CHAPTER II

REVIEW OF LITERATURE
A number of studies have been done on Indian Software industry which provide information on its' historical, economic and organizational features. Very few sociological studies have been conducted on the Indian Software professionals and the IT industry.

The review of literature reveals that until recent years, IT sector and the emergence of new breed of professionals, called software professionals were often discussed as a technical issue, with the underlying belief that revolution in technology will have profound socio-economic implications (Toffler, 1981; Davidow & Malone, 1992; Negroponte, 1995; Tapscott, 1996). Sociologists such as Touraine (1971), Bell (1973), Castells (1989), and Giddens (1990) and visionaries such as Masuda (1980) and Sakaiya (1991) tried, however, to characterize the social and historical aspects of information revolution. Yet, the more sociologically informed analysis of the knowledge society and software professionals was relatively invisible in the public and policy discourse until late 1990.

STUDIES RELATED TO SOCIOECONOMIC BACKGROUND OF SOFTWARE PROFESSIONALS

According to Carol Upadhya (2006) the IT industry in India is often represented as providing employment opportunities to wider sections of the population than is the case for most managerial, professional, and white collar jobs. Proponents of this argument claim that employment in this industry does not depend on social connections (influence) or ascriptive social status, but rather is based entirely on merit. It is further argued that merit-based recruitment, together with the spread of
higher education (especially engineering colleges) in semi-urban and rural areas have created new employment opportunities for rural youth, the socially and economically disadvantaged, as well as for women. However, the social reality appears to be somewhat different. The data obtained from a study of the IT workforce in Bangalore shows that it is largely urban, middle class and high/ middle caste in its social origins.

Fuller and Haripriya Narasimhan (2006) have highlighted the fact that though the number of engineering colleges has risen rapidly, particularly because of the growth of the IT industry, the majority of their graduates cannot secure jobs in the top software companies, which dominate the industry in Chennai, mainly because they lack “communication skills”. These skills are a form of social and cultural capital mostly possessed by the urban middle class, whose members believe that a key ingredient for success in a competitive economy and society is enhancing personal skills and knowledge through “exposure”. Although abolishing caste based reservations in private engineering colleges would have some effect on social mobility, it would not diminish middle class advantage. The reservations are only one factor in the equation, and are only marginally relevant to the real issues about social class mobility and the promotion of equality raised by the rapid growth of the IT industry in contemporary Tamil Nadu.

Pavan Varma (1998) excoriates middle class for its selfish materialism and the ‘retreat from idealism’ that was manifest in the smaller, ‘traditional middle class’ of the earlier, post-independence period. A good example of the opposite tendency is Gurcharan Das's India Unbound (2002), which celebrates ‘the rise of a confident new middle class’. Das's diagnosis of what has changed is actually very similar to
Varma's, but he insists that the new middle class is no ‘greedier’ than the old one, and the ‘chief difference is that there is less hypocrisy and more self-confidence’.

Carol Upadhya and A.R. Vasavi (2006) have highlighted the key findings of a sociological study of the Indian information technology workforce that was carried out over a period of more than two years, between November 2003 and March 2006, in Bangalore and in three countries in Europe. The objective of the research project, entitled ‘Indian IT Professionals in India and Europe: Work, Culture, and Transnationalism’, was to document the social and cultural transformations that have been set in motion by the rapid growth of the IT and ITES industries in India, and through this to shed some light on wider processes of globalization. The study focused on the creation of the IT workforce; the new forms of work, employment, organization, and management, and the new cultures of work that have emerged in this industry, and on the transformations in lifestyle, sociality and identity that are taking place within this new global workforce.

Vigneswara Ilavarasan (2007) identifies a typical Indian software worker as follows: An Indian software worker is predominantly a young male; hails from an urban locality; follows Hinduism, and belongs to upper socio-economic strata of the Indian society. He holds an undergraduate engineering degree, not necessarily in computer science, from a second grade educational institution. He is trained by the employers as per the needs of Western market, and works for long hours than required. He earns more than his counterparts in the other industries, and promoted periodically based on the work experience. His work is dependent on the nature of dynamic roles performed in the projects.
Anirudh Krishna and Vijay Brihmadesam (2006) have found that rather than place of origin (rural Vs urban) or economic background, two educated parents most commonly characterize newly recruited software professionals in Bangalore. A survey of three software firms showed that fathers of all new recruits have at least a high school degree; 75 per cent are college graduates. More than 80 per cent of all mothers also have a high school education or better. Having two educated parents is a significant asset in a situation of information scarcity; however, no more than 4-7 per cent of all Indians have parents who are similarly qualified.

Mary Sumner and Denise Franke (2007) have revealed through their research article that the internationalization of the IT workforce brings new cultural values into the professional environment. Understanding these cultural values is important, because individuals should be able to determine whether their values are matched for working in a particular culture, and whether they will need to adapt their behaviors. This study is designed to identify the career orientations possessed by IT personnel who are U.S. Caucasian vs. Asian Indian in cultural background. Preliminary results of this study suggest that there is a significant difference between the means of the U.S. and the Asian sample for the Creativity/Entrepreneurship variables.

According to Fabian T. Pfeffer (2008), research has repeatedly shown that educational opportunities are distributed unevenly in all countries. Therefore, the question is not whether family background and educational outcomes are related but to what degree they are related? This latter question then invites a comparative perspective. That is, does social inequality in education differ across time and countries? If yes, which institutional characteristics can explain differences in educational inequality? Educational inequality is conceptualized as the association
between individuals’ and their parents’ highest educational level attained. Intergenerational educational mobility processes are analysed for 20 industrialized nations by means of log-linear and log-multiplicative models. The results show that the degree of educational mobility has remained stable across the second half of the 20th century in virtually all countries. However, nations differ widely in the extent to which parents’ education influences their children’s educational attainment.

