The sustainability of the growth of educational sector depends on the degree of importance given to human resources. The appropriate knowledge management practices adopted by all departments of Self-financing engineering colleges remain the driving force behind the rapid growth of knowledge. This also helps in recognising and overcoming crucial challenges faced by the industry.

Over the past ten years, knowledge management has progressed from a prominent topic to an increasingly common function within organizations. To improve organizational performance and to compete successfully in global markets, organizations need to have effective knowledge management. Knowledge training and development, Knowledge assessment and management, Career growth, Human resource development, Knowledge management process capability have been identified because of practical problems that have already occurred, or are currently occurring in many organizations. Although the need to manage knowledge efficiently is generally accepted, knowledge management is still an intangible concept, and much of the literature continues to explore these intangible issues (Darroch & McNaughton, 2002). Up to now, the effect of knowledge management has not been clearly defined or understood. A lack of a proper framework for assessing the current status of knowledge management has cast doubt over the basic concept itself. Examining
the emerging theories, models and frameworks for knowledge management is a primary reason for selecting this topic area and offering a critical analysis of the literature. It follows that it is significant to understand critical success factors and the contexts in which they have been presented to date. Therefore, there is a strong rationale for the presentation of the review of the literature that follows. This literature review provides an overview and a critical analysis of related theoretical and empirical literature about the relationship among Knowledge Training and Development, Knowledge Assessment and Management, Career Growth, Human Resource Development, Knowledge Management Process Capability.

Also, this literature review serves to establish a theoretical framework for this study and the research questions to be answered and the research hypotheses to be tested.

3.1 KNOWLEDGE TRAINING AND DEVELOPMENT

Charles W. Read, Brian H. Kleiner (1996) in their study sought to replicate the importance of knowledge training and the importance of learning theory. Ten learning methods were identified to be the best namely videotapes, lectures, one-on-one instruction, role plays, games/simulation, case studies, slides, computer-based knowledge training, audiotapes and films. The study also detailed on the factors considered for selecting the knowledge training method
and the various ways of evaluating the trainees after completing the program.

Mark Stam, Eric Molleman (1999) highlighted the role of career development and strategic knowledge training policies among IT companies and young IT professionals. The study examined the ability of the IT professionals to integrate the business processes, strategic issues and handling information technology. Organisations were expected to plan both for short and long term, quantitatively and qualitatively for IT professionals by means of strategic knowledge training policy and being a part of the learning organisation sharing knowledge.

In a comprehensive study Abdelgadir N. Abdelhafiz Elbadri (2001) attempted to examine the emphasis given for knowledge training activities both internal and external to maintain competitiveness in the market. The study was conducted among 30 Polish companies to determine the knowledge training needs, developing programs and assessing outcomes. The results revealed that many companies neglected to assess knowledge training needs and evaluate outcome properly, providing for suggestions and improvements.

The article by Shawn Kent (2001) examined the values of Mentor system prevailing in the organisations. The employees who
became more productive, derived greater career satisfaction and enjoyed accelerated career growth were identified. Mentoring was considered to be a mutually advantageous way to both attract and retain employees. Mentoring programs were inexpensive, to inspire future leaders, improve management and staff relationship and prepare people to succeed an aging workforce. Mentors could provide just in time, development to those employees aspiring to grow.

Susan Geertshuis, Mary Holmes, Harry Geertshuis, David Clancy, Amanda Bristol (2002)[46] in their paper supported the earlier work to implement good practices in knowledge training and its evaluation. The learning process is influenced by multiplicity of factors based on perceptions about learning and knowledge outcomes. Organisations were expected to implement cost effective evaluation methods acknowledging the status of the learner. The study also examined the evaluation methodologies and the role played by the trainers in improving learning process.

S.A. Mufeed, Rafai Syed Nasreen (2003)[47] in their study attempted to ascertain the perceptions of both managerial and non managerial staff towards the existing Knowledge training and Development programme in leading J&K Tourism Development Corporation. The objectives included identification of Knowledge training and Development needs, evaluating the perception of Knowledge training and development as perceived by the employees,
to study the factors responsible for non effectiveness of Knowledge training and Development system and to formulate broad guidelines and suggestions for improvement. The survey result showed that both managerial and non managerial staff knowledge training and development programme should have an important role to accomplish organisational objectives and effectiveness.

The study by Punam Sahgal and Roopashree Shankar (2003)\[^{48}\] was undertaken to gain deeper insight into critical areas related to the knowledge training and development function and the evolving role of knowledge training professionals. It was identified that the organisations rely on external knowledge training providers for a variety of services while the practice in most companies is to seek support from knowledge training vendors for design and delivery of knowledge training. The market for soft skills and IT knowledge training has outpaced the demand for functional knowledge training.

The study by Thomas Acton and Willie Golden (2003)\[^{49}\] identified the need to manage the IT workforce as it was the most important strategic asset. Companies providing for knowledge transfer within the organisation minimises the loss of skilled employees. The survey was conducted among 200 employees from 39 software companies based on the membership of the Irish Software Association, Ireland. The impact of knowledge training practices on employee retention, the knowledge training initiatives taken, the
knowledge training practices in use and that influence on knowledge retention were studied. The results showed that the knowledge training had a greater impact on competency development and retaining knowledge.

Amitabh Deo Kodwani, Manjari Singh (2004)[50] conducted a study to understand current knowledge training and development policies and practices of a public sector enterprise and critically analyse them and to find scope for further improvements to make them more effective. It was concluded that the knowledge training and development to be more effective, to improve individual and organisational Knowledge, the perception regarding effectiveness of knowledge training should be made positive.

