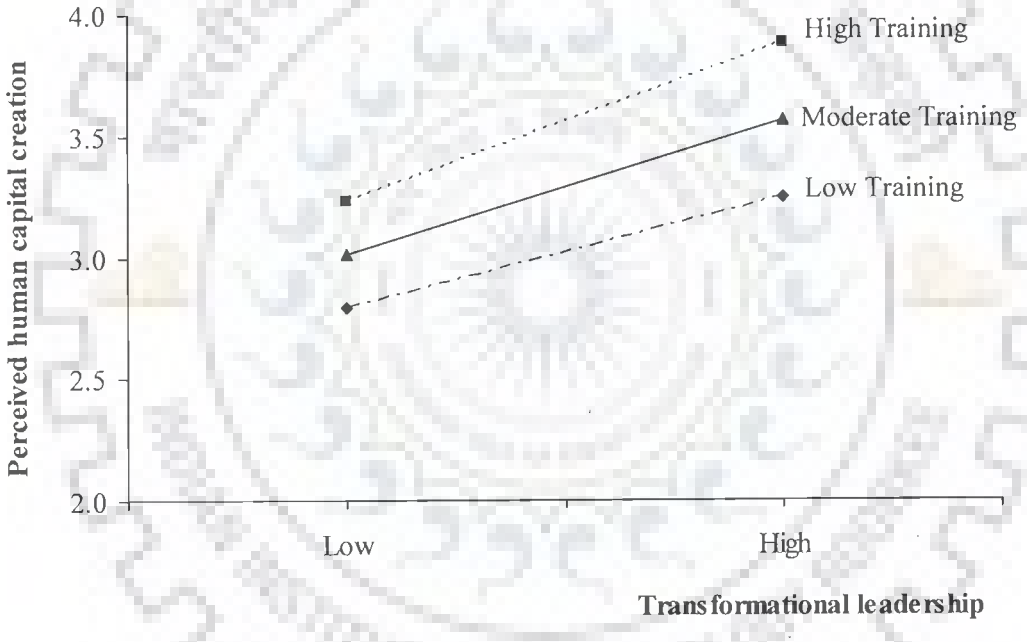

Fig 5.1 Interactive effects of transformational leadership and training

Note: High Training = One standard deviation above the mean of training, Moderate Training = Mean, Low Training = One standard deviation below the mean of training. Low and High transformational leadership indicate one standard deviation below and above the mean of transformational leadership respectively.

One interesting finding is found in this study that transformational leaders have impact on employee's perceived human capital creation through appraising their performance. The relation between transformational leadership and performance appraisal is found in literature, which states that employees are satisfied with the firm's current performance appraisal system when they are guided by transformational leaders (Waldman *et al.*, 1987). However, this study finds that transformational leaders utilize appraisal process to increase employees' perceptions on human capital creation. To improve employee's perception on their human capital, these leaders first communicate their employees clearly that the appraisal process is designed in such a way that its outcome is used to improve the weaknesses and suggest how to overcome those. When it works, employees start to perform better at their work or try to give more than demanded from their job. To facilitate this process, these leaders make changes in the appraisal instrument to add relevant aspects to measure employee's behavior. By utilizing their inspirational motivation and individualized consideration characteristics, transformational leaders initiate performance related discussions with employees for delivering better work. Due to these ways of leaders' involvement on performance appraisal, employees feel more perceived human capital creation.

By involving in employee's career management, transformational leaders also affect employees' perceived human capital creation. According to Bass and Riggio (2006), transformational leaders significantly pay a unique kind of attention to each individual's needs for achievement and growth in their career by acting as a coach or mentor. As a result, employees realize a sense of increased competence to carry out given work activities because of leader's mentor acting. These provide employees an opportunity to

participate in high valued project to further advance their career. Finally, employees feel that their personal or formal career needs are being met. When employees find that career advancement in the present organization is more beneficial, they start to feel strong commitment to their organization (Bass and Riggio, 2006). Therefore, committed employees perceive high human capital creation when their transformational leaders act as mentors.