Volker Stocké (2007) tested whether the Breen–Goldthorpe model offers an empirically valid prediction of educational decisions and a complete explanation of how they are affected by social class. This was done using data from a panel study of families who had decided on secondary school tracks for their children in Germany. First, he analysed whether class differences in the costs, success probabilities, and returns from status maintenance, which parents associate with educational options, are created by differences in the families’ objective opportunities and constraints. Consistent with theoretical expectations, he found class effects on the parents’ subjective beliefs and evaluations, which were due to differences in available economic resources and the children's proven academic ability. Secondly, he tested the prediction that secondary school choice and the effect of class differences on it are the result of cost–benefit considerations. Whereas the subjective beliefs about how likely the children are to complete educational degrees and the motive to maintain the families’ social status proved to be strong predictors for educational decisions, the anticipated costs of educational investments were found to be irrelevant.

Carlo Barone (2006) explained the influence of social origins on student achievement. Using the data of the Project for International Student Assessment on 25 nations, he showed that cultural capital provides a relevant, but far from exhaustive,
account of schooling inequalities; furthermore, the explanatory power of Bourdieu’s theory seems impressively similar across countries.

**John Ermisch and Marco Francesconi (2001)** analysed by using new data matching parents and their young adult children to study the impact of family background on young people's educational attainments. The data is derived from the first seven years (1991-97) of the British Household Panel Study. Parents' educational attainments are found to be very strongly associated with their children's educational attainments, and for an important part of the population these associations can be given a causal interpretation. In addition, young adults who experience single parenthood as children and those who come from families in the bottom income quartile have significantly lower educational attainments.

**Giorgio Brunello and Daniele Checchi (2003)** studied whether the combined significant reduction in the pupil-teacher ratio and increase in parental education observed in Italy between the end of World War II and the end of the 1980s have had a significant impact on the educational attainment and the labour market returns of a representative sample of Italians born between 1941 and 1970. It was found that the lower pupil-teacher ratio is positively correlated with higher educational attainment, but that the overall improvement of parental education has had an even stronger impact on attainment. It was also found that the positive impact of better school quality on educational attainment and returns to education has been particularly significant for the individuals born in regions and cohorts with poorer family background. Parental education has had asymmetric effects, positive on attainment and negative on school returns. Better school quality has also had asymmetric effects on the returns to education, positive for individuals with poor family background and
negative for individuals born in regions and cohorts with relatively high parental education. This evidence suggests that better school quality, measured by a lower pupil-teacher ratio, is a technical substitute to parental education in the production of individual human capital. When school quality and family background are substitutes, an increase of public resources invested in education can be used to reduce the differences induced by parental education.

**Galindo-Rueda, Fernando and Vignoles, Anna (2002)** In a meritocratic society an individual's economic success is determined by their ability, not by their parents' socio-economic status. They assessed whether meritocracy has increased in both the British education system and labour market. The richness of longitudinal data enabled them to look at the complex inter-relationship between social class, ability, education and labour market outcomes. In Britain the production of human capital (cognitive ability and education) has become less meritocratic and more influenced by social background. Whilst cognitive ability is an important determinant of labour market success, there is only mild support for an increase in its importance.

**Amelie Constant and Klaus Zimmermann, F (2004)** studied patterns of employment in Germany, by analyzing how individual men and women access jobs given their family background, and investigates why men and women have different occupational distributions. Based on the German Socio-Economic Panel they estimated multinomial logit models of occupational choice for the children of immigrants as well as for natives. Their findings are surprisingly similar for both natives and immigrants. For both Germans and immigrants, they found that gender significantly and differentially affects occupational choice, and that individuals with more education choose higher-ranking jobs. The role of experience is important for natives and qualified individuals only. Germans are more likely to choose occupations
similar to their fathers’ occupation when their father is in the white collar or professional category. In stark contrast, the immigrants’ occupational choice is more influenced by their mother’s education and not by their fathers’ occupation.

Juan Prieto Rodríguez and María José Suárez Fernández (2006) analyzed how parents' occupations determine occupational success or employment sector of their kids. The results indicate that family background still has a significant effect on occupational and sector choices.

Kevin Denny and Colm Harmon (2000) used pooled cross-section data on school leavers in Ireland to model the determinants of labour market status and wages for young adults. They used a multinomial logit model to analyze whether individuals exit school to employment, unemployment or higher education. It was found that Family background is an important predictor for participation in higher education reflecting the degree of rationing in the system. The level of educational attainment influences the probability of entering higher education or employment.

Cristina Iannelli (2002) studied country differences in the extent to which social origin affects young people's educational and occupational outcomes. Twelve countries covering different geographical, economic and social contexts in Europe are analyzed in the study. The data are drawn from the EU LFS 2000 ad hoc module data which collected information on school-to-work transitions. In agreement with other research findings, the results show that parental education still affects young people's educational and early occupational attainment in all countries under examination. However, as expected, there are significant country variations. Thus, the relative advantage of having more educated parents emerges as stronger in the Eastern European countries and weaker in the Nordic European countries. The other Western
European countries are in an intermediate position between these two groups of countries, with the Southern European countries more similar to each other. Moreover, in most countries the effect of parental education on their children's occupational status appears to be mediated mainly by education (i.e. indirect effect). This is particularly true in those countries where the association between children's education and parents' education is strongest. The existing social stratification studies show that social inequalities in educational and occupational opportunities are still a feature of our societies.

**STUDIES RELATED TO RELATIONSHIP BETWEEN PARENTAL EDUCATION AND OCCUPATIONAL ATTAINMENT**

**Jo Sparkes and Howard Glennerster (2002)** Parental education attainment has long been recognized as an important predictor of a child’s educational attainment. The association is strong in terms of literacy attainment. Research at City University has highlighted that 60% of children in the lowest reading attainment group at age 10 had parents with low literacy levels, whilst only 2% had parents with high literacy scores. The means by which better educated parents confer advantage to their childhood remains open to question. Research has highlighted the importance of parent’s human and social capital.

**Jablin (2001)** reviews the impact of various social domains on workplace socialization. He concludes that families, particularly parents, have a huge influence on vocational choice, general attitudes to work, stereotypes of gender appropriate work, and skills for role negotiation and information-seeking. Indeed, ‘our homes may be one of the most important sources of on-the-job training’ (p. 737). Educational institutions (from preschool to college) affect vocational choice, learning strategies,
interpersonal competencies, and knowledge of organizational activities and attributes (e.g., status differentiation, hierarchy, division of labor). Organized sports teach members about teamwork, discipline, and concentration.