Laila Marouf and Sajjad ur Rehman (2004)[51] in their paper intended to explore policies, strategies and opportunities relating to human resource development. The survey relating to induction and orientation program was conducted among 30 Kuwait corporate companies’ information professionals. It was concluded that almost all companies provided for intensive knowledge training programs.

The article by Ravindra K Jain and Richa Agrawal (2004)[52] elaborated on the importance of Knowledge training. In order to achieve organisational effectiveness in the current trend, a systematic approach to Knowledge training in almost all the organisations was
emphasised. Knowledge training was used as a catalyst for change and an aid to give the organisation competitive edge. The knowledge training practices were significantly different in different countries and similar within specific country. To have sustained growth the organisations were expected to have continuous innovation programs and knowledge training and development practices to remain in the competitive world.

Sashibhusan Rath (2004)\textsuperscript{53} in his article highlighted the business theory comprising three parts consisting of assumptions about the environment of organisation, specific mission and the core competencies required to accomplish organisations’ mission. Knowledge as an asset supercedes all other assets material and financial contributing to the organisational efficiency. Core competencies amongst employees were to be developed nurturing growth of the individual and the organisation. Organisations by cultivating creativity, innovation and through knowledge management could differentiate themselves by being a Learning Organisation.

In their study Stanley E. Fawcett, Gary K. Rhoads, Phillip Burnah (2004)\textsuperscript{54} strongly recommended that the competitiveness of any organisation depends on the nature of people they hire and train. The management should build a learning workforce, a great work environment and a culture of empowerment. This multi method research study was undertaken using both primary and secondary
research techniques. The findings of the study revealed that a good working environment should include compensation for true value of the individual, exceptional facilities, facilitative culture, good relation with management, flexibility, investment in employee competencies.

Subarna M Tuladhar, (2004)\textsuperscript{55} has identified the significance of Knowledge training in his article. Knowledge training provides trainees with learning opportunities to enhance their effectiveness to contribute to organisational Knowledge. It has been found that Knowledge training was a systematic arrangement of learning experiences in the pattern which would provide most learning in the shortest possible time. Identification of knowledge training needs, formulation of objectives, designing knowledge training, implementing knowledge training and assessing its effectiveness were identified as five components of a systematic knowledge training approach.

Alan Sweeney (2005)\textsuperscript{56} highlighted the IT skills gap existing in the organisation and promote knowledge training and development as a solution. The target audience was kept in mind and usage of third party knowledge training to plug in skill gaps was considered. The resultant improvement was identified in the form of reduced IT skill gaps between required and acquired skills.

Carol Rainsford, Eamonn Murphy (2005)\textsuperscript{57} explained the issues relating to the impact of technology enhanced learning in
industrial setting in Ireland. Seven companies participated in the study depicting the experience of implementing technology enhanced learning. The findings include holistic approach to implementing technology enhanced initiatives in terms of learner acceptance, relevance to the job and the effectiveness of knowledge training practices.

The objective of the study by Michael Graham (2005) was to examine the shortage of IT skills and ways of combating it. The methodology covers the identification of knowledge training needs, assessment of available skills and willingness of the employees to embrace knowledge through learning. The study concluded with organisations formulating an on-going process of IT knowledge training to fill the skill shortage.

V.N. Srivastava, M. Shafiq and K. Ghosh (2005) in their paper discussed the recent trends in knowledge training process making the program more practical and relevant. Organisations were required to continuously improve upon the design, content and delivery of knowledge training programs. The study had focused on talent management making a positive change in attitudes and mind sets of people. The paper also discussed the Knowledge management process, linking knowledge training and development goals with Knowledge management reducing growth gaps. It has been concluded
that continuous improvement of knowledge training efforts leads to higher Knowledge.

The paper by S. Yuvaraj (2005)\textsuperscript{[60]} highlighted the various factors affecting the effectiveness of knowledge training programmes. It analysed the various reasons for the success or failure of a knowledge training programme. The study emphasised the significant role played by the trained workforce. Indian Industry facing the fast development track should adopt updated knowledge training techniques to keep pace with the change. The study also identified that the success of the knowledge training program depended on the selection of right type of participants, the knowledge training faculty and methodology used. The results showed the reasons behind effectiveness of knowledge training programme and encouraging companies to organise and evaluate quality knowledge training programs.

Narasimha Rao (2006)\textsuperscript{[61]} in his study focused on Knowledge Training and Development of Human Resource in selected public and private sector undertakings. The objectives set for the study were to examine the knowledge training practices in selected public sector undertakings and to study the perception of managers about the usefulness and techniques used in knowledge training. The respondents felt that knowledge training was essential for individual growth and development to enhance productivity. It was concluded
that the top management of the selected organisations realised the importance of knowledge training and its impact on the managerial people

3.2 KNOWLEDGE ASSESSMENT AND MANAGEMENT

John E. Dittrich, J. Daniel Couger and Robert A. Zawacki (1985)\textsuperscript{[62]} conducted a study among 963 systems analysts and programmers and 261 operations employees from nine companies collecting data through questionnaire. The questions included perceptions of fairness (equity), job satisfaction and intention to quit. The study showed that fairness factor was considered as a significant individual variable with respect to job satisfaction for both groups. Intention to quit was strongly related to perceptions of equitable treatment. The management had a direct control over the key factors affecting job satisfaction and intention to quit.

