Chapter 2: Review of Literature

2.1 Introduction:
A review of the literature is an overview of previous research on the author’s topic or on an important aspect of the author’s topic. It identifies, describes and in some cases analyzes related research that has already been done and summarizes the state of knowledge about the topic.

In the literature review, the objective is to accomplish the following four important aspects: overview of previous research on the topic, references to important previous studies related to the research question that are found in high quality sources such as scholarly books and journals, succinct and well-organized review, as well as its presentation style.

2.2 Literature Review:
S.P. Gupta et al., mentioned that, ITES industry can create new employment opportunities which could be ten times greater in number than those directly involved in core IT industries as the application of information technology has reached all kinds of traditional industries [1].

FICCI in Industry – Academia Convergence on “How to bridge the skill gaps (FICCI, 2004)” suggests that new learning model should be developed utilizing the learning of persons working in industry. Institutions may utilize the expertise from the industry as well as alumni. As the technology has been changing with a great pace, for developing employable fresher, it is necessary to shift the curriculum from traditionally academic to practically relevant one. As India’s IT revolution has been fuelled by the availability of a very large reservoir of engineers, the challenge is to give them adequate inputs to generate not only sufficient but also surplus capabilities. [2].

P.N. Gupta et al., suggests that the educational institutes can develop direct linkages with the industry and utilize it to strengthen quality of education and fulfill the industry requirement. As it is win-win situation for both of them, the linkages can grow faster [3].

FICCI has also suggested domain specific competence, work related skills and non-relevance of the curriculum as important reasons for unemployability of graduates [4].
Ramandeep Sudan et al., emphasize on quality of education in close alignment with local and global industry needs [5].

V Saravanan, in the publication “Sustainable Employability Skills for Engineering Professionals” suggested that soft skills training are more relevant instead of personality development. Soft skills training are essential with the help of corporate houses. Also he suggests bringing soft skills within the curriculum with the preferences to role play, group discussion, seminar, presentation, questioning, brain storming, book reviews, interaction etc [6].

Government of India introduced a Master of Computer Applications (MCA) program to increase the manpower pool for IT/ITES industry by giving additional enabling inputs to Science and Commerce undergraduates and by offering training in computer education [7].

“National Employability Report – Engineering Graduates” (Aspiring Minds, 2011) claimed that maximum efforts are required to be taken to improve programming, logical and quantitative ability of the fresher’s as well as ability to communication in English. A survey of top 100 institutions across India indicates that job opportunities offered in IT product industry fall from 8.44% to 2.17% and the same in IT Service industry falls by 30.95% to 16.32% due to lack of required skills [8].

The World Bank South Asia Region Education Team (Andreas Blom et al, 2011) has identified skills by factor analysis based on survey “Employability and Skill Set of Newly Graduated Engineers in India.” suggested that institutes providing the technical education programmes in India should seek to improve the skill set of graduates and shift the focus toward higher-order skills and creativity. The team found that employers perceive Soft Skills (Core Employability Skills and Communication Skills) to be very important. These findings suggest that engineering education institutions should seek to improve the skill set of graduates, recognize the importance of Soft Skills and revise the assessment schemes as well as teaching-learning process. In line with this, they also suggested to prepare the curriculum away from traditional thinking skills, such as remembering and understanding and move towards higher-order skills, such as analyzing and logical abilities to solve engineering problems, as well as creativity; and interact more with employers to understand the particular demand for skills in that region and sector. [9]

In the publication, “Career Development Challenges in Front of MCA Institutes in Pune Region… A Management Perspective” (Ashutosh Kulkarni et al.) suggested that
an interaction to understand needs with IT/ITES industries will not only provide the methods for effective teaching learning process but also will give the inputs to improve the employability. In fact, it is a need to design a set of guidelines / model for the management or administrators of the institute to improve the employability since a large number of IT graduates are available every year from different universities, but NASSCOM claims that very few IT graduates are employable, in addition, ministry of Human Resource and Development, New Delhi released a report which supports this view expressed by NASSCOM . [10]

I. Padmini mentioned that communicative skills, critical thinking, problem solving ability are must have abilities for employability of any professional. Further it is suggested that Soft Skills have to be embedded in the curriculum with implementation activities such as questioning, class discussion, brain storming, team work, presentation, role play and simulation, task/project, field work and site visits. [11]

M. Radhakrishnan et al. Suggests that in addition to imparting technological knowledge, the engineering colleges will have to focus on nurturing the employability skills. It is necessary to bring in required changes in the curriculum and teaching methodology as per industry needs. [12]