**McDaniels and Hummel (1984)** list 13 steps that parents can take to assist in their children's career development. These include encouraging the development of such basic work attitudes as promptness, respect, and responsibility; stressing that the work children do in school is good, important, and related to the larger world of work; helping children understand that no one individual can be completely competent in all things; providing a climate conducive to study; serving as the connecting link between home and school; and encouraging participation in diverse experiences outside of school, including leisure activities and part-time jobs. It is also important to remember that the career development process begins long before the adult years. McDaniel and Hummel discuss the career development process in terms of three phases: awareness (before age 11), exploration (ages 11 to 17), and preparation (age 17 to young adulthood).

**Lutfey and Mortimer’s (2003)** review of the life course socialization literature suggests several additional ideas that have permeated the organizational literature. First, foreshadowing organizational research on newcomer proactivity, symbolic interactionist perspectives suggest that individuals are not passive recipients of socialization, but active players who seek out opportunities to engage others in their environment, who socially construct their environment, and who attempt to alter that environment. Second, whereas childhood socialization is focused on learning basic values (e.g., independence, honesty) and skills (e.g., language, social competence), adult socialization is focused on learning context-specific skills.
According to Greenberg, J (2007), net of an array of human capital, psychological, and social structural controls, information about business ownership from a father in early adolescence has a positive direct effect on business ownership expectations at that point in time, and an indirect effect on subsequent expectations in late adolescence that operates through those earlier expectations. Socialization has a positive direct effect on early expectations, as well both an indirect and direct effect on latter expectations. Maternal socialization effects are only found in terms of fostering later expectations. Finally, the combinatorial model for fathers has a strong, positive direct effect on early expectations and indirect and direct effects on expectations in later adolescence.

Richard Breen and Jan O. Jonsson (2005) reviewed studies focused on how characteristics of the family of origin are associated with educational and labour market outcomes. It is based on research works published since 1990 in educational stratification and social (occupational or class) mobility, focusing on the importance of parental socioeconomic circumstances, and with particular emphasis on comparative studies. Large-scale data now available from many countries and several time points have led to more and better descriptions of inequality of opportunity across countries and over time. However, partly owing to problems of comparability of measurement, unambiguous conclusions about trends and ranking of countries have proven elusive. In addition, no strong evidence exists that explains intercountry differences. It is concluded that the 1990s witnessed a resurgence of micro level models, mostly of a rational choice type, that signals an increased interest in moving beyond description in stratification research.
Gary N. Marks and Julie McMillan (2004) have addressed several debates surrounding the reproduction of socio-economic inequality: (i) the persistent inequality thesis, which maintains that despite the increases in educational participation socio-economic inequalities in education have not declined; (ii) the related thesis of maximally maintained inequality, which proposes that socio-economic inequalities decline only when participation levels for the most privileged socio-economic group approach saturation levels; (iii) the meritocracy debate on the importance of ability vis-à-vis socio-economic background and changes in its influence over time; and (iv) the effect of policy changes on socio-economic inequalities in education. These issues are addressed using data from six Australian youth cohorts born between 1961 and the mid-1980s.

Splete and Freeman-George (1985) list the following significant family influence factors that affect a child's career and educational decisions: (1) geographic location, (2) genetic inheritance, (3) family background, (4) socioeconomic status, (5) family composition, (6) parenting style and (7) parent work-related attitudes. Whereas the first four of these factors have a strong influence on a child's physical and mental abilities, education and employment opportunities, and financial resources, the last three have a profound effect on a child's personality type, preference for certain types of interpersonal relationships, work attitudes, and willingness to pursue a non-traditional career.

Raf Vanderstraeten (2000) discusses autopoiesis and socialization based on Luhmann's reconceptualization of communication and socialization. In 1984, Niklas Luhmann published Soziale Systems in which he applies the idea of autopoiesis (= self-production) to social systems. Abstracted from its biological connotations, the
concept of autopoiesis leads to a sharp distinction between different kinds of autopoietic organization, i.e. between life, consciousness and communication. According to Luhmann, the relationship between social systems and human beings cannot be adequately analysed except by taking into account that they are environments for one another. If this theoretical background is accepted, the concepts and theory of socialization need to be revised. Luhmann takes issues with classical notions such as internalization, inculcation, or 'socialization to the grounds of consensus' (Talcott Parsons). After a historical overview of social systems research and general systems theory, it is indicated how communications trigger further communications and realize the autopoiesis of social systems. The distinction between social systems and psychic systems is used to discuss issues crucial to socialization theory. Both a revision of the concept of socialization, and lines for an empirical research programme are proposed in accordance with Luhmann's theory of social systems.

Guido Heineck and Regina T. Riphahn (2007) Over the last decades the German education system underwent numerous reforms in order to improve "equality of opportunity", i.e. to guarantee all pupils equal access to higher education. At the same time internationally comparative evidence yields that Germany features particularly low intergenerational mobility with respect to educational attainment. This study investigates the development in intergenerational education mobility in Germany for the birth cohorts 1929 through 1978 and tests whether the impact of parental background on child educational outcomes changed over time. In spite of massive public policy interventions and education reforms, the results of the study yield no significant reduction in the role of parental background for child outcomes over the last decades.
Stephen Machin and Anna Vignoles (2004) studied links between higher education and family background, focusing particularly on the experiences of two cohorts of individuals born in 1958 and 1970. The findings point to a rise in educational inequality during the period relevant to these two cohorts. Specifically, links between educational achievement and parental income/social class strengthened during this period. Furthermore, a person's actual (measured) ability became a poorer predictor of whether they would get a degree than was previously the case. The expansion of higher education in the UK during this period appears to have disproportionately benefited children from richer families rather than the most able. Furthermore, the labour market success or failure of individuals became more closely connected to their parents' income, revealing a fall in the extent of intergenerational mobility over time.