The article by John M. Ivancevich, H. Albert Napier, James C. Wetherbe (1985)\textsuperscript{[63]} investigated the concepts of occupational stress, Type A behaviour pattern, work attitudes, health symptoms and health behaviour among information systems personnel. Type A behaviour pattern was identified to be significant moderator for some stressor criterion associations. It has been concluded that more managerial understanding of the person’s environment fit in general and individual employee predisposition toward Type A behaviour in particular to nurture and maintain healthy work environment.
Nelda Spinks, Barron Wells, Melanie Meche (1999)\cite{64} in their research paper examined the role of appraisal and its impact on productivity and effectiveness. The appraisals were identified to be beneficial to both employers and employees. The study found that there were always ways of improving the available knowledge. The evaluation of the leading software programs and comparison of the features were done. It was concluded that the products gave structure to the process and make appraisal easier.

Jay M. Jackman and Myra H. Strober (2003)\cite{65} in their article highlighted the importance of feedback reviews both positive and negative and its impact on the relationship between the superior and subordinate. Organisations should provide employees the opportunities to adapt to changes and change accordingly. The study also emphasised on Self assessment and feedback from superiors which guides the employees to develop faster. The organisations tried to follow adaptive techniques having a positive impact on the executives’ development and leverage feedback.

Dilip Dasgupta (2004)\cite{66} in his article identified that only through the Competent and Potential employees an organisation could maintain its sustainable competitive advantage. It was observed that competency-based HR management aids Knowledge management and career progression planning in an organisation. It was confirmed that
by developing right attitude, the skills and knowledge of the employees were automatically and effortlessly upgraded

Lisa Bryant, Denise A. Jones and Sally K. Widener (2004)[67] in their paper investigated the relationship that existed among multiple Knowledge measures to determine how they understand the creation of firm value. The designing of Knowledge measurement system was supposed to consider all aspects of the business, not just the financial results. The data from 125 firms over a five year period were used to measure the outcome. The findings showed that the value creation process was better in all higher level BSC perspectives.

The article by K Raghavendra Rao (2004)[68] emphasised the different dimensions of rewarding the employees working for different types of organisations. Drastic changes have taken place in reward system since globalisation. Rewarding the right people at the right time in the right way enhances their contribution to the organisation in terms of productivity. Organisations should identify the sensible Knowledge indicators used to measure the employees Knowledge. Industry standards were taken into account for fixing the rewards and compensation in various organisations to retain talent.

The article by Shyamal Majumdar (2004)[69] highlighted the various aspects of pay and the ways to retain best performers. In addition to usual monetary rewards acting as a hygiene factor,
lifestyle benefits like flexitime, creches, travel overseas were provided. Some companies follow the system of variable pay package which is Knowledge related. It also depended on the employee value proposition. Talented people choose to remain in those companies which could provide exciting work, a great company, attractive compensation and opportunities to develop.

Anil Norohia (2005)[70] in his article deals with organisation transformation relating to establishing future goals, developing individual competencies to align with organisational goals. The success of an organisation was determined by applying knowledge to practice skill, to achieve desired results. It was ascertained that the culture in the organisation should harness the inherent talents and competencies of individual employees focusing on organisational requirements.

The article by Anil Kumar C. S., Sandeep K. Krishnan (2005)[71] examined the critical issues of work life balance of new age professionals. Their emphasis on work life and inability to find time to spare on other facets of life were drastically affecting the social and personal life of the IT professionals. These factors had a negative impact on the work Knowledge increasing stress level. The new age knowledge work demands stretch beyond normal office hours leading to work stress. The study also identified that the Indian scenario as more prone to work life imbalance with growing IT business. It has
become imperative to solve this with sound planning on the part of the individual through work scheduling and compartmentalising activities.

Aradhana Khandekar, Anuradha Sharma (2005)[72] in their article investigated the role of human resource capability (HRC) in organisational Knowledge and sustainable competitive advantage (SCA) in Indian global organisations. The findings of the study proved that human resource capabilities are positively correlated to organisational Knowledge and considered as a significant predictor of sustainable competitive advantage.

Guido M J de Koning (2005)[73] in his article tries to identify the flaws inherent in two of the most common Knowledge evaluation approaches and to discuss two evaluation methods to give positive results. The components of any PMS included the way by which the company captures, quantifies, measures or evaluates employee Knowledge, to find the link between Knowledge and rewards, the range of rewards offered, (financial recognition, growth opportunities), company’s plan for developing employee competence. The study suggested establishing a Knowledge driven culture in the organisation.

The study by J.S. Gunavathy, Vidhya Jayaraman (2005)[74] serves as a dip-stick survey to have an understanding about the employees’ views on the 360 degree appraisal system prevalent in the
organisations. The objectives of the study included the perspectives of employees' views on 360 degree feedback system relating to its merits and de-merits. It has been concluded that this method of Knowledge feedback leads to the growth and development of employees. Even though it was identified to be an effective Knowledge measurement tool, getting effective appraisals is a difficult task.

Jai Yashwant Advani, Sarang C Jagdale, Ajay Kumar Garg and Rohtas Kumar (2005) conducted a study amongst different Software Professionals working for four Indian software firms. The paper focused on the factors influencing Knowledge of the individuals in this industry. The study was tested using structural equation model. The perception of higher level of organisational politics was identified as the major reason for burnout and higher level of coordination, expertise in teams reduced the burnout.