Another interesting finding is found in this study that reward strategy mediates the relationship between transformational leadership and perceived human capital creation. Bass (1999) referred to contingent reward as an important behavior of transactional leaders. Though, the positive association between reward and transformational leadership is also found in the literature (Goodwin *et al.*, 2001). Reward, particularly contingent reward is awarded to employees for the exchange of completing the assigned task. Transformational leaders involve in negotiating for rewards with employees for their good performance. Even though rewarding employees is argued with transactional leaders, transformational leaders' charismatic behavior set a challengeable, meaningful, and obtainable vision. To enabling employees to achieve the set vision, transformational leaders voluntarily involve in rewarding employees by recognizing their behavior through corporate enthusiasm, offering employee award, and offering reward for their competencies. Therefore, the assumption arises among employees that the contributed performance on the vision would surely be rewarded (Goodwin *et al.*, 2001). As a result, the employees' commitment towards organization increases. Simultaneously, the perceptions on human capital creation are likely to be increased due to the improvement in their commitment, salary, and performance.

5.7 Testing the Goodness-of-fit of the Perceived Human Capital Creation Models

For testing the developed theoretical models, assessing the model fit and comparing the proposed model with nested models are essential. Following Van Direndonck (2005) and Aragon-Correa *et al.* (2007), the confirmatory factor analysis is performed to analyze the goodness-of-fit of the proposed models such as

1. The antecedents of perceived human capital creation model,
2. The model of transformational leadership and perceived human capital creation in which KM system factors play a mediator role, and
3. The model of transformational leadership and perceived human capital creation in which HRM factors play a mediator role.

The results of this analysis on each model were shown in Table 4.19, 4.20, and 4.21 respectively. The results of confirmatory factor analyses shown in Table 4.19 recommend that the theoretical antecedents of perceived human capital creation model as a better fitting model in terms of goodness-of-fit indices (ψ^2 = 4926.53, df = 2024, AIC = 5300.53, NNFI = 0.96, CFI = 0.96, NFI = 0.93, RMSR = 0.055, RMSEA = 0.055). Results also indicate that the antecedents of perceived human capital creation model is the best among others, for example, if comparing chi-square and AIC values of this model with six-factor model, there are significant differences observed ($\Delta\psi^2$ = 688.19; ΔAIC = 620.19). The similar differences are also found with other models. Therefore, confirmatory factor analysis supports the antecedents of perceived human capital creation model. The results of confirmatory factor analyses on the model of mediating role of KM system factors shown in Table 4.20 recommend that the theoretical KM system factors mediating model as a better fitting model in terms of goodness-of-fit indices (ψ^2 =

1570.09, df = 457, AIC = 1712.09, NNFI = 0.94, CFI = 0.95, NFI = 0.93, RMSR = 0.059, RMSEA = 0.072). Results also indicate that the KM system factors' mediating model is the best among others, for example, if comparing chi-square and AIC values of this model with the fifth model (no relationship between communication and perceived human capital creation), there are significant differences observed ($\Delta\psi^2 = 47.04$; $\Delta AIC = 45.41$). The similar differences are also found with other models. Therefore, confirmatory factor analysis supports the model of mediating KM system factors in between transformational leadership and perceived human capital creation.

The results of confirmatory factor analyses on the model of mediating role of HRM factors shown in Table 4.21 recommend that the theoretical HRM factors mediating model as a better fitting model in terms of goodness-of-fit indices ($\psi^2 = 1908.97$, df = 768, AIC = 2094.97, NNFI = 0.96, CFI = 0.96, NFI = 0.93, RMSR = 0.056, RMSEA = 0.056). Results also indicate that the HRM factors' mediating model is the best among others, for example, if comparing chi-square and AIC values of this model with the sixth model (no relationship between career management and perceived human capital creation), there are significant differences observed ($\Delta\psi^2 = 23.08$; $\Delta AIC = 21.08$). The similar differences are also found with other models. Therefore, confirmatory factor analysis supports the model of mediating HRM system factors in between transformational leadership and perceived human capital creation.

Chapter 6

CONCLUSIONS, SUGGESTIONS, AND FUTURE RESEARCH

6.1 Conclusions

Human capital is the source of competitive advantage, and immensely supports firms for their sustainability in the global turbulent and dynamic market environment. Due to the importance of human capital, managers and researchers involving in the field of HRM and KM constantly try to identify the developmental or creational process of human capital. Previous studies have focused human capital as one of the financial variables within the firms. Limited research studies exist in the literature of human capital development and management, which focused through employee's perception. Therefore, a need arises to study the antecedents of employee perceived human capital creation.