Schergens (1980) asserts that "parents must work with their children not only in the discussion of a selection of a career but also in terms of sharpening their own employability skills". She places particular emphasis on the need for parents to teach and reinforce the need for adaptability and flexibility in this world of rapid change. Schergens suggests that a parent's effectiveness as a resource person on which a child can draw in the career development process is directly dependent upon the parent's own career development and knowledge of the world of work.

Vibeke Opheim (2007) studied the impact of parental education on the education-to-work transition among graduates in Norway during the time period 1987-2001. Four indicators of labour market success are examined: (1) main activity after graduation, (2) mismatch in the labour market, (3) type of job position, and (4) monetary outcome. The findings indicate a small yet significant influence of parental education
when entering the labour market. This is found for all indicators except the "type of job position" indicator, for which having two parents with higher education has a small significant impact whereas having one parent with higher education has no impact on labour market success. However, the impact of parental education is minor and explains only about 1% of the variations in labour market success among the graduates. Thus, parental education does not seem to have any substantial impact on the transition from education to work among graduates in Norway.

Otto, Luther B. (2000) The role of parents in youth career development is generally acknowledged though, often, perfunctorily. This inquiry examines youth perceptions of parental influence on their career development. The sample consists of survey data from 362 high school juniors. The results confirm the trend of recent studies that report compatibility between parent and youth values, aspirations, and plans. Of all the people to whom youth can turn for help with making career plans, most look to their mothers. The findings apply across gender, to young men as well as young women; and they apply across race, to minority youth as well as majority-culture youth. The results underscore the importance of parents as allies and resources for career counsellors in facilitating youth career development.

Valérie Cohen-Scali (2003) examined the role of social and professional experiences undertaken by young adults in order to construct their professional identity. More particularly, two determining dimensions in this identity construction are studied. The first one concerns socialization for work which corresponds to social experience undergone in the family and in education from childhood. The second one concerns socialization by work which corresponds to professional experience undergone by young adults. The latter dimension is studied from a perspective which comprises two
methods: direct integration and assisted integration in the world of work. This article ends by pinpointing the most significant characteristics of the contexts and experiences undergone by young adults in the construction of their professional identity, and by discussing what measures might be useful to accompany the school to work transition.

According to Martin Pinquart, Juang Linda P., Silbereisen and Rainer K. (2004) better school grades and having parents who graduated from a university increased adolescents' probability to switch to a university. Furthermore, interaction effects of self-efficacy with grades and cognitive abilities appeared, indicating that for individuals with high self-efficacy, cognitive abilities became more important and grades less important in predicting the wish to pursue university studies. It is concluded that beliefs in one's capabilities and high academic abilities are important resources in vocational reorientation in times of social change.

Singaravelu Hemla D, White, Lyle J and Bringaze Tammy B. (2005) examined the career development behavior of Asian international, non-Asian international and domestic students, specifically the certainty of career and major choice and environmental factors that have influenced their choices. Environmental factors include family, school counselors, teacher, friends, and government. The results show no difference in the level of career certainty between the three groups. In contrast, influences of family, school counsellors, and friends varied among these three groups. Furthermore, only the Asian international students exhibited a positive correlation between level of career certainty and intent to persist.

Considine Gillian And Zappalà Gianni (2002) The relationship between family socioeconomic status (SES) and the academic performance of children is well
established in sociological research. Another important dimension is the factors that may influence educational outcomes within low SES families. This study presents new data from a sample of over 3000 students from financially disadvantaged backgrounds to estimate the extent of socioeconomic, family, individual and contextual factors on school educational performance. Results obtained using binomial logistic regression techniques indicate that gender, unexplained absences, parental educational attainment, housing type, ethnicity and student age are all statistically significant variables and predictors of academic performance. In contrast, family structure, the main source of family income and geographical location do not significantly predict outcomes in school performance once other factors are controlled for. The findings support the notion that the ‘social’ and the ‘economic’ components of the socioeconomic status equation have distinct and separate influences on educational outcomes.

Nakhaie M. Reza (2000) This study assesses the effects of mothers' and fathers' education and occupational positions on the educational attainment of male and female offspring based on the data from two national representative samples of Canadians surveyed in 1985 and 1994. The analysis show that, for offspring of both genders, mothers' and fathers' education and occupation have a substantial effect on education, in both surveys. The advantage of social origin for both male and female offspring depends on the measure of social origin with some indication of same-sex effects. Furthermore, social origins have a stronger effect on offspring's university degree attainment than on postsecondary education in general. Finally, there are signs of increasing inequality in social origin effect on offspring's educational attainment.
Claudia Buchmann and Emily Hannum (2001) reviewed research on education and inequality in developing regions. In tracing the progress of this field of inquiry, it focuses on empirical studies of educational inequality in four broad areas: macrostructural forces shaping education and stratification; the relationship between family background and educational outcomes; school effects; and education's impact on economic and social mobility. It assesses the contributions of research in Africa, Asia, and Latin America to the general study of education and social stratification and the theoretical leverage gained from examining stratification processes in developing regions of the world. Finally, the review discusses recent developments that hold promise for addressing the knowledge gaps that remain; these include utilizing relatively new data sources and methods in comparative, cross-national studies and greater collaboration between researchers who study strikingly similar questions but remain segregated due to their focus on either industrialized or developing societies.

Ketterson and Blustein (1997) demonstrated that secure parent-child relationships are associated with progress in career decision making, affirmative career self-efficacy beliefs, and career planning. Their study found that students who have secured attachments to parents engage in greater levels of environmental and self-exploratory activity. They conclude that secure, comfortable relationships are critical in helping students take the risks necessary in exploring new settings and roles.

According to Way and Rossmann (1996), the family is a place in which children learn to interpret reality. Parents serve as significant interpreters for children of information about the world and children's abilities (Hall, Kelly, Hansen, and Gutwein 1996). Researchers have studied the influence of parents and the family on children's career choice and development. Much of this research has demonstrated links between
career development and such factors as socioeconomic status, parents' educational and occupational attainment and cultural background.