Kun Chang Lee, Sangjae Lee and In Won Kang (2005) provides for a new metric, knowledge management Knowledge index (KMPl) for measuring the Knowledge of a firm in its knowledge management at a point of time. The logistic function (KPMI) had five components to determine the knowledge circulation process (KCP). Knowledge creation, knowledge accumulation, knowledge sharing, knowledge utilisation and knowledge internalisation were those components. With the increase in KCP efficiency KMPl was also supposed to increase enabling firms to be knowledge intensive. The
findings represented proposed KPMI could depict KCP efficiency, and the three financial Knowledge measures were also useful.

Michael Jairaj (2005)\cite{77} in his paper empirically examined in depth the competency management and consequent normalisation of Knowledge indicators in an IT company. The sample comprised 12 lead managers and 40 developers. Standards provided baseline for measuring and also to find the gap between actual and expected Knowledge. Identifying and managing normalisation through structured methodology was initiated in all units of enterprise. The four segments of Knowledge indicators namely Technical, Behavioural, Skill and Forced Ranking were taken as the base. It was concluded that technical review with Knowledge indicators as a framework was to be carried out for the development of the employees.

The study by Ravindra Jain, Sachin S. Kamble (2005)\cite{78} was designed to evaluate the effectiveness of existing Knowledge management (KM) with reference to selected manufacturing organisations. The objectives were to explore the extent to which the various KM Design/Content Variables, Process variables and Outcome Variables could be taken care of by selected organisations and to examine the cause effect relationship of the three independent variables on the overall effectiveness of KM (dependent variable). It has been concluded that the effectiveness of KM depended on the
implementation of the HRD components and there existed a positive correlation among dependent and independent variables.

The paper by Sachin S. Kamble (2005)\textsuperscript{[79]} was designed to discuss the knowledge management of Suchet Industries Ltd. It gives a detailed version of the process and outcome of Knowledge Appraisals. The objectives of the appraisal system included identification of people with promotion potential, determining knowledge training needs and career planning. The study elaborated on the various stages of knowledge management. It was concluded that the Knowledge management has been used as an instrument for improved work culture, personal and organisational development.

Terri R. Kurtzberg, Charles E. Naquin, Liuba Y. Belkin (2005)\textsuperscript{[80]} in their empirical study explored the effect of using e-mail as a communication medium instead of pen and paper while conducting Knowledge appraisals of peers. The study findings demonstrated that evaluators offered more negative appraisals of the peers when using e-mail than the traditional method. This was the result of reduced social obligation in e-mail indicating the effect of socio psychological processes.

The article by Ravi Dasari (2006)\textsuperscript{[81]} relates to one of the major issues faced by the IT companies, employee retention and its impact on Organisational effectiveness. The cost of turnover was high
especially for those high performers. The managers played a vital role in employee retention understanding the nuances. The paper emphasised that smart companies adopt the strategy of hiring employees for their attitude and knowledge training to be given for their skill development. It was also observed that the companies were looking for people with analytical ability, team work, and leadership potential besides innovative skills. The paper explored that companies with strong and adaptive cultures earn a significant premium over their competitors, making the nurturing of such cultures exceedingly desirable. It was concluded that those companies operating with highly adaptive organisational culture were able to reduce their employee attrition.

C.V. Kannaji Rao (2006)\(^\text{[82]}\) in his empirical study evaluated the system of Knowledge management prevailing in Hindustan Ship Yard Ltd.,. Its study objectives were to know about the different kinds of Knowledge managements (KM) existing in HSL and to highlight the perception of both Appraisers and Appraisees on issues relating to KM. It was concluded that the KM in HSL was moderately effective and improvements in the system could derive more benefits for the employees as well as the organisation.

3.3 CAREER GROWTH

Janice M. Burn, J. Daniel Couger and Louis Ma (1992)\(^\text{[83]}\) in their paper deliberated on the problem of brain drain causing chaos in
IT profession in Hong Kong. The major reason behind this was identified to be the decrease of confidence along with other related factors like satisfaction from the present job. This paper attempted to investigate the motivational potential in computing profession. The greater degree of mismatch between motivational potential and growth needs of professionals in computing jobs were the driving force for high turnover and reduced productivity. It was observed that care should be taken to design jobs, future staff development programmes and appropriate compensation packages.

A study conducted by Magid Igbaria and Sidney R. Siegel (1993) examined the relationships between career decisions and directions and a set of independent variables. The variables included job title, demographic variables, role stressors, boundary spanning activities, perceived job characteristics and career outcomes. The data were collected from 348 information systems employees. The results of the study showed that majority had already defined specific jobs they would like to hold in the near future. The four directions for their future career namely IS technical, IS management, business and consultant were clearly defined by them. It was concluded that career decisions and directions were related to some independent variables.

Y. Sriram and Abhijit Bhaduri (1998) in their article tried to highlight the differences that existed in attracting talent across sectors, levels and functions. A common thread seemed to link the
divergent spectrum. It was identified that the companies should try to leverage the urge of employees to learn. Values, work culture, career planning and job designs were extracted as key factors in attracting and retaining talent. Strategies relating to distinguishing high performers, high potential and high effort were to be designed to retain talent. It was found that companies in the mature and growth stage faced the serious challenge of retention and all companies need to provide for succession planning process.

The article by R.R.Nair (1999)\textsuperscript{[86]} assessed the working of the organisation inspiring excellence in its people, Knowledge and organisational processes to gain long term competitive advantage. It involved the continuous process of developing people and creating and sustaining an excellent work environment. Companies are supposed to offer careers and not jobs. The study showed that the provision of mentors (guides or trainers) facilitates new entrants to accommodate them personally and professionally. Well planned knowledge training practices, monitoring Knowledge continuously, developing managerial competence, use of career templates, cultivating learning culture initiate growth of the organisation.