In this direction, this study involved in a systematic literature review conducted on human capital creational practices and factors, and clearly showed the lack of studies in the human capital domain. Most of the literature described human capital as financial aspects (Bontis and Fitz-enz, 2002) and employee's age, education, rank, and tenure (Lin and Huang, 2006; Wayne *et al.*, 1999). In addition, literature review immensely supported to identify the relationship between human capital and HRM factors, KM system factors, and leadership factors. Consequently, it was identified that HRM factors, KM system factors, and leadership factors are the antecedents of perceived human capital creation. The relation between these factors and perceived human capital creation required to be empirically examined further. In this direction, research methodology was designed to achieve the following objectives:

1. To study the current practices intended to create human capital in Indian manufacturing industries and the antecedents of employee perceived human capital creation,
2. To develop an integrated model for relating the antecedents such as recruitment strategy, training, performance appraisal, career management, reward strategy, tactical KM, communication, organizational culture, transformational leadership, and interim leadership, with employee perceived human capital creation and empirically examine the developed model,
3. To examine the differences of organizational HRM factors, KM system factors, leadership factors, and employee perceived human capital creation between private and public firm employees,
4. To identify the underlying patterns or factors behind organizational HRM, KM system, leadership, and perceived human capital creation measures. Additionally to examine the factors' relations with employee gender and human capital variables (age, education, rank, and tenure),
5. To examine the role of KM system factors (tactical KM, communication, and organizational culture) on the relationship between transformational leadership and perceived human capital creation, with a particular focus on testing the mediation and moderation models,
6. To examine the role of HRM factors (recruitment strategy, training, performance appraisal, career management, and reward strategy) on the relationship between transformational leadership and perceived human capital creation, with a particular focus on testing the mediation and moderation models, and

7. To test the goodness-of-fit of the above proposed models and give some recommendations to manufacturing industries in regard of creating human capital.

The carried out detailed systematic literature review and discussions held with managers and academicians, who are involved in HRM, KM, and HCM supported to achieve the objective 1. Following this, the scales were developed to find the antecedents through preliminary study conducted among 30 managers and pilot study conducted among 120 managers and engineers. After establishing valid scales, data were collected from 470 middle and top level management employees working in Indian manufacturing firms, who had high value and unique human capital and interim leadership experience. From the collected data, hierarchical regression analysis (HRA), simple regression analysis, paired t-test, exploratory factor analysis, correlation analysis, and confirmatory factor analysis were carried out to accomplish remaining objectives.

The HRA found that organizational culture, communication, tactical KM, interim leadership, transformational leadership, recruitment strategy, training, performance appraisal, reward strategy, and career management are the antecedents of perceived human capital creation. Among these antecedents, career management explained over 36 per cent of the variance on perceived human capital creation. After classifying the data into private sector and public sector employees, paired t-test was used to compare these employees. It revealed significant differences between these sectors as these sectors carried out different strategy to create human capital.

Then, factor analyses were conducted to find the valid structure of HRM, KM system, leadership, and perceived human capital creation measures. These resulted in that HRM measures comprised of valid factors namely reward strategy, career-oriented training,

performance appraisal, recruitment strategy, career management, and performance-oriented training; KM system measures comprised of valid factors namely problem solving approach, communication-oriented culture, tactical KM, and innovation-supportive culture; Leadership measures comprised of valid factors such as transformational leadership and interim leadership; and perceived human capital creation was an unidimensional construct. Further, regression analysis was conducted to find the association between the identified factors and employee's demographic characteristics. The factor, reward strategy was positively related to employee's age and rank. Career-oriented training had positive association with employee's rank. Performance appraisal factor was positively related to age, gender, and rank. Recruitment strategy factor carried no association with the employee's characteristics. Career management factor and performance-oriented training was positively associated with employee's age and negatively with tenure. The factor, problem solving approach was positively regressed with employee's age and education. Communication-oriented culture had positive association with gender. Tactical KM had no association with any of the characteristics. Innovation-supportive culture was positively related to age and negatively to tenure. The factor, transformational leadership was positively regressed with employee's age. Furthermore, interim leadership factor was positively relating with employee's age and rank. The perceived human capital creation factor was positively associated with gender and rank.