According to Walter R. Heinz (1999) Structural transformations in the international economy and the restructuring of work have made the transition from education to employment increasingly problematic. School-to-work pathways have become more socially segmented and the risk of under-employment and joblessness has increased for both vocationally and academically educated youth. Continuous passages have become less common and have given way to multiple entries and exits between schooling and working, under-employment, unemployment and domestic work. This edited volume of empirical studies is based on a series of comparable longitudinal research projects which draw on survey and biographical data from important players in the international economy, the USA, Great Britain, Canada and Germany. The studies document that social and gender inequality is a persistent structural feature that restricts the possibilities to take advantage of educational opportunities and career options. Furthermore, different institutional arrangements are shown to play a crucial role in distributing transition opportunities in a more equal way.

Kerr, Dunlop, Harbinson and Myers (1960) call attention to exogenous factors that can increase the supply of skilled workers. They contend that advanced industrial societies upgrade the quality and the skills of the labour force by increasing its education and human capital. Thus employers can increasingly shift workers from one job to another with relatively little specialized training that is substitutability of workers for one another increases over time. Though skill upgrading is directly achieved by technological change in industry, it may be also indirectly achieved
through the growth of the educated labour force. Such exogenous sources of change must be controlled in evaluating the effects of technological change.

Sonnentag (1995) reports findings of a field study examining expertise in 29 software development projects. Using a peer nomination method, 33 out of 200 subjects were characterized as excellent software professionals. Excellent software professionals are described as having high technical and computational knowledge, a high level of social skills, and as using a method-oriented working style. They have a broader, not longer professional experience than do their colleagues. Excellent and average software professionals do not differ with respect to time spent on typical software development activities such as design, coding, or testing, but excellent software professionals are more often engaged in review meetings and consultations than are other team members.

STUDIES RELATED TO SKILLS REQUIREMENT IN THE GLOBAL WORK ARENA

Sidhu, I., Marvel, M., Yassine, A., Vojak, B., And Hollis, L, (2004) over the course of six months, conducted "in-depth pilot interviews with high ranking technology executives from different industries to understand the impact of globalization on the changing nature of engineering in the United States. The discussions centered on the job functions likely to be outsourced, and the skills that will be required of engineering roles likely to remain or grow in demand within the United States." The results of the interviews showed that each company emphasized skills beyond fundamental engineering theory which they maintained will become increasingly important with the continued effect of globalization. These skills primarily include 1) projects that integrate wider and more holistic thinking about product or service
objectives and 2) softer skills including (global) teamwork and communication skills. This category potentially includes foreign languages and foreign exchange programs.

Richard J. Murnane, John B. Willett and Frank Levy (1995) Using data from two longitudinal surveys of American high school seniors, it is found that basic cognitive skills had a larger impact on wages for 24-year-old men and women in 1986 than in 1978. This shows the increasing importance of cognitive skill in the work life of individuals.

Daniel Bell (1973) in his book ‘The Coming of Post-Industrial Society’ has argued that post-industrial society is characterized by the pre-eminence of the professional and technical class; the primacy of theoretical knowledge; mechanisms for the planning or control of technology; and “a new intellectual technology”, by which Bell meant an enhanced ability to analyze a large number of complex variables under conditions of uncertainty. Bell placed emphasis on the future role of higher education, arguing that “the major problem for the post-industrial society” would be a human resources one: higher education would need to be able to meet these needs.

Stehr (1994) is of the view that Bell’s identification of theoretical knowledge as a new central principle of society is a reminder that what, in modernity, is described as “knowledge” is thought by some writers to consist largely of symbolic representations of things. This highly-differentiated set of “objectified” understandings, it is argued, now mediates our relationship with the natural world and provides the basis for social understanding and cohesion in modern societies.

According to Castells (2000) the knowledge society has also been presented in terms of the “network society”, where, it is argued, the dominant role of IT is changing our understanding of what knowledge is, and is determining how it can be used.
Roy Nash (1990) explains Bourdieu’s best known theoretical principles, conceptual devices and political intentions. He theorizes that what is taught to younger generations is dependent on the varying degrees of social, economic, and cultural capital. Those cultures have gained cultural capital and are considered the dominant group among the rest. However, in order to acquire cultural capital one must undergo indiscernible learning and these cultural norms must be used in the earliest days of life. Through Cultural Reproduction, only those members of the dominant culture can acquire knowledge in relation to the way it is taught from within this cultural system. Therefore, those who are not members of the dominant culture are at a disadvantage to receive cultural information, and therefore will remain at a disadvantage.

Paul A. David and Dominique Foray (2003) This article provides an introduction to fundamental issues in the development of new knowledge-based economies. After placing their emergence in historical perspective and proposing a theoretical framework that distinguishes knowledge from information, the authors characterize the specific nature of such economies. They go on to deal with some of the major issues concerning the new skills and abilities required for integration into the knowledge-based economy; the new geography that is taking shape (where physical distance ceases to be such an influential constraint); the conditions governing access to both information and knowledge, not least for developing countries; the uneven development of scientific, technological (including organizational) knowledge across different sectors of activity; problems concerning intellectual property rights and the privatization of knowledge; and the issues of trust, memory and the fragmentation of knowledge.
Braude, Lee (1975) The relationship between work, society, and the individual is explored in sociological terms, proceeding under the assumption that what people are is in large measure a function of what they do. He discusses various aspects of work by examining the process of acquiring professional status and work identity.

Walter W. Powell and Kaisa Snellman (2004) The knowledge economy is defined as production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources. Evidence is drawn from patent data to document an upsurge in knowledge production and show that this expansion is driven by the emergence of new industries. The debate over whether new forms of work that embody technological change have generated more worker autonomy or greater managerial control has been examined. And the distributional consequences of a knowledge-based economy with respect to growing inequality in wages and high-quality jobs are assessed.

Ravi S. Sharma, Elaine W.J. Ng, Mathias Dharmawirya, Chu Keong Lee, (2008) The authors first synthesize the related research literature covering the areas of knowledge-based economies, knowledge societies and knowledge policies. A model using 13 dimensions is then developed, which the authors claim is critical for creating a knowledge community in the digital economy. The model is validated against critique from a Delphi panel of researchers in the area. Findings reveal that while creating a knowledge society encompasses dimensions pertaining to infrastructure, governance, talent and culture- intangible assets are crucial to sustaining such societies. Governance and culture are instances of such intangibles. Talent may seem
to be tangible but the human capacity for learning and development, which leads to an innovative culture, is less so.