Abhoy K Ojha (2000)\textsuperscript{[87]} conducted a study to examine the impact of demographic characteristics of software professionals on their organisational commitment. The study evaluated the demographic characteristics under two perspectives one being the
effect on turnover behaviour and the other on organisational commitment. The results indicated that the impact of age on organisational commitment was not significant; women seemed to be having higher level of commitment with flexible time schedules. The profile of employees in the software industry especially in India seemed to be different from traditional industry demanding for a good organisational internal system.

The paper by Ranjan Das, Prashant Kumar and Amit Jain (2000) attempted to find the critical challenges that confront managers of developing country, firms and the steps taken by the CEO’s to reposition their organisation. The problems faced were many, including resource inadequacy, unpredictable changes, and insufficient managerial capabilities. A survey based on questionnaire was conducted among the CEO’s of the select leading Companies in India. They realised the vital role played by human talent in shaping the future of the company. They also felt the need to revitalise the HR practices in terms of enlightened recruitment, explicit career path, cultivating ownership mentality, communication rich environment, knowledge training and competitive compensation and benefits. In the future, new business models emphasising capability building taking into account the changes were to be designed to remain in the market.

Naggiar, Julia Leslie (2001) in their paper examined the superior retention strategies that were forced to be followed by
organisations with the shortage of skilled labour, shifting workforce, knowledge based economy. This exploratory study analysed the application of best retention practice in IT organisations. Six factors model was introduced in the organisations to examine the effects which included orientation, knowledge training, career development, motivation, compensation and feedback/evaluation. The findings showed that orientation, career development, non-financial compensation and feedback add to competitive advantage in terms of retention, whereas knowledge training, intrinsic motivational strategies and financial compensation practices avoided dissatisfaction to the workforce. A contingency model suitable to the changes was proposed.

The article by Tony Clancy and Arnaud Andre (2001) attempted to explain people problem in the organisation and the steps taken by firms to improve work atmosphere using latest technologies. Organisations found it difficult to identify the consistent motivating factor. It was identified that money was not the only motivating factor but the companies offering a set of personal and career development opportunities get a chance to retain loyal employees. It was established that star performers could be retained through comprehensive career prospects, a well articulated and consistent Knowledge measurement and reward system. It was concluded that the fundamental shift in employee attitudes and characteristics
compel companies to develop strategies not only to nurture and develop but also to retain best talents.

Abraham Samuel (2002)[91] in his study has given details relating to paradigm shift in the career management with respect to new era organisations. The new employment philosophy calls for career resilience, leading to merger of individual interest with those of company needs. In the changing world, the organisations necessarily need to view career management from a different perspective, to keep the employees motivated. The study has evaluated organisations based on their cost consciousness, flexibility and intellectuality adapting to changes. The urge of the employees to move up fast to grow was also pinpointed.

The paper covers the unique nature of Service industry which has a flat structure. It becomes difficult for the management to provide vertical growth path, over a period of time. It was identified that the employee’s growth hinges largely on his personal attributes – strengths, weaknesses, work style, personal values and interests. It was also observed that the employees’ career growth depended on willingness to invest in time and effort, adding value to the organisation.

The study by Balbir B. Bhasin, Patrick Low Kim Cheng (2002)[92] focused on the pressing problem of shortage of global talent.
It was revealed that having the right person in the right job at right place had become a real challenge to the organisations which was reflected on their revenues. It was noted that countries have started the battle to entice individual having real talents. The problems encountered by Singapore in this respect had been narrated and concluded with the success story of handling the issue.

Rohit Khandelwal (2002) conducted a study among 10 IT organisations in order to develop dominant profile capturing the life interests of Indian IT professionals. Questionnaires were distributed to 136 Software engineers/analysts and project or module leaders/managers. The findings brought insight into dominant life interest of majority as managing people and relationships influence through languages and ideas. The study also included ways of identifying the interest of the knowledge workers and matching it with organisational practices to increase effectiveness were expressed.

Maxwell K. Hsu, James J. Jiang, Gary Klein and Zaiyoung Tang (2003) in their paper supported the earlier work relating to increasing turnover of information systems personnel. This has become a major concern for the Human Resource Managers as it had a greater impact on productivity and efficiency. The paper analysed the factors determining the decision to leave or stay as perceived by the employees. The findings proved that the job security and service
incentives increased the ability of the organisation to retain information systems employees.

Andrew Dutta (2004)\textsuperscript{95} in his study, the author explains the present corporate scenario exhibited in the form of flight of talent, job hopping and quick career achievement posing challenge to the management to retain the competitive asset. It was found that organisations need to follow strategies to retain the employees by reflecting better understanding and changing employee mindsets. This is not intrinsic to the individual but it occurs due to external manifestation of the systemic problem. It is made known that managing employees’ exodus becomes easier with understanding the reason behind employee flight. The paper also examined the necessity of understanding the causes behind the retention problem and finding solutions depending on the nature of the organisation, as they are unique in their own way.

The exploratory study by Jennifer A. Muryn Kaminski, Anne H. Reilly (2004)\textsuperscript{96} examined the link between gender and career and personal outcomes among IT professionals. The gap seemed to be wider in IT arena, at all levels of employment, especially at top level. The data resulted in three general categories, individual career issues (preparation for an IT position, professional goals), elements of the IT work environment (a team based environment, flexibility of hours worked, work versus personal life balance and gender and career
issues in IT). This study concluded with the findings about career development issues among IT professionals. It was proposed that continued trend analysis was suggested in tracking changes taking place within this field.