Further, HRA was carried out to find the role of HRM factors and KM system factors on the relationship between transformational leadership and perceived human capital creation, with the focusing of mediator and moderator roles. It was found that both HRM

factors and KM system factors had significant role on the above relation. Specifically, among HRM factors, performance appraisal, career management, and reward strategy performed as mediators, and training performed as both mediator and moderator in between transformational leadership and perceived human capital creation. Among KM system factors, communication acted as a mediator between transformational leadership and perceived human capital creation. Then, confirmatory factor analyses were carried out to test the goodness-of-fit of the proposed models such as (1) the antecedents of perceived human capital creation model, (2) the model of transformational leadership and perceived HCC in which KM system factors play a mediator role, and (3) the model of transformational leadership and perceived HCC in which HRM factors play a mediator role. These models had satisfied all the cutoff criteria for a good fit of a model. Therefore, all the hypothesized models were confirmed with the collected data and found as best models among alternative models.

6.2 Suggestions for Organizations

The objective of establishing HR department is to invest and implement employee development-oriented practices in the firm so as to reap greater return on investment from them, particularly reducing risk in terms of finance. Many large manufacturing firms already begin to establish human capital department for demonstrating to value their employees. All organizations are constantly striving to implement new practices to develop human capital. However, this study quotes combined HRM, KM system, and Leadership as scales to show the degree at which employee perceives human capital

creation. Importantly, this study identified the impact of HRM factors, KM system factors, and leadership factors on employee's human capital creation.

Making investments on HR planning and staffing practices in a particular firm is positively associated with employee's productivity as it identifies his/her skills and knowledge. Firms, in specific, medium and small, must concentrate on investment in modern techniques to recruit candidates. The relation of training on human capital development augments employee's skills, knowledge, and abilities, and specifically learning occurs and transfers to the job. Therefore, firms, in specific, medium and small, shall sponsor and insist their employees to engage in developmental activities such as participating in workshops, seminars, and conferences to be conducted outside of firm without greatly affecting their productivity. Manufacturing firms must design and include aspects or measures of the appraisal instrument in align with firm's business strategy. Focusing appraisal on future benefits rather past performance would also yield more advantage to achieve competitive advantage. Further, firms should support employee's career management as it improves employee's perceptions on human capital creation. By designing career oriented workshops and counseling, it can achieve workforce commitment. Importantly, devising appropriate reward strategy could also help to motivate their workforces to develop human capital. For that, organizations shall involve in recognizing their employees by providing employee award or written appreciation and showing corporate enthusiasm.

Most important, organizations could create human capital through proper implementation of KM system. Doing this, firms must create awareness programs on use of tactical KM among employees. To support their involvement in KM, creating a supportive culture or

environment within the organization is a must because culture is one of the antecedents of human capital creation. Importantly, to develop human capital, organizations particularly small and medium shall involve in modernizing communication practices like fostering email, internet, and intranet communication because employees use such communication practices which generate unique and new ideas.

Further, organizations could arrange transformational leadership development programs for their top and middle level managers. There is empirical evidence that transformational leaders create human capital in their organizations. Finally, firms should implement and organize the interim leadership practices as it directly improves employee's perceptions on human capital creation. Interim leadership consumes no separate timing for leadership development as it could be executed simultaneously with the normal working time of employees.

6.3 Limitations of the Study

Interpreting the findings of the analyses is constrained by certain limitations of the study. First, variation between the sizes of public sector firms is the concern for these findings. But it is justifiable because of rare existence of public owned small and medium firms in India. Second, a cautious approach is required to generalize the results of gender relationship with performance appraisal, communication-oriented culture, and perceived human capital creation factors because of the ratio of male to female. This ratio is also justifiable since the study is conducted in the male dominant Indian manufacturing environment. Third, the studied sample is not much large, and therefore, being cautious is required to elaborate the findings to all Indian manufacturing firms. However, this sample

size is comparatively adequate to represent the high value and unique human capital in Indian manufacturing industries, because of the poor response rate of manufacturing employees. Finally, cautions are required to generalize these findings to other uncovered organizations because of socio-economic variations between various political states.