M. Sudarshan et al. identified that there is no comprehensive system to ensure continuous professional development to improve skills of fresh graduates. [13]

M. Sudhir Kumar et al. says that companies are giving 50-50 percent weightage on an average in terms of technical and behavioral aspects while selection and accordingly decides the plan of training to the candidates after selection. [14]

Hemant Abhyankar et al. identified that a majority of undergraduate (UG) engineering students preferred to seek admission to institutions which can offer placement in jobs immediately after their UG studies.[15]

M. Vijaykumar claims that communication skills is a major criteria for selection of fresh graduates and companies always innovate strategies to identify and recognize required competencies. [16]

As per admission process manual of MCA, in state of Maharashtra, 144 institutes are offering MCA program with an intake of 25939 students out of which 58 institutes are affiliated to University of Pune with an intake of more than 7000 students.[17]

An interim report “Human Resource and Skill Requirements in the IT and ITES Sector - A Study on mapping of human resource skill gaps in India till 2022” by National Skill Development Corporation (NSDC) mentioned the following skill gaps
among fresh graduates aspiring for jobs, at the time of recruitment: i) Inability to ‘deep-dive’ into a particular language/technology platform as experience level increases, ii) Inadequate soft skills, especially when it comes to interacting with the client, iii) Inadequate knowledge of corporate culture – reporting, compliance, escalations, e-mail etiquettes and protocols, iv) Inability to understand their role as a ‘Software Engineer’ (they perceive it more as a ‘programmer’ which results in to gaps in ‘systems approach/thinking’. v) Poor awareness of concepts of Software Engineering. Based on the trends witnessed in productivity and the growth potential of the IT and ITES industry in India, NSDC also claims that the industry would need about 7.5 million persons by 2022. NSDC with association of ICRA Management Consulting Services Limited suggested potential areas for skill building amongst fresh graduates which are logical thinking and for problem solving, demand driven programming languages, training in project management, training of business analysis like UML, Rational Rose, and Softskills (including communication) [18].

TeamLease Services India Labour Report (2012) noted that the curriculum to be formulated keeping in view the necessity of both domain skills and life skills. The term, skill, is an n-dimensional concept, as most jobs need a combination of skills for adequate performance. It includes physical abilities, cognitive thinking and interpersonal orientation [19].

In the publication, “Employability of Management Students In India: Some Concerns and Considerations” (Dhar, 2012) suggested that if the members of the alumni are successfully placed in different reputed organization including blue chip companies as well as multi-national corporations and if they are working either as middle or senior level managers, then words of mouth publicity, due to such alumni, will fetch more and more jobs to the students of their institution. The companies will come to recruit in bulk from such branded campus as they presume to get better candidates [20].

The National Policy on Education (NPE), 1986, as updated in 1992, imposed greater stress on improvement in the quality and relevance of education at all levels, including technical and professional education.[21]

Rajni Khosla et.al claims that the employability crunch is also observed with MBA graduates. The industry is expecting parameters like ownership, responsibility, initiative, empathy, integrity as self initiative core values with fresh graduates. Also it is recommended that personality development courses must be a part of curriculum. [22]
S.R. Ganorkar et.al identified the skills required for employment are communication skills, teamwork skills, problem solving skills, initiative and enterprise skills, planning and organizing skills, learning to learn skills, technology related skills, self management skills.[23]

L.S. Chandrakant et.al illustrates that the requirements from fresh graduate is going to vary from industry to industry hence blaming the curriculum of universities or institutes is unrealistic.[24]

Vandana Pragada et.al precisely appeal to academia to have industry institute interaction in terms research sponsorship line with business needs, live case studies and business problem ideas and developing personality of the students. [25]

Soni Agarwal et al. identified the challenges in front of ITES companies in India such as unavailability of skilled employees, attrition, retention of suitable employees, global economic slowdown, etc. As a solution he suggested that industry oriented practical training to the fresher is necessary. [26]

Dr. P. Bharati suggested that equal emphasize must be given to technical and employability skills while designing the Engineering education curriculum. [27]

A. Somalingam et al. identified five top competencies and skills such as Mastery Skills and knowledge in the discipline, communication and language skills, inter-cultural competence, innovation and creativity skills, social and leadership skills while employing engineering graduates. [28]

H.A. Padmini appeals that software companies have to take a lead in helping academia to shape the curriculum. On the other hand academia should analyze and incorporate changes constantly to ensure the grooming of students. [29]