Rohtas Kumar, Ajay Kumar Garg, Sarang C Jagdale and Jai Yashwant Advani (2004)\textsuperscript{97} in their paper aim at understanding the employee cycle using information gathered through Exit interviews. A holistic overview of employee cycle was developed with qualitative data collected through exit interview. The methodology developed was illustrated taking a case of a Software company in India. Periodic structured surveys and ongoing feedback from employees contribute to understanding the employee cycle and offering better deals and also help to retain and attract talent.

Pallab Bandyopadhyay (2005)\textsuperscript{98} in his paper aimed at comparing traditional industries with that of professionals in the IT industry looking for self defined career and career success. It was found that innovative way of satisfying internal career needs could help in retention of IT professionals. The study observed that the IT industry was contributing enormously to the Indian economy by earning foreign exchange through export of manpower services and product development. The booming Indian IT sector was represented by the growth of software industry.
3.4 HUMAN RESOURCE DEVELOPMENT

The book by T.V.Rao (1990)\textsuperscript{99} elaborates on the various dimensions of HRD. The qualities of the HRD Managers are discussed in detail. The essential qualities required for a successful HRD Manager are that he should be a person of positive thinking, having an urge to learn, with perseverance, initiative, discipline, and communication skills. In short he should possess both Functional Competencies and Managerial Competencies.

Lawrence Loh, Chetan S. Sankar and Wee Yong Yeong (1995)\textsuperscript{100} in their empirical study conducted among 140 IT professionals in Singapore, to develop a conceptual model for job satisfaction vis-à-vis technical or managerial orientation of IT professional’s job. The findings proved that high degree of technical orientation results in perception that moving into management would bring better pay and advancement prospects leading to job dissatisfaction. It was identified that a technical orientation brings a perception that the organisation is a less progressive place emphasising procedures rather than accomplishments.

The article by Mohammad Saeed, Dr. Kamal Kishore Jain (2000)\textsuperscript{101} attempts to find out some HR practices of few top companies of Malaysia in the face of the country experiencing labour shortage. A company’s output quality depends on the input, namely, recruiting right people. The company should know the critical skills
needed by its employees to perform the job. The attributes of the recruits that can be changed through knowledge training and those that cannot be modified should be identified.

Subir Chowdhury (2000)\cite{102} was of the view that the twenty first century leaders’ most valuable asset is the ability to dream. They nurture to make it real. This is not a onetime event but a continuous process. The adequate and faster communication increases the flow of information breaking down hierarchies. Any relevant change properly accepted adds benefits to the organisation. Recently leaders have started adopting multi skilling techniques. The organisation encourages quicker adoption of changes and is expanding internationally taking advantage of globalisation. Crisis management is to be practised to avoid emergency situations. Talent management and effective leadership are the need of the twenty first century organisations.

The paper by Pat Finnegan, John Murray(2002)\cite{103} attempts to examine the human resource management practices in the Software Industry in Ireland, an economy heavily dependent on the Software sector. Two organisations were selected, one with preferred practices and the other with poor practices. A comparative analysis shows that the first company managed software engineers as individuals within groups and the second focused on the management of teams. The study used pluralistic research methods to investigate
human resource practices. It has been concluded that the study proposes team based approach to human resource management.

The study by Sasmita Palo (2002) seeks to examine the various aspects of hiring, knowledge training, motivating, managing and retaining the highly skilled workforce in the IT companies, to identify the role of HR professionals and to find out the nature of HR function (Conventional / Business related activity) performed. The study covered five leading IT companies operating in India. The HR professional plays the role of a mentor, motivator and facilitator. The study results revealed that all the companies comprise multi talented people performing multiple tasks. Those employees create their own opportunities for life-long learning contributing to excellence of organisation. The study proved that the HR professionals were expected to exhibit multi specialty functions to facilitate change processes and to sustain competitive edge.

In his paper P. Subba Rao (2002) aimed at exploring the shifts in industrial relations pattern consequent upon globalisation in two developing countries India and Papua New Guinea. The data collected from different types of organisations were used to identify the pattern of industrial relations before and after globalisation. The objectives were to study the impact of globalisation on human resource management structure in public and private sector organisations both in India and Papua New Guinea. The findings
showed that there was a paradigm shift in human resource management structure and pattern in both the countries.

Vijayabaskar M, Padmini Swaminathan, Anandhi S, Gayatri Balagopal (2004)\cite{106} in their study found that in India, Tamil Nadu has achieved superior levels in Human Development among most of the states. High growth rate and increased per capita income add to faster growth of the state. The significant demographic changes and high literacy rate accompanied by lower population growth rate accelerate the state’s growth. A key component namely sustainability in financial and environmental factors is taken care of leading to promotion of Human Development in the state.

The paper by Anil Kumar Singh (2005)\cite{107} attempted to identify the relationship between Human Resource Practices and the Philosophy of management of the Indian business organisations. The objectives of the study were to examine the assumption of top management about the people working in the organisation, understanding the philosophy of management, examine the nature of differences in the public and private sector and the nature of relationship between HRD practices. Findings showed that contrary to the hypothesis, there was no significant relationship between the variables of HR practices, particularly knowledge training and development and rewards; they were highly but negatively related to the philosophy of management.
G. Sreenivas Reddy (2005) in his article narrates the growth of Indian economy which was mainly because of the emerging Information Technology. The credit goes to hundreds and thousands of software engineers who have marked their presence in the global market. The IT professionals were also called “Knowledge workers”, “gold collared workers” and “new generation workers”. The economy hinges on these professionals as they perform highly skilled and complex jobs. The new millennium is facing major challenge in terms of attracting, developing, retaining and managing these professionals with strategic HR policies. Software companies lock in their most valuable employees with “golden handcuffs” – hefty pay packages and perks. The companies have started with innovative path breaking practices to ignite the entrepreneurial passion of their employees.