**STUDIES RELATED TO CULTURAL ASPECTS OF PROFESSIONS**

**Pierre Bourdieu (1986)** has led to the consideration of human capital, social capital and cultural capital as important features of contemporary social and economic organisation – though, Bourdieu has argued, all are essentially based on economic capital.

According to **Szreter (2000)** knowledge is essentially socially embedded. The concept of social capital has been considered to be helpful in understanding the creation and application of knowledge within organizations.

According to **O'Reilly, Chatman & Caldwell (1991)**, newcomers are socialized and assimilated into the organization and those who do not "fit" the organization's culture leave. Congruency between an individual's culture and that of the organization is the foundation of person-organization fit. Another factor that is rarely considered in socialization research is the relative strength of the socialization process. The fit of employees can be intensified by the strength of the socialization process.

**Allen and Meyer (1990)** Institutionalized socialization provides newcomers with explicit guidelines about the sequence and timing of their progression in an organization. It is characterized by a structured program that encourages a custodial role orientation (i.e. newcomers passively accept preset roles and thus maintain homogeneity).

**Alice Sullivan (2007)** discusses the ways in which parents may transmit educational advantage to their children through cultural rather than economic means, and the
forms of knowledge and skill which may be considered as 'cultural capital'. An operationalisation of cultural knowledge is discussed, and empirical evidence is presented on differences in levels of cultural knowledge between the children of graduates and non-graduates.

**Yuxiao Wu (2008)** Previous studies on educational stratification in socialist China focused on how changing macro political processes and state policies affected the patterns of educational attainment, while paying less attention at the mechanisms of the intergenerational transmission of educational inequality. Employing the cultural capital perspective, this article explores the relationship between cultural capital and children's educational attainment in urban China during the entire history of communist rule from 1949 to 1996. Using data from a nationally representative sample of Chinese urban adults conducted in 1996, this article addresses important issues about the social reproduction of educational inequalities in a socialist context. It finds that cultural capital has significant positive effects on children's educational attainment even after controlling for measures of family background. Moreover, the findings provide evidence that both the cultural reproduction model and the cultural mobility model have applicability to the Chinese case. Another finding is that the effects of cultural capital on educational attainment vary with the changing macro political processes in different historical periods in China. The results imply that the process of social stratification in socialist China has been shaped by massive state intervention.

**Marshall J. Howard, H. Ray Hoops and Archie J. McKinnon (1970)** investigated the effect of socioeconomic status upon selected oral communication skills of 198 children. Four subtests of the Illinois Test of Psycholinguistic Abilities and a portion
of the Pre-School Inventory were administered to all subjects on an individual basis. The results showed that children from higher socio-economic backgrounds were more competent in certain areas investigated than were lower status children.

Surja Datta and Mohammed Saad (2008) argue that the recent success that India has enjoyed in the domain of outsourcing of services can be explained through the triple helix paradigm of university–industry–government networks albeit in a manner that does not conform strictly to the existing notions of triple helix. It presents an analytical discussion on offshore outsourcing focusing on the heightened sense of uncertainty that prevails in this particular form of procurement. It is suggested here that one of the ways of managing uncertainty is to leverage personal and social ties which are constitutive of the social capital of firms engaged in such economic exchanges. Second, it looks at the case of India through in terms of social networks and the triple helix thesis and illustrates how university–industry–government networks and the social capital of the firms involved have played a central role in India’s success in the export of knowledge-intensive services.

Simon Gunn (2005) This article examines the ways in which Pierre Bourdieu's work on culture and cultural capital can be applied to the study of the English middle class in the nineteenth and twentieth centuries. Drawing on a wide historical literature, the article argues for the significance of culture as a constitutive element of middle-class identities in England since 1800. It goes on to examine Bourdieu's ideas of 'objectivated', 'institutionalized' and 'incorporated' cultural capital, in the context of family, inheritance, education and the body. The article identifies changes in the historical forms which cultural capital has taken and emphasizes the importance of analyzing family processes of intergenerational transmission.
Hans Westlund (2006) analyzes the social capital of the growing knowledge economy. The theoretical part discusses social capital as an economic concept, its relation to traditional capital theory and its role as a spatial externality. A theory of the social capital of the enterprise is developed and social capital's importance for entrepreneurship, innovation and regional development is analyzed. The empirical part compare some central aspects of social capital of three different socio-economic systems: the US, Japan and Sweden, regarding labour market relations, innovation systems and the civil societies. The social capitals of the knowledge intensive biotech industries of the three countries are studied and compared.

Mike Savage, Alan Warde and Fiona Devine (2005) explored the potential of Bourdieu's approach to capital as a way of understanding class dynamics in contemporary capitalism. Recent rethinking of class analysis has sought to move beyond what Rosemary Crompton (1998) calls the 'employment aggregate approach', one which involves categorizing people into class groups according to whether they have certain attributes (e.g. occupations).

Bowles and Gintis (1976) were among the first to argue that non-cognitive traits and behaviors are more important than cognitive skills in determining schooling and employment outcomes. Now, 25 years later, these authors (Bowles & Gintis 2002) claim that the ensuing literature vindicates their position. The discussion is located within the larger literature that has appeared during this time period.

George Farkas (2003) reviewed studies on the roles played by cognitive skills and non-cognitive traits and behaviors in stratification processes. There is much evidence for this claim, although it remains unresolved. This literature provides an emerging
interdisciplinary paradigm for the study of socioeconomic attainment, including differentials by social class, race, and ethnic background.