6.4 Future Research

HCM is generally a vast area to conduct research. However, this research study carries some more possibilities to conduct or extend this research further. This study was carried out in Indian manufacturing firms, and further study could be conducted in service industries and software industries too. Doing so, intricacies of the implementation of human capital creational factors and variations among these industries could be realized.

This study has ended with perceived human capital creation. By integrating value and uniqueness of human capital, it could be extended further. This was also researched in this study but only on its surface. Further, linking leadership factors with tactical KM could also reveal some more appealing results in any industries.

This study excluded human capital variables such as employee's age, education, rank, and tenure. Interestingly, further research is also possible for analyzing the role of transformational leadership and interim leadership in the relationship between human capital variables and perceived human capital creation.

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Appendix I

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

DEPARTMENT OF MANAGEMENT STUDIES

Dear Participant,

You are the most important intangible asset or human capital in your organization. You are the main reason for your organization to capture a valuable position in the market in terms of competitive advantage, profitability, and productivity. Human Capital Management (HCM) is responsible for a broad range of activities, including identifying and recruiting the best available talent and partnering with managers to retain, develop, and motivate employees to reach their fullest potential. We are here to explore the impact of your organizational human resource management factors, knowledge management system factors, and leadership factors on your perceived human capital creation.

In this direction, the attached questionnaire is a tool to help us understand your perceptions on the above said factors as you have work experience in the organization. This tool is the outcome of past thorough literature and discussions held with human resource and knowledge management professionals. Your responses will add value to our research as well as to the literature of the human capital development. So please indicate your views by circle the appropriate number provided against each statement and **please do answer interim leadership if you have such experience, otherwise do not.** Confidentiality will surely be maintained and the aggregate responses shall only be used for academic purposes.

Thanks

Birasnav Muthuraj & Dr Santosh Rangnekar

Department of Management Studies, IIT Roorkee
Roorkee – 247 667, Uttarakhand, India
birasnav@gmail.com

PERSONAL INFORMATION

Name:	
Age:	Gender :
Education:	
Name of your organization:	
Total number of employees working:	Job Position:
Experience in the present job:	Total years of experience:

Please answer all the statements of the following Human Resource Management measures by circling the appropriate response of stating what you feel is true of yourself or organization.

1 Recruitment strategies attempt to hold on to the best talent

Definitely true	Probably true	Do not know	Probably false	Definitely false
5	4	3	2	1

2 Creation of new job position for new talents

Greatly in existence	In existence	Not sure	Barely in existence	None in existence
5	4	3	2	1

3 How well developed recruitment strategies are able to attract talents?

Completely	To a great extent	To some extent	To a little extent	Not at all
5	4	3	2	1

4 Generally, money spent in selecting a talent in a given job

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

5 Selecting a best candidate for a job is

Very important	Moderately important	Somewhat important	Slightly important	Not at all important
5	4	3	2	1

6 Time taken to select talents for critical & sensitive projects

Very long	Long	Fair	Short	Very short
5	4	3	2	1

7 Organization sponsors employees to attend workshops and conferences

Definitely true	Probably true	Do not know	Probably false	Definitely false
5	4	3	2	1

8 Availability of training facilities to meet the requirements of my job

Greatly in existence	In existence	Not sure	Barely in existence	None in existence
5	4	3	2	1

9 I am very keen to attend training program

Completely	To a great extent	To some extent	To a little extent	Not at all
5	4	3	2	1

10 To gain knowledge & qualification, organization sends employees to educational institutes

Definitely true	Probably true	Do not know	Probably false	Definitely false
5	4	3	2	1

11 Appropriateness of the given training

Completely	To a great extent	To some extent	To a little extent	Not at all
5	4	3	2	1

12 Time spent on for a training program

Very long	Long	Fair	Short	Very short
5	4	3	2	1

13 I consider appraisal process as an opportunity to overcome my weaknesses

Definitely true	Probably true	Do not know	Probably false	Definitely false
5	4	3	2	1

14 On average in a year, organization appraises our performance more than once

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

15 To what extent are your performance-related discussions useful?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

16 Organization's performance appraisal system is

Excellent	Very good	Good	Fair	Poor
5	4	3	2	1

17 Sources of collecting feedback about my performance in the organization are

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1

18 The aspects used in my performance appraisal

Strongly relevant	Relevant	Undecided	Irrelevant	Strongly irrelevant
5	4	3	2	1

19 How many different kinds of career oriented workshops you attended in your organization?

Very many	Many	Moderate	Few	Very few
5	4	3	2	1

20 To what extent do you give importance to your career exploration?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