The study by B.S.S. Srinivas (2005) was undertaken with the objective of identifying HRD Practices, HRD Philosophy and analysing various systems implemented in Software Industry and suggesting measures for improvements in HRD Practices. The findings of the study included recommendations for enhancing the quality of HRD Practices through development of a culture, formulating employee development policies with employee retention as the major challenge.
The study by N Panchanatham and S Pragadeeswaran (2006) was carried out to explore the relationship between yoga practice and quality of life. In the current era of knowledge and technology explosion, the executives face the problems of high stress, high growth, speed, accuracy, and remaining number one rather than becoming number one. They do not find time to spend with their family and friends that it significantly affects their personal, family and social lives, challenging the quality of life. It was identified that the practice of yoga promotes quality of life. It was observed that the employees of large scale organisations practicing yoga had a better quality of life. It was also noticed that quality of life decreased when the age increased for those who do not practice yoga.

Sanghamitra Buddhapriya (2006) in her paper tries to highlight the value added by employees to the organisation and the relevance of Human capital management. The human capital management policies and practices formulated by HR department should aim at accomplishing organisational goals. It was found that employees with critical skills were attracted to meet the unprecedented socio, economic, technical changes. Organisations were to adopt superior HR practices to attract, retain and ensure better business outcomes. It was concluded that even today with challenging business climate, many organisations were not paying enough attention leading to an under utilisation of the talent in the
workforce. Being a dynamic function, HRM has a direct correlation with organisational efficiency and output.

The study by Sonal Saxena (2006)\textsuperscript{[112]} sought to elaborate on major challenges faced by the IT industry in the area of Human Resource Development. HRD activities must be consistent with the development efforts of the organisation to mobilise the employees’ potential. In order to reach new level of maturity and strength, the IT companies were expected to think in new dimensions. The major findings of this descriptive research conducted among five IT organisations through a questionnaire survey confirmed the existence of effective HRD climate.

### 3.5. KNOWLEDGE MANAGEMENT PROCESS CAPABILITY\textsuperscript{[113]}

Shin, Holden, and Schmidt (2001)\textsuperscript{[114]} included diverse terminologies given by a number of authors in relating the knowledge management course of action and then classified the knowledge management course of action as creation, storage, distribution, and application. The same is given below:

Table 3.1

<table>
<thead>
<tr>
<th>Creation</th>
<th>Storage</th>
<th>Distribution</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holzner et al. (1979)\textsuperscript{[116]}</td>
<td>Consciousness</td>
<td>Extension</td>
<td>Transformation</td>
</tr>
<tr>
<td>Pentland (1995)\textsuperscript{[117]}</td>
<td>Construction</td>
<td>Organization</td>
<td>Storage</td>
</tr>
</tbody>
</table>
In the immediate past, various researchers have come to the conclusion that there are four different magnitudes of knowledge management course of action viz. knowledge acquisition, knowledge protection, knowledge conversion, and knowledge application. The same is discussed below.

**Knowledge Acquisition:** Knowledge gaining is the procedure of increasing new subject matter and restoring on hand subject matter inside the corporation’s tacit and explicit knowledge base. This procedure has been explained by various terminologies viz.: capture, creation, construction, identification, and generation. In 2000, Nonaka, Toyama and Konno recommended that the important query for knowledge acquisition is instituting an corporation’s “ba” (described as a everyday position or room for generating knowledge). The writers classify four kinds of ba: originating ba, interacting ba, cyber ba, and exercising ba. Originating ba is a general place where persons communicate feelings mainly by way of face-to-face

<table>
<thead>
<tr>
<th>Author</th>
<th>Process</th>
<th>Access</th>
<th>Dissemination</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonaka etc.</td>
<td>Creation</td>
<td>Access</td>
<td>Dissemination</td>
<td>Application</td>
</tr>
<tr>
<td>(1995)[118]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demarest etc.</td>
<td>Construction</td>
<td>Embodiment</td>
<td>Dissemination</td>
<td>Use</td>
</tr>
<tr>
<td>(1997)[119]</td>
<td></td>
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</tr>
<tr>
<td>Daal etc.</td>
<td>Creation</td>
<td>Draw-up</td>
<td>Dissemination</td>
<td>Apply Evaluate</td>
</tr>
<tr>
<td>(1998)[120]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Davenport etc.</td>
<td>Creation</td>
<td>Transference</td>
<td>Asset management</td>
<td></td>
</tr>
<tr>
<td>(1998)[121]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liebowitz</td>
<td>Identify</td>
<td>Store</td>
<td>Share</td>
<td>Apply Sell</td>
</tr>
<tr>
<td>(1999)[122]</td>
<td>Capture</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

communication. Interacting ba is connected with the externalization mode of knowledge creation and refers to space where tacit knowledge is converted to explicit knowledge and shared among individuals through dialogue and collaboration. Cyber ba refers to a virtual space of interaction and corresponds to the combination mode of knowledge creation. Finally, exercising ba involves the conversion of explicit to tacit knowledge through the internalization process.