Ravi S. Iyer proposes that if the practice oriented software development career track, is introduced in UGC & AICTE regulations for appointment and promotion of Indian CS & IT academics then, a healthy mix of both research oriented as well as software development oriented Indian Computer Science & Information Technology academics will solve the problem.[30]

Nishant Saxena identified missing skills from fresh graduates are Ownership/Motivation, Business Ethics/Honesty, Grooming/Confidence, Communication Skills, General Awareness, Basic Managerial Skills (Leadership, Teamwork, Time Management etc.), Basic Sales and Customer Service (most entry level jobs require one of these),Domain Knowledge, Work Experience.[31]
Dr. Deepshikha Mehra et al. claims that it is very important to carry out a need assessment of students to understand their communication skill needs. [32] Azami Zaharim identified employability skills gap as the most important skills but most lacking skills are teamwork, communication, and problem-solving and additional skills are lifelong learning, apply basic knowledge, understand professional, social and ethical responsibilities. [33]

Rashmi Rekha Borah strongly believes that the communicative competence with grammatical competence influences employability because employers set their eyes not only on the high scores of the new graduates but also the business etiquette and their polished behavior. [34]

Tathagat Verma addresses the issue of fresh graduates that just technical brilliance or coding knowledge alone is not sufficient for success in corporate culture. Change of the mindset from just being a programmer to being a “Software Professional” is essential. [35]

Vidya Kulkarni precisely recommends that the students must be exposed to the tools that are standard in the software industry to acquire more practical experience and work on real-life projects. [36]

Varwandkar Ajit et al. identified that Domain Knowledge, Empathy, Communication Skills & Managerial Ability have significant impact on the employability of engineering graduates. [37]

Samson Packianathan et al. proposed a combined model with development of employability skills such as Written Communication, Verbal Communication, Investigating and Analyzing, Planning and Organizing, Negotiating and Persuading, Co-operating, Leadership, Numeracy along with curricular changes curriculum planning, Experiential learning pedagogy, Flexible curriculum, Soft skill training, Mock interviews together is going to lead towards better placements of graduates of B school. [38]

Deloitte knowledge paper gives a insight on qualitative deficiencies in segments and levels of IT and ITES industry along with skill gap. [39]

Srikantan Moorthy illustrates that the inability of the fresh employee in terms of applying concepts learnt to solve practical problems, work well in teams, communicate well in both spoken and written forms is the gap between students capability and the needs of the industry. [40]
According to Parmjit Singh, highest ranked generic skills as expected by employers are Communication Skills and Integrity & Professional Ethics while the lowest ranked are Leadership Skills and Entrepreneurship Skills on the other hand, the instructors ranked communication skills followed by integrity and professional skills as important skills. [41]

Dr. Sukhwinder Singh Jolly mentioned that, apart from imparting technical knowledge, institutions have to focus on soft skills so that employability of students will be enhanced after graduation. [42]

Rajendra Babu Vemuri et al. investigated the skills required for employability and suggested that, to achieve optimum results, the curriculum should be restructured to include the following employability skills as teamwork skills, problem solving skills, communication skills, interpersonal skills, writing skills, technology skills (Machine oriented skills), entrepreneurship skills and leadership skills. Also it is proposed to adopt teaching approach to teach Language Improvement Program (LIP) modules in order to improve outcome based learning. [43]

V.K. Bansal says an industrial training is one of the strongest viable modes of interaction between industry and institute and which can be useful in updating student’s curriculum and improving governance in order to enhance education quality, training effectiveness and to strengthen industry-academia-interface.[44]

Confederation of Indian Industry (CII) demands the education in India to be more industry-oriented. [45]

Aspiring Minds conclude that establishing more engineering colleges is not going to solve the employability issue instead improving education standards of current engineering colleges is a need of hour. [46]

Kaushik Sengupta mentioned that quality management courses are more useful to students and hiring companies, which will bridge the present gaps between teaching, practice and the emphasis on wrong issues being taught. [47]
2.3 Gap Analysis

- Majority publications are giving insight of IT employability in general.
- Limited research work on parameters required for employability of MCA graduate is noticed.
- Though various authors have identified various attributes required for recruitment purpose, but it is not clear that which attribute contains higher preference.
- The time dependent precise expectations of IT industry are not known.
- Publications are not available on mechanism of understanding timely requirement of industry.
- Literature is not available regarding utilizing services of alumni to improve employability
- Effect of General Proficiency subjects is missing in literature.
- Usually company declares the eligibility criteria at the time of campus placement, but no emphasis is given in the literature on how to create opportunity for non eligible candidates to become eligible for placement.