21 To what extent you have undergone job rotation to gain cross-functional experience?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	5	5	5	5

22 How confident you are that you reach your career goal?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

23 How often you inform superiors about your interests, skills, and accomplishments?

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

24 To what extent the offered reward in your organization motivated you to participate in a team

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

25 Impact of reward on your competency

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1

26 How much importance given to reward your risk-taking?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

27 Offering best employee award

Greatly in existence	In existence	Not sure	Barely in existence	None in existence
5	4	3	2	1

28 How often does top management appreciate your work on doing something new?

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

The statements from 29 to 34 are related to interim leadership. Please answer all if you have interim leadership experience, and otherwise, answer statements from 35 to 42 by circling the appropriate response of stating what you feel is true of yourself or organization.

29 To what extent your organization do/did give importance to your proposed ideas

a great deal	quite a lot	a fair amount	a small amount	Very little
5	4	3	2	1

30 I do/did manage the department or unit

Very smoothly	Smoothly	Moderate	Roughly	Very roughly
5	4	3	2	1

31 Criterion to identify the interim leader in your organization

Very well	Well	Moderate	Poor	Very poor
5	4	3	2	1

32 You are/were given full power and authority to exercise

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

33 How much importance do/did you give to interim role?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

34 Though this role is an additional responsibility, I do/did not blame my leader's absence

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

35 My leader clearly informs me the work to be done

Completely true	Probably true	Do not know	Probably false	Completely false
5	4	3	2	1

36 I feel I am motivated by leader's solution to solve a work-related problem

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

37 My leader's guidance enables us to trust him

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

38 How often you meet your leader to derive solutions for work problems?

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

39 I feel my leader sets a challenging goal

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

40 The way my leader executes his/her power and authority

Very good	Good	Neither good nor bad	Poor	Very poor
5	4	3	2	1

41 The way your leader seeks you to solve job-oriented problem

Very new	New	Medium	Old	Very old
5	4	3	2	1

42 How frequent your leader communicates the goals and priorities of the organization

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

Please answer all the statements of the following Knowledge Management System measures by circling the appropriate response of stating what you feel is true of yourself or organization.

43 We discuss the new developments of our work-related activities

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

44 I daily utilize knowledge resources such as research papers and magazines for my project

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

45 How often your superiors share his/her work experiences written manual with you?

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

46 How often are experts who possess missing knowledge invited for interactions?

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

47 It is usual in my organization that one team adapts other team's knowledge to solve their problems

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

48 I feel I have no hurdles to have work discussions in the organization

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

49 My organization always insists to perform task precisely with details

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

50 To what extent your organization allows you to take decisions freely?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

51 How much priority your organization given you to carry out challenging work activities?

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

52 I see lot of innovative changes in the production methods of my organization

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

53 To what extent your organization considers you in an important decision

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

54 Organization provides every one equal opportunity for development

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

55 The support given to improve your knowledge in your organization is

A great deal	Quite a lot	A fair amount	A small amount	Very little
5	4	3	2	1

56 Safety instructions to handle machines and materials and precautionary actions are conveyed

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

57 Organization disseminates information about management activities to us

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

58 Organization also receives feed back from us about their activities

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

59 Internet facilities facilitate us to gather more information

Always	Frequently	Sometimes	Rarely	Never
5	4	3	2	1

60 Intranet helps me to access relevant information for my work problem solving

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

61 Management formally seeks employees opinions before taking most significant decisions

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5	4	3	2	1

Please answer all the statements of the following Perceived Human Capital Creation measures by circling the appropriate response of stating what you feel is true of yourself.

62 The return I give is more than what organization invested at me

Definitely true	Probably true	Do not know	Probably false	Definitely false
5	4	3	2	1

63 Chances of considering me as a future leader

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1

64 My authority and status nowadays

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1

65 Participation in a team which carries out high profile project

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1

66 Comparing last year, my earning in this organization

Increased Greatly	Increased	No Change	Decreased	Decreased Greatly
5	4	3	2	1