STUDIES RELATED TO IMPORTANCE OF PROFESSIONALISM AND TEAM WORK IN THE GLOBAL WORK ARENA

Julia Evetts (2003) analyzed and explained the appeal of the concepts of profession and professionalism and the increased use of these concepts in different occupational groups, work contexts and social systems. The paper suggested that a shift of focus is required from a preoccupation with defining 'profession' to analysis of the appeal to 'professionalism' as a motivator for and facilitator of occupational change. Then the paper examines two past, alternative and contrasting, sociological interpretations of professionalism (as normative value system and as ideology of occupational powers). The paper argues that, in the 1990s, a third interpretation has developed which includes both normative and ideological elements. Sociologists have returned to the concept of professionalism in attempts to understand occupational and organizational change and the prominence of knowledge work in different social systems and global economies.

Kathleen Gerson and Jerry Jacobs (2004) emphasized that changes in work time are unevenly distributed across occupations in the U.S. According to these scholars, "the decade-long debate over whether Americans are working longer hours is misleading. Indeed, white well-educated professionals are working more hours than they used to, others with less education are working fewer." Managers and professionals tend to have the longest work weeks.
According to Peter Kuhn (2008), an economist, overtime labour among these workers is influenced by "the incentivization of white-collar work": more compensation for longer hours and more job commitment, with implied penalties if you don't give your all.

According to Leipzig (2002) the average work week of professionals varies between 43 and 62 hours. The work time of software programmers, engineers, technicians is influenced by a variety of factors, including work culture, unionization, programming methodology, and labor supply. Peer and supervisor pressure contribute to the amount of overtime hours.

Sawyer S and Guinan P. J (1998) presented data that describe the effects on software development performance due to both the production methods of software development and the social processes of how software developers work together. Data from 40 software development teams at one site that produces commercial software are used to assess the effects of production methods and social processes on both software product quality and team performance. Findings indicate that production methods, such as the use of software methodologies and automated development tools, provide no explanation for the variance in either software product quality or team performance. Social processes, such as the level of informal coordination and communication, the ability to resolve intragroup conflicts, and the degree of supportiveness among the team members, can account for 25 percent of the variations in software product quality. These findings suggest two paradoxes for practice: (1) that teams of software developers are brought together to create variability and production methods are used to reduce variability, and (2) that team-level social processes may be a better predictor of software development team performance than
are production methods. These findings also suggest that factors such as other social actions or individual-level differences must account for the large and unexplained variations in team performance.

Arne L. Kalleberg and Ivar Berg (1987) provide a conceptual framework that draws together theory and data that inform understanding of the key work structures and how they emerge and evolve from a sociological perspective. This framework provides a systematic way of studying issues related to work and industry both within and among societies. It helps to understand specific correlates and consequences of work.

Lennart G. Svensson (2006) Many professional occupations have acquired a new environment and new conditions for their legitimacy. Decentralization, deregulation, privatization and new market forms have turned many professional work organizations, including schools, into clearer and more delimited organizations. Thus, there is a demand for a new professionalism in the discourse on changes and leadership of work organizations. Professionalism is strongly related to confidence in abstract systems and institutions as well as trust in individual professional practitioners. A minor semantic questionnaire study of the concept of professionalism was conducted. Results showed a very strong emphasis upon knowledge, competence and skill, and on the coupling with professions and professional practice. Professionalism was regarded by respondents as contextual competence rather than as a general capability. Practical knowledge, experience and knowledge in use were stressed over theoretical knowledge and formal education. Moreover, the concept had a strong positive connotation. Professionalism was always interpreted in the study as a phenomenon on the individual level and never on the organizational level. A cognitive
aspect was completely dominant, a clear minority of respondents indicated an affective aspect, another clear minority expressed an ethical and moral aspect. Authority, licence and legitimation were barely mentioned. The concept of professionalism was not directly linked to confidence or trust, but only indirectly through concepts such as ethics and responsibility. Conversely, however, it was the cognitive attitudes towards professionalism that formed the decisive basis for trust in professionals.

Julia Evetts (2006) indicates some current and contemporary research questions about professionalism considered to be important to researchers in the field from North America, Europe and worldwide. The article begins by offering an alternative, more pragmatic, view of the definitional question and argues that most researchers have accepted definitional uncertainty and moved on. Current research questions include a reappraisal and reassessment of professionalism as a normative value – and a move away from market closure as the dominant paradigm. In addition, there are new directions in the analysis that focus on the discourse of professionalism as a mechanism for the control of work and workers.

Erran Carmel and Steve Sawyer (1998) discussed the characteristics of packaged software versus information systems (IS) development environments that capture the differences between the teams that develop software in these respective industries. The analysis spans four levels: the industry, the dynamics of software development, the cultural milieu, and the teams themselves. Finds that, relative to IS, the packaged software industry is characterized by intense time pressures, less attention to costs, and different measures of success; the packaged software development environment is characterized by being a “line” rather than “staff” unit, having a greater distance from
the actual users/customers, a less mature development process; the packaged software
cultural milieu is characterized as individualistic and entrepreneurial; the packaged
software team is characterized as less likely to be matrix managed and being smaller,
more co-located, with a greater shared vision.

Mayuram S. Krishnan (1998) examined the impact of team factors in software
development, such as the domain and language experience of the team members and
the personnel capability of the team, on the costs and quality of the software products.
The measure of the quality of the software products is based on the number of unique
field problems that customers reported. The analysis, based on data collected on 37
software projects from a leading firm in the packaged software industry, indicates that
software teams with higher levels of personnel capability exhibit significantly higher
productivity and quality in the software products they deliver. A case study of one of
the most successful package software development efforts at this firm highlights the
important aspects of team dynamics in a highly successful software project.

STUDIES RELATED TO SOFTWARE SERVICES INDUSTRY

Anthony D'Costa and E. Sridharan (2004) In this timely study, the innovations in
India's information (IT) industry are examined in detail. Globally the IT Industry has
experienced phenomenal growth. The book examines the issues surrounding the
analysis of the Indian IT sector on a global, national, regional, firm, and product level
and the significance of national policies to sustain the competitiveness of the Indian
IT sector.

Govindan Parayil, ed.(2006) In this theoretically and empirically engaging volume,
the contributors demonstrate that despite the dynamism of India's software industry
and the rhetorical flourishes of industry leaders, at present, the benefits of the revolution in information and communication technologies (ICTs) touch only the hundreds of thousands with the right skills and access. India still needs to do more to bring the benefits of ICTs to the hundreds of millions of its citizens still living in acute poverty. The contributors take stock of the political economy implications of informational development in India.