The switch between tacit and explicit knowledge takes place on the lines of Nonaka and Takeuchi’s SECI model. The four types of knowledge processes are socialization, externalization, combination, and internalization. Tacit knowledge could be made explicit and vice-versa, through social interaction. The authors proposed a cyclical translation process that encapsulated the four knowledge conversion processes as follows: (a) tacit knowledge transfer through socialization; (b) tacit knowledge to explicit knowledge conversion through externalization; (c) generation of new explicit knowledge through a combination of existing explicit knowledge; and (d) the acquisition by individuals of tacit knowledge through internalization of explicit knowledge. Understanding the characteristics of the various ba and their relationship with the modes of knowledge creation is important to enhance organizational knowledge creation capability (Alavi & Leidner, 2001). For example, the use of information technology in cyber ba is advocated to enhance the efficiency of the combination mode of knowledge creation.
An organization should acquire knowledge throughout the organization and exchange knowledge even with external partners so that knowledge upgrade can happen constantly through benchmarking, best practices, and feedback of projects experience to improve subsequent projects. Once these practices and variances have been identified, the organization can then capture the knowledge for use internally (Gold, Malhotra, & Segars, 2001)[124].

**Knowledge Protection Capability:** Creating new knowledge is not enough; people and organizations forget, and mechanisms are needed to store acquired knowledge and to retrieve it when needed. The concept of organizational memory aims for the same goal. Organizational memory includes knowledge residing in various component forms that may include written documentation, structured information stored in electronic databases, codified human knowledge stored in expert systems, documented organizational procedures and processes, and tacit knowledge acquired by individuals and networks of individuals (Tan et al., 1998)[125]. Organizational memory includes individual memory (a person’s observations, experiences, and actions) as well as shared knowledge and interactions, organizational culture, transformations (production processes and work procedures), structure (formal organizational roles), ecology (physical work setting) and information archives (both internal and external to the organization) (Walsh & Ungson, 1991)[126].
According to Probst, Raub, and Romhardt (2000), the companies wanting to handle their knowledge for use in future should be aware of three procedures of knowledge management. The company should identify first who are the people, what are the processes and the general proceedings worth holding on to. The company should accumulate practice and understanding in proper shape. Next the company must make sure the company’s memories are reorganized and restructured.

Further according to Gold, Malhotra, & Segars, (2001) a corporation must embark on certain safekeeping measures of its crucial knowledge. Unauthorised usage, betrayal of knowledge, ensuring safety of tacit knowledge, and ensuring knowledge protection throughout the corporation are some of the measures to protect knowledge from pilferage within or outside the corporation.

**Knowledge Conversion Capability:** As and when the corporations are mindful of a deficient knowledge within, it gives rise to a knowledge opening. The same can be bridged using knowledge conversion through exchange of knowledge across and between various departments, divisions, and branches. This involves the appropriate message reaching the receiver and that the receiver understands and responds back.
Gupta and Govindarajan (2000) have conceptualized knowledge conversion in terms of five dimensions: (a) perceived value of the source unit’s knowledge; (b) motivational disposition of the source; (c) existence and richness of the transmission channels; (d) motivational disposition of the receiving unit; and (e) the absorptive capacity of the receiving unit. Because effective communication between organization and environment directly concerns knowledge transfer, this process is the most important factor to manage.

The knowledge conversion is not only dependent on systems and technologies but also on societal and edifying characteristics.

**Knowledge Application Capability:** Indispensable part of knowledge management is to ensure the knowledge present within an enterprise is functionally useful and results in benefits to the enterprise. Enterprises take it for granted that knowledge can be made functional once it is present inside of it. Unless it is monitored and tracked in terms of movement and accessibility its consumption will not be fulfilled.

Grant (1996) recognized three means to incorporate knowledge within an organization. The regulations that govern transfer from tacit to explicit i.e. from experts to non-experts forms the starting point. The second means is to be wary of organizational etiquette, set of rules and regulations and procedural formalities. The
last aspect is to constitute teams which can take care of themselves and execute the task on hand by pooling in the necessary resources. Group synchronization must be achieved for better results.

### 3.6. Research Gaps

The literature review presented here provides a theoretical framework for this study and contributes new knowledge by providing a better, clearer, and more complete understanding of the topic. Each of these research strategies is a researchable topic because the same or similar variables can be explored in the related literature. This review completes the critical analysis of the literature on the relationship among knowledge management strategy, enablers, process capability, and performance. However there are certain gaps in the literature which are summarized as given below:

1. The earlier research studies were oriented towards knowledge management practices in information technology, manufacturing and allied industries. Hardly any research has concentrated on knowledge management in educational institutions especially in self-financing engineering colleges in India. Further no research has been envisaged about knowledge management in self-financing engineering colleges throughout the country. Hence this study is first of its kind.
2. The knowledge climate in self-financing engineering college has not been debated in previous research works. The same is focused in this study.

3. Training and planning in colleges have been discussed in previous studies; but no study has viewed it from knowledge management perspective. Therefore this study takes into account this perspective.

4. Performance appraisal and career planning and development in self-financing engineering colleges has not been studied earlier with reference to knowledge management. Hence this study is undertaken with that focus.

5. Though knowledge sharing has been widely addressed in previous studies, no work has focused it in an academic discipline. Therefore this study focuses on the same.

6. The knowledge management process capability on self-financing engineering colleges has not been deliberated in earlier research works. Hence the same is given importance in this study.

To fill up these gaps, the proposed study is undertaken.