Paul Thompson, (1997) Paul Thompson provides a concise and comprehensive introduction to the debates on the labour process. He sets out and compares the established traditions in industrial sociology and the analyses of Marx and Braverman. He goes on to explore contemporary debates on deskilling and degradation, and Taylorism and structures of control. He also covers two crucial areas neglected in early debates: legitimation and consent at work, and the effects of the sexual division of labour.

Ted Tschang (2001) opines that the Indian software industry has come to be regarded by developing countries the world over as a model for how they can leapfrog stages of industrial development. Its success is a story of hard work and fortuitous circumstances: the hard work being the building of a world class pool of computer programming talent; the fortuitousness being the increasing demand for personnel in the US information industry. This study examines some of the factors in that success by focusing on the basic characteristics of India’s skills and organizations. The limitations of the current trajectory, along with scenarios for the evolution of the industry, are also examined. The basis for the Indian software industry’s growth actually goes back decades, to the formative years when Indian engineering and scientific talent was first developed in national and educational and research institutions.
Felix B. Tan and Kallaya Leewongcharoen (2005) contends that the factors that contribute to IT industry success in developing countries are likely to differ somewhat from those that play a role in small developed countries. It is opined that research to date on IT industry success has neglected developing countries. This study therefore presents an alternative IT industry success model for developing countries. It adapts Ein-dor, Myers, and Raman’s (1997) model in developing such a conceptual model. The adapted framework is then applied in a study of IT industry in a developing country—Thailand. They found IT-related foreign direct investment to be vital to IT industry success in Thailand. Unlike findings from earlier studies on small developed countries, geographical location and to a lesser extent government investment promotion policies are also important to IT industry success in a developing country. These findings support the view that there are differences in the factors that affect IT industry success in developed and developing countries.

C Ramachandraiah (2003) provides the fact that the IT industry in Andhra Pradesh has several advantages with a large pool of scientific manpower and a proactive state government. Software exports have grown impressively in the last decade and IT-enabled services are likely to play a significant role in the creation of employment opportunities. The basic challenges lie in improving the social sectors such as education, health, etc, and developing the infrastructure. If these problems are not tackled on a priority basis, the fast-growing IT sector will leave the majority of the population behind, leading to a more polarized society.

Ashish Arora (2001) provides an analytical description of the Indian software industry, with a special focus on the software exports from India. The Indian software industry is remarkable in a number of respects. It is service rather than product oriented; heavily export oriented, and is largely managed by professional and
entrepreneurial managements. Although the industry has grown in spectacular fashion, sustaining this performance will pose a number of challenges. In order to counteract the widely reported shortages of skilled software professionals and the possible competition from other low wage, human capital rich countries, Indian firms are trying to move up the value chain by acquiring deeper knowledge of business domains and management capability, and to reduce costs by developing superior methodologies and tools.

**Ashwani Saith And M. Vijayabaskar (eds), (2005)** The articles by Suma Athreye and Joseph along with Abraham deal with two crucial drivers of IT sector, namely, the availability of manpower and nature of technological capability. This emphasizes the need for right kind of manpower for the success of IT industry.

**Abhishek Pandey, Alok Aggarwal, Richard Devane, and Yevgeny Kuznetsov (2004)** have emphasized the fact that Indian Diaspora played a crucial role in making India leapfrog in the IT sector.

**Sendil K. Ethiraj, Prashant Kale, M. S. Krishnan, Jitendra V. Singh (2005)** Recent years have witnessed a surge of interest in the notion of capabilities as an important source of competitive advantage. This recognition has, in turn, placed emphasis on the question of where and how these capabilities emerge and how they influence firm performance. Using a large sample of detailed project-level data from a leading firm in the global software services industry, the paper attempts to empirically study the importance of capabilities. It is found that two broad classes of capabilities are significant. The first class, which we label client-specific capabilities, is a function of repeated interactions with clients over time and across different projects. This learning from repeated interactions with a given client reduces project execution costs...
and helps improve project contribution. The second class, termed project management capabilities, is acquired through deliberate and persistent investments in infrastructure and systems to improve the firm’s software development process.

Nirupam Bajpai and Navi Radjou (2000) present the view that in the emerging knowledge-based global economy, the sustainable competitive advantage of nations will reside not in their possession of natural resources or cheap labour force, but in their ability to harness their countries’ intellectual assets. As such, the knowledge revolution offers a unique chance to leapfrog entire stages of development. This study argues that in order to make such a leap Tamil Nadu needs to initiate a knowledge-led development policy that builds on the state’s successful IT industry. This study proposes a roadmap to raise the global competitiveness of Tamil Nadu’s IT industry, through strengthening both the demand and the supply.

Govindan Parayil (2005) in his study on ‘Digital Divide and Increasing Returns: Contradictions of Informational Capitalism’, emphasizes that the far reaching advances in information and communications technologies (ICTs) in tandem with the globalization of trade, investment, business regulation, production and consumption have signaled the rise of “informational capitalism.” This study reflects on the social and economic inequalities of informational capitalism by examining two contradictions of ICTs-led economic development—increasing returns and digital divide. Two main and interrelated strands of evidence are presented: first, contrary to expectations that rising income per capita will tend to reduce wealth and wage disparities, the distribution of income and wealth both between countries and individuals has increased in the information age; second, knowledge production is a self-reinforcing cycle that tends to disproportionately reward some and exclude
others. The so-called digital divide is as much a symptom and a cause of these broader techno-economic phenomena and regarding it as a simple issue of connectivity is simplistic and reductive.

The above review emphasizes the fact that there is a similarity in the socioeconomic background of software professionals in terms of parental education, income and social class which provides similar socialization process for the software professionals. Apart from these, studies on skills and cultural capital at workplace highlights the importance of socialization process in present day occupations. This research focuses on socialization process undergone by software professionals in terms of family, schooling and class and the resultant acquisition of skills and cultural capital required at the professional level. The following chapter explains the methodology adopted for the study.